The Science Society of Thailand
Under the Patronage of His Majesty the King
and Faculty of Science, Chiang Mai University

STT50

The 50th International Congress on Science, Technology and Technology-based Innovation

25th – 27th November 2024

The Empress Hotel, Chiang Mai, Thailand

https://stt50.scisoc.or.th

Science x Creativity

Crafting the World

Program book

ทรงพระเจริญ

PROGRAM BOOK

The 50th International Congress on Science, Technology and Technology-based Innovation (STT50)

Science x Creativity: Crafting the World

November 25th-27th, 2024

The Empress Hotel, Chiang Mai, Thailand

Organized by:

The Science Society of Thailand under the Patronage of His Majesty the King
in Association with
Faculty of Science, Chiang Mai University

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WELCOME MESSAGE FROM THE PRESIDENT OF THE SCIENCE SOCIETY OF THAILAND UNDER THE PATRONAGE OF HIS MAJESTY THE KING

It is with great excitement and anticipation that I extend a heartfelt invitation to you for the 50th International Congress on Science, Technology and Technology-based Innovation (STT50). This prestigious event, under the theme "Science X Creativity: Crafting the World," will take place in the enchanting province of Chiang Mai, Thailand.

The Science Society of Thailand under the Patronage of His Majesty the King, in collaboration with the Faculty of Science, Chiang Mai University, is proud to host this landmark congress. STT50 represents a significant milestone in our journey, marking five decades of dedication to fostering scientific excellence and technological innovation.

This year's theme highlights the symbiotic relationship between science and creativity, emphasizing how these two forces combine to drive progress and shape our world. We are bringing together leading scientists, technologists, and innovators from around the globe to share their insights, research findings, and visionary ideas.

Your participation is crucial in making this congress a success. We believe that your unique perspectives and contributions will enhance the dialogue and enrich the collective experience of all attendees. We invite you to join us in celebrating this momentous occasion and to be part of a community that is committed to harnessing the power of science and creativity to craft a better world.

Please mark your calendars and prepare to embark on a journey of discovery, inspiration, and innovation at STT50.

Associate Professor Thanuttkhul Mongkolaussavarat, Ph.D.

President, The Science Society of Thailand Under the Patronage of His Majesty the King

WELCOME MESSAGE FROM THE CHAIRPERSON OF THE 50TH INTERNATIONAL CONGRESS ON SCIENCE, TECHNOLOGY AND TECHNOLOGY–BASED INNOVATION

Welcome to the 50th International Congress on Science, Technology and Technology-based Innovation (STT50) in the theme of "*Science x Creativity: Crafting the World* "

We are delighted to invite you to the picturesque province of Chiang Mai, Thailand, where the vibrant nexus of science and creativity will unfold. This conference is designed to explore the powerful synergy between innovation and artistic expression, and how this fusion can influence and advance the world of science.

Engage in a rich program featuring thought-provoking keynote addresses from world-leading scientists and creative thinkers, detailed panel discussions, and collaborative workshops aimed at pushing the boundaries of conventional thinking. You'll have opportunities to connect with peers from diverse fields, from researchers and practitioners to educators and policymakers, all sharing a common interest in the creative dimensions of scientific work.

Immerse yourself in an environment where creativity ignites scientific inquiry, leading to breakthroughs and discoveries. Participants are encouraged to contribute their insights and research findings, with selected papers being considered for publication in respected scientific journals. This platform not only supports your professional growth but also amplifies your contributions to the global scientific community.

Join us for a memorable experience that promises to enrich your professional journey and broaden your horizons in the enchanting setting of Chiang Mai.

We eagerly await your participation at this intersection of knowledge and creativity, where you can contribute to shaping the future of science and society.

Warmest regards,

Professor Pranut Potiyaraj, Ph.D., CText FTI

Chairperson of STT50

WELCOME MESSAGE FROM THE HOST OF THE 50TH INTERNATIONAL CONGRESS ON SCIENCE, TECHNOLOGY AND TECHNOLOGY–BASED INNOVATION

Welcome to the 50th International Congress on Science, Technology, and Technology-Based Innovation (STT50). It is a great honor to serve as the host institution for this prestigious science and technology conference at The Empress Hotel in Chiang Mai, Thailand, from November 25th to November 27th, 2024.

During the disruptive era, creativity has propelled various breakthrough scientific developments, such as robotics, artificial intelligence, and innovations inspired by nature. Regarding the role of the scientific community, this is an exceptional occasion to gather together innovators and scientists to exchange concepts, and to push the envelope in order to advance science and technology. Hence, we have chosen the motto "*Science x Creativity: Crafting the World*" for this occasion to bring to the attention of all participants at the "*Chiang Mai Creative City,*" a renowned hub for creativity, surrounded by an inspiring natural setting. During the event, Chiang Mai will be in its ideal season thanks to the pleasant weather and the numerous traditional festivals.

Five STT congress events were previously hosted by our faculty in 1978, 1984, 1989, 1997, and 2012. It is a momentous occasion to commemorate the fifth decade of STT and the sixth decade of the Faculty of Science at CMU in 2024. Regarding academic activities and the reception of Thai and worldwide participants, we are diligently working towards ensuring that the congress is enjoyable for all participants. We believe that this congress will lead to remarkable scholarly achievements that will not only promote deeper integration of science and technology but also contribute to the progress of the nation's economy and society.

We hope that you will all enjoy the 50th International Congress on Science, Technology, and Technology-Based Innovation hosted by Chiang Mai University.

Distinguished Professor Torranin Chairuangsri, Ph.D.

Dean, Faculty of Science, Chiang Mai University

HISTORY OF THE CONGRESS ON SCIENCE AND TECHNOLOGY OF THAILAND

International Congress on Science, Technology and Technology- based Innovation (STT), originally named "The Congress on Science and Technology of Thailand" with the same abbreviation of STT, is one of the most important scientific meetings in Thailand. It was firstly organized in 1971 by the Science Society of Thailand (SST) and Chulalongkorn University. Since then, the alternative Universities in Thailand have gone through the bidding for co-organizing the STT in the following years. It is the annual national congress for 45 years. To mark the 72nd Anniversary of the Science Society of Thailand in 2020, the congress has been changed to the international meeting.

The aim is to create scientific forum for national and international scientists and technologists as well as young Thai scientists from diversified fields of science and technology to meet and to provide them the opportunity to share and exchange their knowledge and experiences. It is our annual congress, which originally was the national meeting since 1971, but this year, it is its first time to be held as the international meeting.

Typically, the Congress Plenary Lecture is given by a Nobel Laureate in Science and Technology, followed by an honorable lecture of the Outstanding Scientist of Thailand in that particular year. During the Congress, lectures by several renowned invited speakers, panel discussions and hundreds of contributed papers from various areas of Science and Technology are presented orally or in the form of posters. In addition, the outstanding teacher awards, the young scientist awards, as well as the innovation awards and the national winners of high school student science projects are awarded in the Congress. An exhibition of advanced scientific and technological instruments and appliances from suppliers and enterprises are also the attractive event of the Congress.

ครั้งที่ ปี / วันที่ เดือน	ชื่อการประชุม	สถาบันเจ้าภาพร่วม	ประธาน (จำนวนผลงานวิจัย)	ประธานในพิธีเปิด
1. พ.ศ. 2514 26-27 พฤศจิกายน	การวิจัยทางวิทยาศาสตร์ กรุงเทพฯ 2514	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	ศ.ดร.ประชุมสุข อาชวอำรุง (83 เรื่อง)	-
2. พ.ศ. 2516 30 พฤศจิกายน - 2 ธันวาคม	การวิจัยทางวิทยาศาสตร์ กรุงเทพฯ 2516	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	ศ.ดร.ประชุมสุข อาชวอำรุง (219 เรื่อง)	-
3. พ.ศ. 2518 12-13 ธันวาคม	การวิจัยทางวิทยาศาสตร์ กรุงเทพฯ 2518	คณะวิทยาศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยมหิดล	ศ.ดร.กำจร มนุญปิจุ (249 เรื่อง)	-
4. พ.ศ. 2520 16-17 ธันวาคม	การวิจัยทางวิทยาศาสตร์ กรุงเทพฯ 2520	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	รศ.ดร.กำจัด มงคลกุล (344 เรื่อง)	-
5. พ.ศ. 2521 22-24 ธันวาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาภาคเหนือ	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	ศ.ดร.พรชัย มาตังคสมบัติ (232 เรื่อง)	-
6. พ.ศ. 2522 21-23 ธันวาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ บางแสน	ศ.ดร.พรชัย มาตังคสมบัติ (232 เรื่อง)	-
7. พ.ศ. 2523 4-6 ธันวาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยมหิดล	รศ.ดร.นัยพินิจ คชภักดี (233 เรื่อง)	สมเด็จพระเจ้าลูกเธอเจ้าฟ้าจุฬาภรณวลัยลักษณ์
8. พ.ศ. 2525 28-30 ตุลาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	รศ.ดร.สัณห์ พณิชยกุล (245 เรื่อง)	-

ครั้งที่ ปี / วันที่ เดือน	ชื่อการประชุม	สถาบันเจ้าภาพร่วม	ประธาน (จำนวนผลงานวิจัย)	ประธานในพิธีเปิด
9. พ.ศ. 2526 27-29 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาภาคตะวันออกเฉียงเหนือ	คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น	รศ.ดร.สัณห์ พณิชยกุล (174 เรื่อง)	รัฐมนตรีว่าการกระทรวงวิทยาศาสตร์ เทคโนโลยีและการพลังงาน (ฯพณฯ ดำรง ลัทธพิพัฒน์)
10. พ.ศ. 2527 25-27 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	ศ.ดร.มนตรี จุฬาวัฒนทล (280 เรื่อง)	นายกรัฐมนตรี (พลเอก เปรม ติณสูลานนท์)
11. พ.ศ. 2528 24-26 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์	ศ.ดร.มนตรี จุฬาวัฒนทล (251 เรื่อง)	สมเด็จพระเจ้าลูกเธอเจ้าฟ้าจุฬาภรณวลัยลักษณ์
12. พ.ศ. 2529 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ประสานมิตร	รศ.ดร.ภิญโญ พานิชพันธ์ (277 เรื่อง)	สมเด็จพระบรมโอรสาธิราชฯ สยามมกุฎราชกุมาร
13. พ.ศ. 2530 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่	รศ.ดร.ภิญโญ พานิชพันธ์ (420 เรื่อง)	สมเด็จพระเจ้าลูกเธอเจ้าฟ้าจุฬาภรณวลัยลักษณ์
14. พ.ศ. 2531 19-21 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีแห่งประเทศไทย	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย	ศ.ดร.จริยา บรอดเคลแมน (259 เรื่อง)	นายกรัฐมนตรี (พลเอก ชาติชาย ชุณหะวัณ)
15. พ.ศ. 2532 18-20 ตุลาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาทรัพยากรภาคเหนือ	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	ศ.ดร.จริยา บรอดเคลแมน (394 เรื่อง)	ผู้แทนสมเด็จพระเจ้าลูกเธอเจ้าฟ้าจุฬาภรณวลัยลักษณ์
16. พ.ศ. 2533 25-27 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ สถาบันเทคโนโลยีพระจอมเกล้า เจ้าคุณทหารลาดกระบัง	ศ.ดร.วิชัย ริ้วตระกูล (369 เรื่อง)	-
17. พ.ศ. 2534 24-26 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาทรัพยากรภาคเหนือ	คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น	ศ.ดร.วิชัย ริ้วตระกูล (349 เรื่อง)	-
18. พ.ศ. 2535 27-29 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาประเทศ	คณะวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์ ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	ศ.ดร.สุชาติ อุปถัมภ์ (297 เรื่อง)	-
19. พ.ศ. 2536 27-29 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาชายฝั่ง	คณะวิทยาศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ณ โรงแรมดุสิต เจ.บี.หาดใหญ่	ศ.ดร.สุชาติ อุปถัมภ์ (438 เรื่อง)	-
20. พ.ศ. 2537 19-21 ตุลาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาเศรษฐกิจ สังคม และสิ่งแวดล้อม	คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยธรรมศาสตร์ ณ เซ็นทรัลพลาซ่า	ศ.ดร.สมศักดิ์ พันธุวัฒนา (252 เรื่อง)	นายกรัฐมนตรี (นายชวน หลีกภัย)
21. พ.ศ. 2538 25-27 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาอุตสาหกรรม	คณะวิทยาศาสตร์ มหาวิทยาลัยบูรพา ณ โรงแรมแอมบาสซาเอร์ชิตี้ จอมเทียน ชลบุรี	ศ.ดร.สมศักดิ์ พันธุวัฒนา (354 เรื่อง)	นายกสภามหาวิทยาลัยบูรพา (นายเกษม จาติกวณิช)
22. พ.ศ. 2539 16-18 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อพัฒนาทรัพยากรมนุษย์	คณะวิทยาศาสตร์ มหาวิทยาลัยรามคำแหง ณ บางกอกคอนเวนชั่นเซ็นเตอร์ เซ็นทรัลพลาซา ลาดพร้าว	รศ.ดร.พิณทิพ รื่นวงษา (333 เรื่อง)	ผู้ว่าราชการกรุงเทพมหานคร (ดร.พิจิตต รัตตกุล)
23. พ.ศ. 2540 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อพัฒนาคุณภาพชีวิตในภูมิภาค	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่ ณ โรงแรมโลตัส ปางสวนแก้ว	รศ.ดร.พิณทิพ รื่นวงษา (495 เรื่อง)	รัฐมนตรีว่าการกระทรวงวิทยาศาสตร์ เทคโนโลยีและสิ่งแวดล้อม (นายยิ่งพันธ์ มนะสิการ)
24. พ.ศ. 2541 19-21 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาเศรษฐกิจที่มั่นคง	คณะวิทยาศาสตร์ มหาวิทยาลัยมหิดล ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	ผศ.ดร.ทิพาพร ลิมปเสนีย์ (463 เรื่อง)	นายกรัฐมนตรี (นายชวน หลีกภัย)
25. พ.ศ. 2542 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยี เพื่อการพัฒนาทรัพยากรท้องถิ่น	คณะวิทยาศาสตร์ มหาวิทยาลัยนเรศวร ณ โรงแรมอมรินทร์ลากูน พิษณุโลก	ผศ.ดร.ทิพาพร ลิมปเสนีย์ (581 เรื่อง)	รัฐมนตรีว่าการกระทรวงวิทยาศาสตร์ เทคโนโลยีและสิ่งแวดล้อม (ดร.อาทิตย์ อุไรรัตน์)
26. พ.ศ. 2543 18-20 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีสู่สหัสวรรษใหม่	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	รศ.ดร.ศุภวรรณ ตันตยานนท์ (739 เรื่อง)	-
27. พ.ศ. 2544 16-18 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการฟื้นฟูเศรษฐกิจไทย	มหาวิทยาลัยสงขลานครินทร์ ณ โรงแรม ลี การ์เดนส์ พลาซ่า	รศ.ดร.ศุภวรรณ ตันตยานนท์ (921 เรื่อง)	ผู้ว่าราชการจังหวัดสงขลา

ครั้งที่ ปี / วันที่ เดือน	ชื่อการประชุม	สถาบันเจ้าภาพร่วม	ประธาน (จำนวนผลงานวิจัย)	ประธานในพิธีเปิด
28. พ.ศ. 2545 24-26 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาเศรษฐกิจที่ยั่งยืน	คณะวิทยาศาสตร์ประยุกต์ สถาบันเทคโนโลยีพระจอมเกล้าพระนครเหนือ ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	รศ.ดร.สุรินทร์ เหล่าสุขสถิตย์ (834 เรื่อง)	สมเด็จพระเจ้าพี่นางเธอ เจ้าฟ้ากัลยาณิวัฒนา กรมหลวงนราธิวาสราชนครินทร์
29. พ.ศ. 2546 20-22 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาท้องถิ่น	คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น ณ ศูนย์ประชุมอเนกประสงค์ กาญจนาภิเษก	รศ.ดร.สุรินทร์ เหล่าสุขสถิตย์ (1039 เรื่อง)	รองนายกรัฐมนตรี (นายสุวิทย์ คุณกิตติ)
30. พ.ศ. 2547 19-21 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อสังคมและเศรษฐกิจฐานความรู้	คณะวิทยาศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ณ ศูนย์แสดงสินค้าและการประชุมอิมแพ็ค เมืองทองธานี	รศ.ดร.สุรินทร์ เหล่าสุขสถิตย์ (854 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
31. พ.ศ. 2548 18-20 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการพัฒนาที่ยั่งยืน	เทคโนธานี มหาวิทยาลัยเทคโนโลยีสุรนารี	รศ.ดร.สุรินทร์ เหล่าสุขสถิตย์ (1021 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
32. พ.ศ. 2549 10-12 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อการเศรษฐกิจพอเพียง เฉลิมฉลองการครองสิริราชสมบัติ ครบ 60 ปี ของพระบาทสมเด็จพระเจ้าอยู่หัว	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ณ ศูนย์การประชุมแห่งชาติสิริกิติ์	รศ.ดร.นภาวรรณ นพรัตนราภรณ์ (927 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
33. พ.ศ. 2550 18-20 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อโลกยั่งยืน เฉลิมฉลองมหามงคลเฉลิมพระชนมพรรษาครบ 80 พรรษาของพระบาทสมเด็จพระเจ้าอยู่หัว	มหาวิทยาลัยวลัยลักษณ์ จังหวัดนครศรีธรรมราช	รศ.ดร.นภาวรรณ นพรัตนราภรณ์ (802 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
34. พ.ศ. 2551 31 ตุลาคม - 2 พฤศจิกายน	วิทยาศาสตร์และเทคโนโลยีสำหรับโลกแห่งความท้าทาย	คณะวิทยาศาสตร์ สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง	รศ.ดร.นภาวรรณ นพรัตนราภรณ์ (777 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
35. พ.ศ. 2552 15-17 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่ออนาคตที่ดีขึ้น	คณะวิทยาศาสตร์ มหาวิทยาลัยบูรพา	รศ.ดร.นภาวรรณ นพรัตนราภรณ์ (854 เรื่อง)	ฯพณฯ องคมนตรี นายอำพล เสนาณรงค์
36. พ.ศ. 2553 26-28 ตุลาคม	วิทยาศาสตร์และเทคโนโลยีเพื่อสังคมที่ดีขึ้น	คณะวิทยาศาสตร์และเทคโนโลยี มหาวิทยาลัยธรรมศาสตร์	รศ.ดร.ธารารัตน์ ศุภศิริ (582 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
37. พ.ศ. 2554 10-12 ตุลาคม	วิทยาศาสตร์สร้างสรรค์ เพื่อสรรค์สร้างอนาคต	คณะวิทยาศาสตร์ มหาวิทยาลัยมหิดล	รศ.ดร.ธารารัตน์ ศุภศิริ (699 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
38. พ.ศ. 2555 17-19 ตุลาคม	วิทยาศาสตร์เพื่ออนาคตของมวลมนุษยชาติ	คณะวิทยาศาสตร์ มหาวิทยาลัยเชียงใหม่	รศ.ดร.ธารารัตน์ ศุภศิริ (690 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
39. พ.ศ. 2556 21-23 ตุลาคม	นวัตกรรมวิทยาศาสตร์ เพื่อชีวิตที่ดีขึ้น	คณะวิทยาศาสตร์ มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี	รศ.ดร.ธารารัตน์ ศุภศิริ (495 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
40. พ.ศ. 2557 2-4 ธันวาคม	วิทยาศาสตร์และเทคโนโลยีสู่วิถีพัฒนาอาเซียน	คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น	ศ.ดร. เปี่ยมสุข พงษ์สวัสดิ์ (543 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
41. พ.ศ. 2558 6-8 พฤศจิกายน	ประตูสู่อาเซียนด้วยวิทยาศาสตร์และเทคโนโลยี	มหาวิทยาลัยเทคโนโลยีสุรนารี	ศ.ดร. เปี่ยมสุข พงษ์สวัสดิ์ (384 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
42. พ.ศ. 2559 30 พฤศจิกายน – 2 ธันวาคม	ศาสตร์แห่งแผ่นดิน สู่นวัตกรรมเพื่ออนาคตที่ยั่งยืน	คณะวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์ ณ เซ็นทาราแกรนด์ แอท เซ็นทรัลพลาซาลาดพร้าว	ศ.ดร. เปี่ยมสุข พงษ์สวัสดิ์ (290 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
43. พ.ศ. 2560 17-19 ตุลาคม	เข้าใจวิทยาศาสตร์ เข้าถึงเทคโนโลยี สร้างนวัตกรรม นำสังคมยั่งยืน	คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ณ อาคารจามจุรี 10 จุฬาลงกรณ์มหาวิทยาลัย	ศ.ดร. เปี่ยมสุข พงษ์สวัสดิ์ (327 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
44. พ.ศ. 2561 29-31 ตุลาคม	วิทยาศาสตร์ และเทคโนโลยีในยุคพลิกผัน	สมาคมวิทยาศาสตร์แห่งประเทศไทยในพระบรมราชูปถัมภ์ ณ ศูนย์นิทรรศการและการประชุมไบเทค	รศ.ดร.สายวรุฬ ชัยวานิชศิริ (270 เรื่อง)	สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี

ครั้งที่ ปี / วันที่ เดือน	ชื่อการประชุม	สถาบันเจ้าภาพร่วม	ประธาน (จำนวนผลงานวิจัย)	ประธานในพิธีเปิด
45. พ.ศ. 2562 7-9 ตุลาคม	ต้นกล้านวัตกรรมสู่การพัฒนาที่ยั่งยืน	สำนักวิชาวิทยาศาสตร์ มหาวิทยาลัยแม่ฟ้าหลวง	รศ.ดร.สายวรุฬ ชัยวานิชศิริ (338 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรมสมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
46. พ.ศ. 2563 5-7 ตุลาคม	Power of Science to Achieve SDGs	คณะวิทยาศาสตร์ มหาวิทยาลัยรามคำแหง	ศ.ดร.สมเกียรติ งามประเสริฐสิทธิ์ (426 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรมสมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
47. พ.ศ. 2564 5-7 ตุลาคม	Sciences For SDGs: Challenges And Solutions	คณะศิลปศาสตร์และวิทยาศาสตร์ มหาวิทยาลัยเกษตรศาสตร์	ศ.ดร.สมเกียรติ งามประเสริฐสิทธิ์ (340 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรมสมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี
48. พ.ศ. 2565 29 พฤศจิกายน-1 ธันวาคม	Science and Technology for Advancing Towards SDGs	สำนักวิชาวิทยาศาสตร์ มหาวิทยาลัยวลัยลักษณ์	ศ.ดร.ประณัฐ โพธิยะราช (483 เรื่อง)	-
49. พ.ศ. 2567 23-25 มกราคม	SDGs for the Benefit of Mankind	คณะวิทยาศาสตร์ มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่	ศ.ดร.ประณัฐ โพธิยะราช (439 เรื่อง)	สมเด็จพระกนิษฐาธิราชเจ้า กรมสมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี

PROGRAM OVERVIEW

A program for STT50 Congress @ Empress Convention Centre / The Empress Hotel / Empress Premier Hotel, Chiang Mai

Code	Session/Symposium	November 25th, 2024		November 26th, 2024		November 27th, 2024
		AM	PM	AM	PM	AM
GO	GRAND OPENING CEREMONY + KEYNOTE SPEAKER	EMPRESS GRAND HALL (ECC)				
P	POSTER SESSION-SESSION / SYMPOSIUM / YRSS / JYRSS				HALLWAY (ECC)	
PN	PLENARY SPEAKER		EMPRESS GRAND HALL (ECC)	EMPRESS GRAND HALL (ECC)	EMPRESS GRAND HALL (ECC)	
	AWARDING CEREMONY-BEST ORAL & POSTER PRESENTATIONS AWARDING CEREMONY-YRSS / JYRSS					EMPRESS GRAND HALL (ECC)
A	SESSION A-PHYSICS / APPLIED PHYSICS		EMPRESS GRAND HALL (ECC)	EMPRESS GRAND HALL (ECC)	EMPRESS GRAND HALL (ECC)	
B	SESSION B-BIOLOGICAL SCIENCES		CHIANG MAI 1 and CHIANG MAI 2 (ECC)	CHIANG MAI 1 (ECC)	CHIANG MAI 1 (ECC)	
C	SESSION C-CHEMISTRY		CHIANG MAI 3 (ECC)	CHIANG MAI 3 (ECC)	CHIANG MAI 3 (ECC)	
D	SESSION D-MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI			BOARD ROOM 3 (ECC)	BOARD ROOM 3 (ECC)	
E	SESSION E-ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		NOPPHAKAO 1 AND NOPPHAKAO 3 (TEH)	NOPPHAKAO 1 (TEH)		
F	SESSION F-FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE		CHIANG MAI 5 (ECC)	CHIANG MAI 5 (ECC)		
SP1	SP1-MULTI-MESSENGER ASTRONOMY, COSMIC RAYS AND SPACE WEATHER IMPACTS	VIMARN 1 (TEH)				
SP2	SP2-BIOMATERIALS AND MEDICAL DEVICES		PETCHARAT 1 (TEH)			
SP3	SP3-MICROBIAL DIVERSITY AND SUSTAINABLE UTILIZATION			CHIANG MAI 2 (ECC)	CHIANG MAI 2 (ECC)	
SP4	SP4-CHALLENGES AND OPPORTUNITIES IN CLIMATE AND ENVIRONMENTAL CHANGES				NOPPHAKAO 1 (TEH)	
SP5	SP5-DATA SCIENCE AND DATA PRIVACY			PETCHARAT 1 (TEH)		
SP6	SP6-QUANTUM SCIENCE AND TECHNOLOGY		VIMARN 1 (TEH)			
SP7	SP7-CEMENT AND CONCRETE: SCIENCE, TECHNOLOGY AND APPLICATIONS TOWARDS GREEN AND SUSTAINABLE FUTURE					BOARD ROOM 3 (ECC)
SP8	SP8-THE SCIENCE OF RESTORING TROPICAL FOREST ECOSYSTEMS: 30 YEARS OF PROGRESS AND BEYOND			PETCHARAT 2 (TEH)	PETCHARAT 2 (TEH)	
SP9	SP9-GENERATIVE AI: AN EMERGING AI TECHNOLOGY				PETCHARAT 1 (TEH)	
SP10	SP10-UNIVERSITY – INDUSTRY RESEARCH COLLABORATION	PETCHARAT 2 (TEH)		NOPPHAKAO 3 (TEH)	NOPPHAKAO 3 (TEH)	
SP11	SP11-X-RAY CRYSTALLOGRAPHY	KINNAREE 1 (EPH)		KINNAREE 1 (EPH)		
SP12	SP12-RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY			VIMARN 2 (TEH)	VIMARN 2 (TEH)	
SP13	SP13-HARNESSING DIGITAL SCIENCE AND ENGINEERING FOR ENVIRONMENTAL SUSTAINABILITY				KINNAREE 1 (EPH)	
SP14	SP14-SCIENCE COMMUNICATION AND SCIENCE LITERACY			CHIANG MAI 4 (ECC)	CHIANG MAI 4 (ECC)	
SP15	SP15-YOUNG RISING STARS OF SCIENCE 2024 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2024 (JYRSS)				CHIANG MAI 5 (ECC)	CHIANG MAI 1-5 (ECC)
SP16	SP16-NATURE BASED SOLUTIONS FOR CLIMATE MITIGATION			VIMARN 1 (TEH)	VIMARN 1 (TEH)	
	MEETING OF THE SCIENCE DEANS			NOKYOONG (EPH)		
	ANNUAL MEETING OF THE SCISOC				NOKYOONG (EPH)	
	SCIENCE DEANS & CHAIR & KEYNOTE / PLENARY / INVITED SPEAKER RECEPTION		IMPERIAL BALLROOM (TEH)			
	STT50 CONGRESS BANQUET					EMPRESS GRAND HALL (ECC)

NOTE1 EMPRESS PREMIER HOTEL (EPH) > 2nd FL KINNAREE 1 / 3rd FL NOKYOONG
THE EMPRESS HOTEL (TEH) > 2nd FL VIMARN 1 to 2 AND IMPERIAL BALLROOM / 3rd FL NOPPHAKAO 1 to 3 AND PETCHARAT 1 to 2
EMPRESS CONVENTION CENTRE (ECC) > GROUND FL HALL WAY AND BOARD ROOM 1 to 4 / 2nd FL CHIANG MAI 1 to CHIANG MAI 5 / 3rd FL EMPRESS GRAND HALL

NOTE2 YIP LUNCH ROOM > CHAO NANG COFFEE SHOP Room 1st FL, THE EMPRESS HOTEL
PARTICIPANT LUNCH ROOM > 1. IMPERIAL BALLROOM 2nd FL, THE EMPRESS HOTEL 2. PANDA PALACE 2nd FL, THE EMPRESS HOTEL

NOTE3 SCISOC BOARDROOM > BOARD ROOM 1 (ECC)

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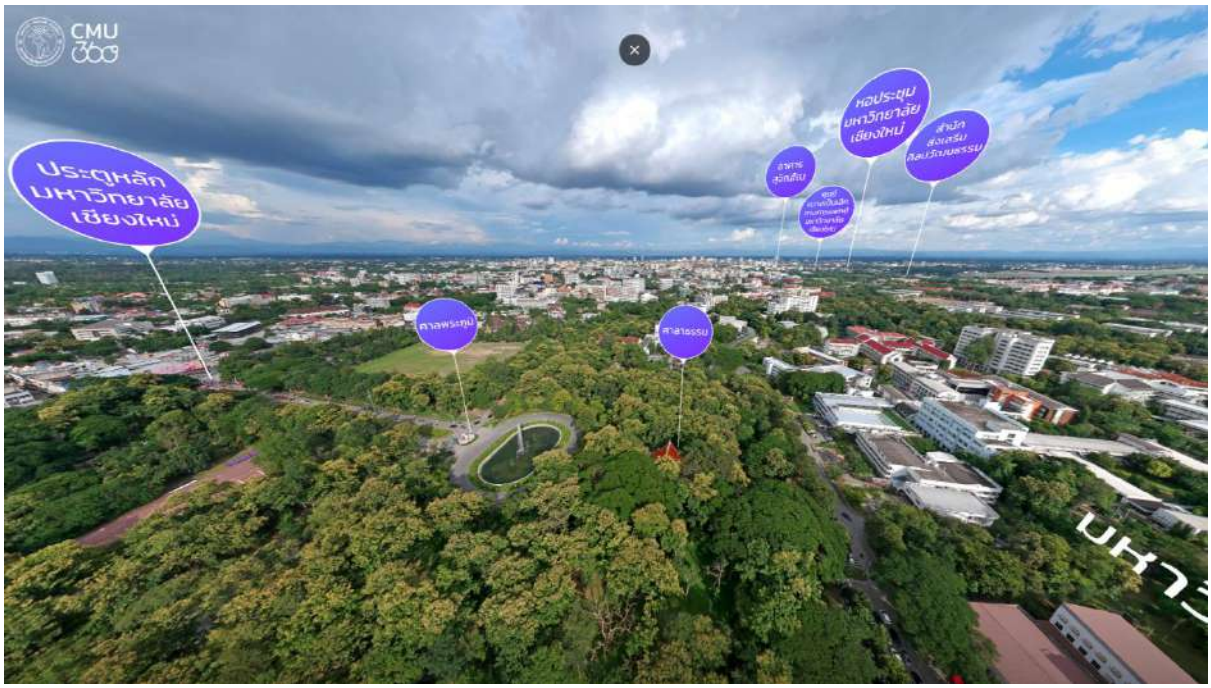
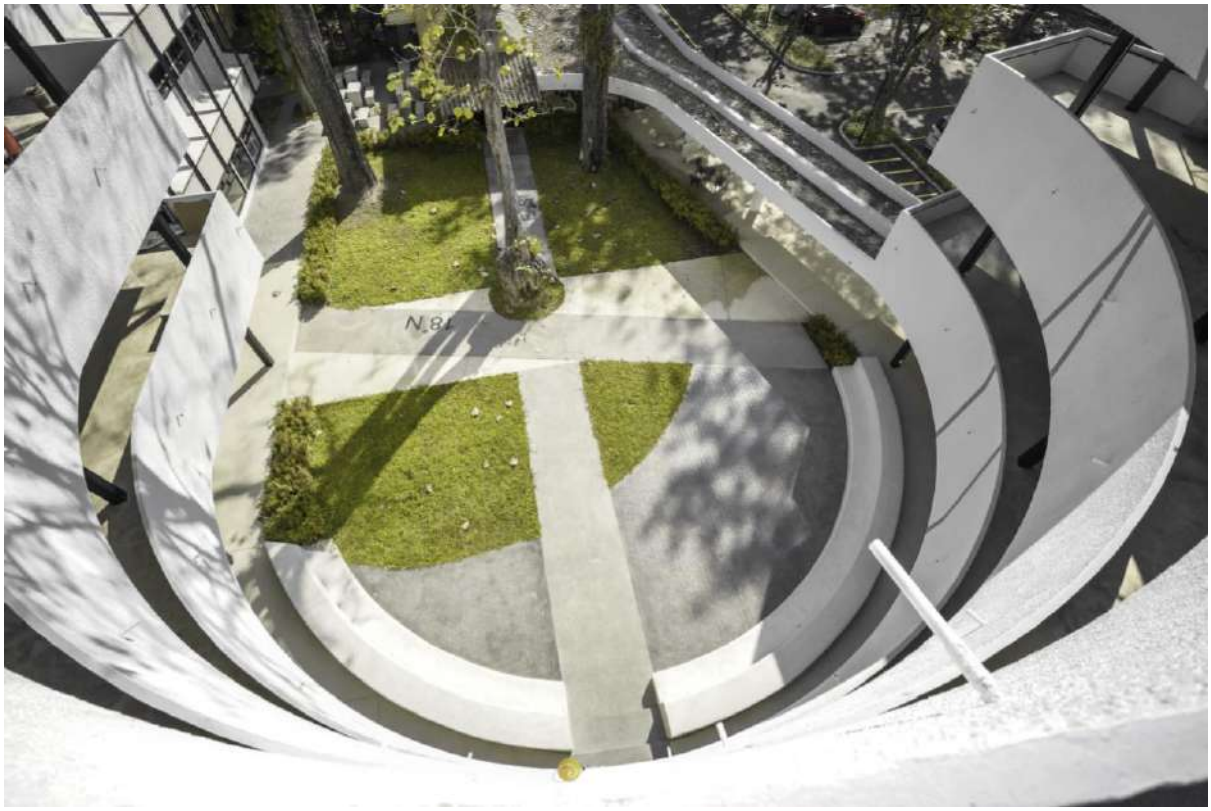
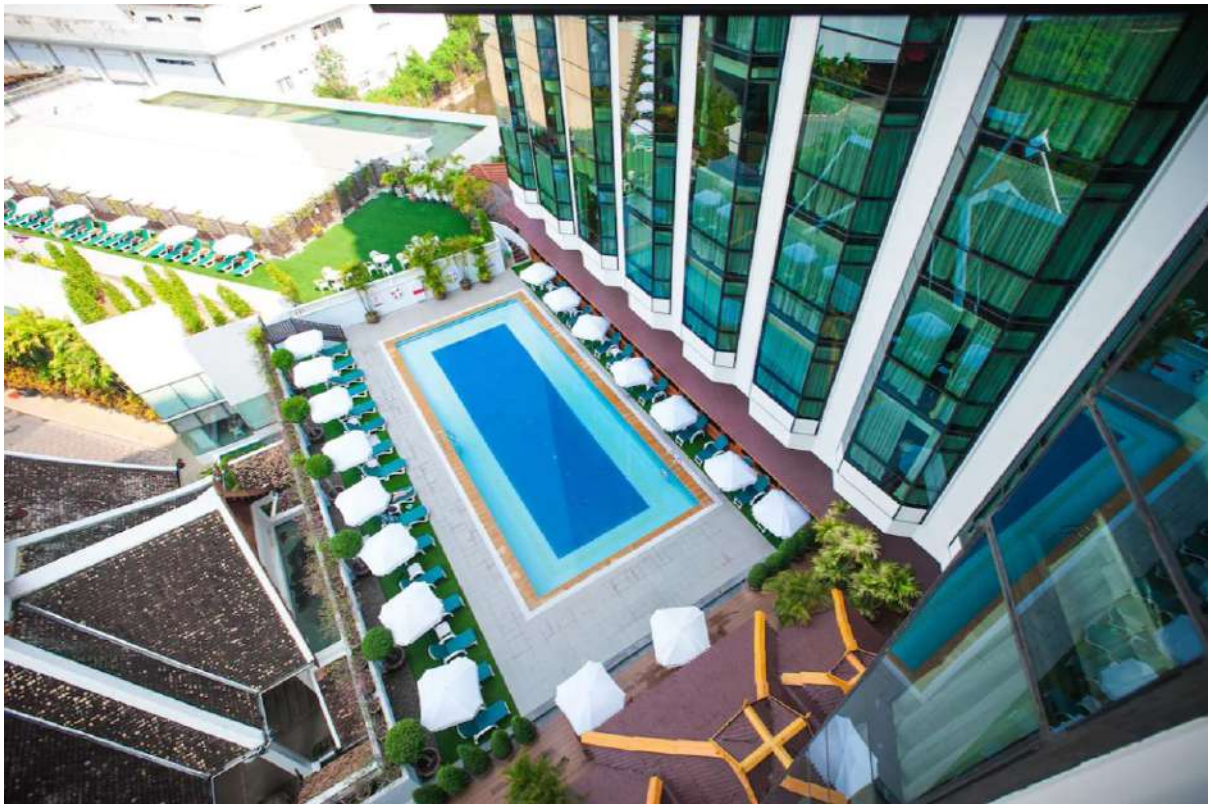
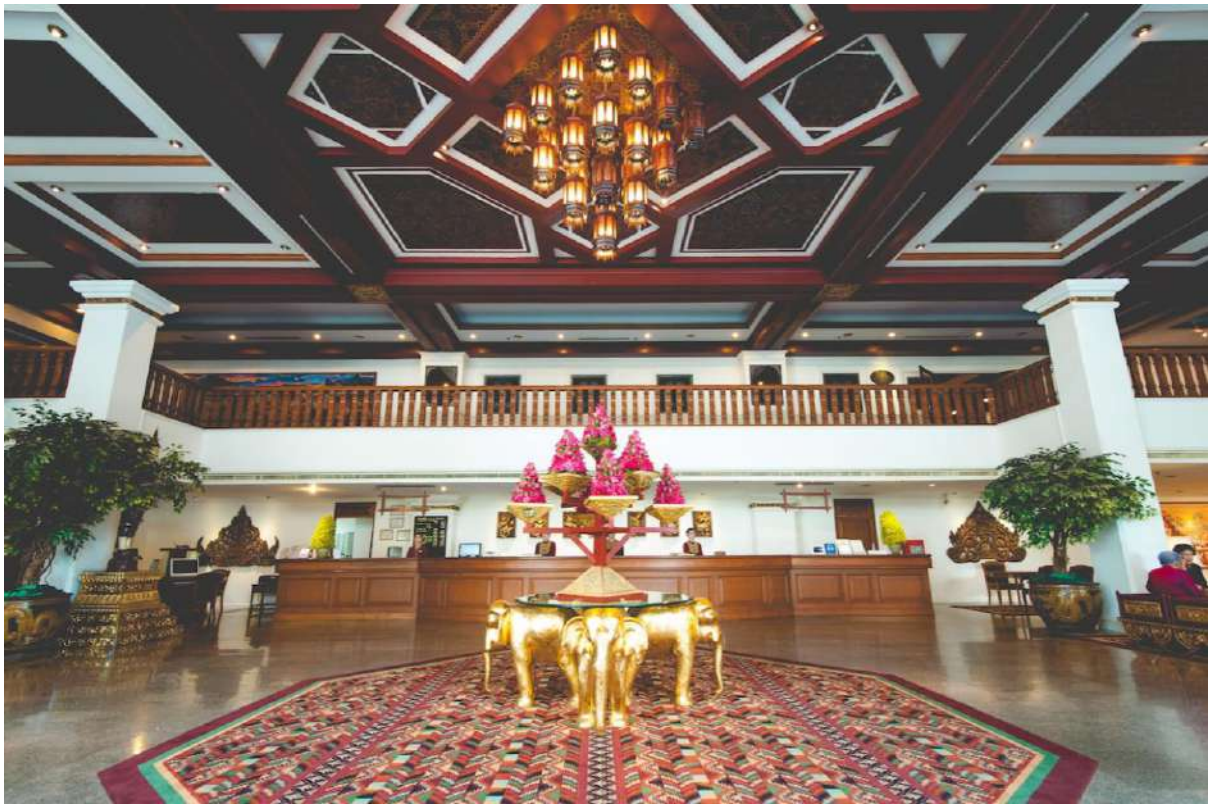


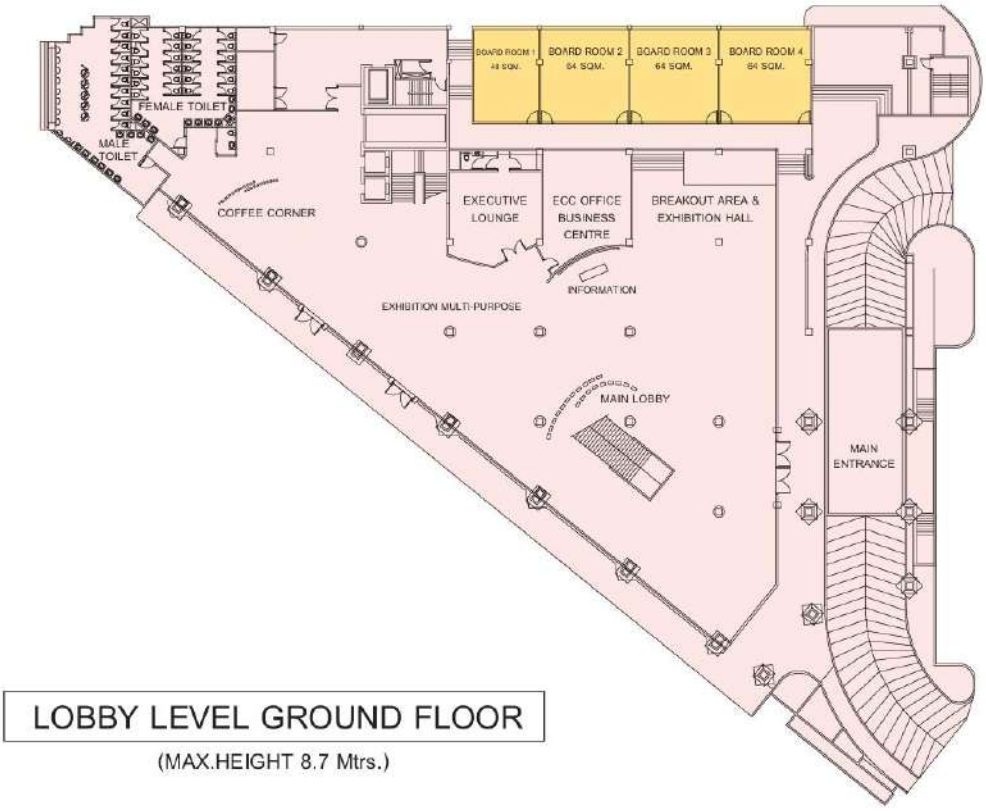

มหาวิทยาลัยเชียงใหม่
CHIANG MAI UNIVERSITY



CONFERENCE ACCESS





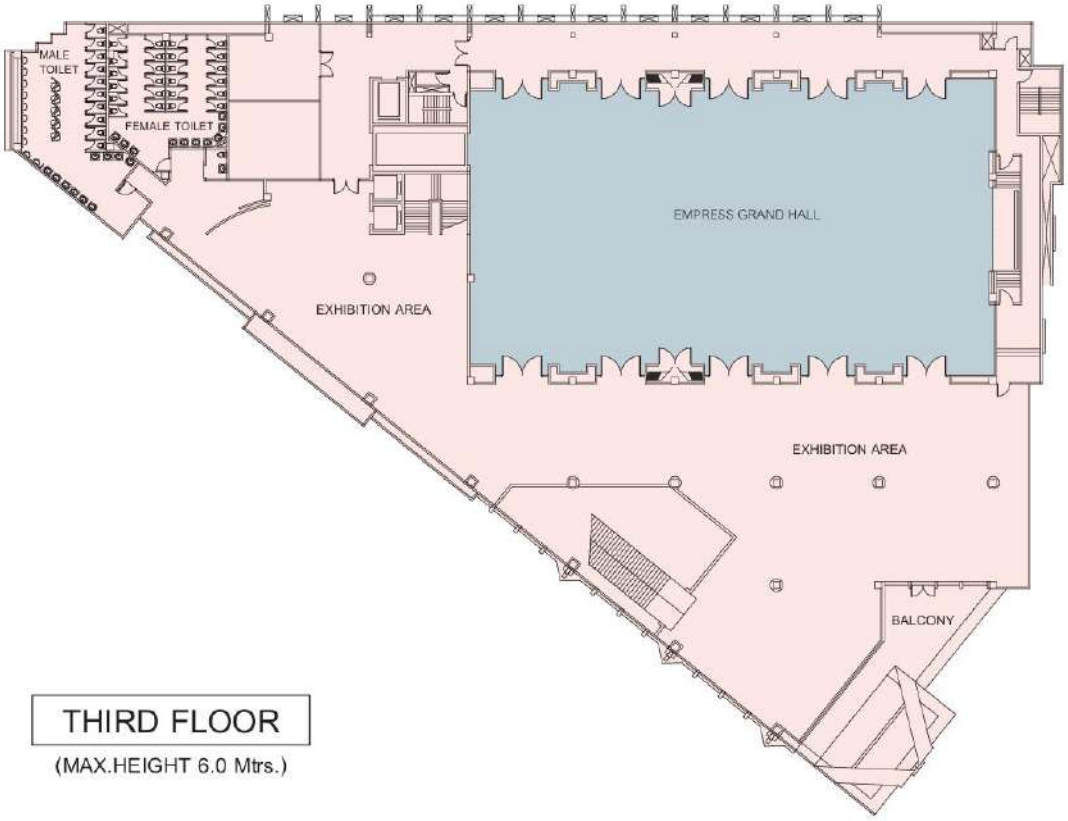


LOBBY LEVEL GROUND FLOOR

(MAX.HEIGHT 8.7 Mtrs.)

SECOND FLOOR

(MAX.HEIGHT 4.0 Mtrs.)



THIRD FLOOR

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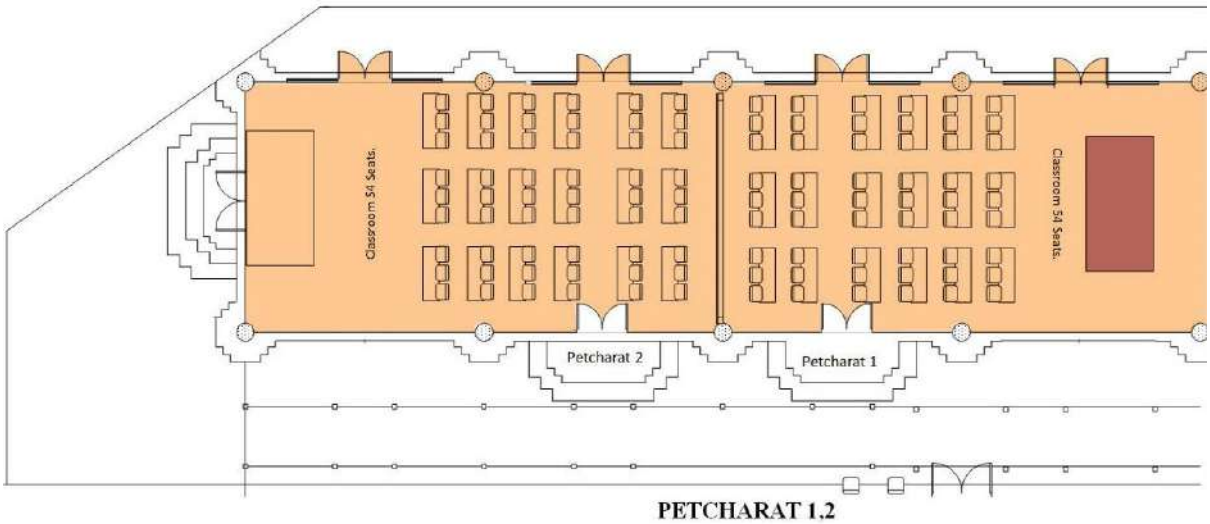

PETCHARAT 1.2

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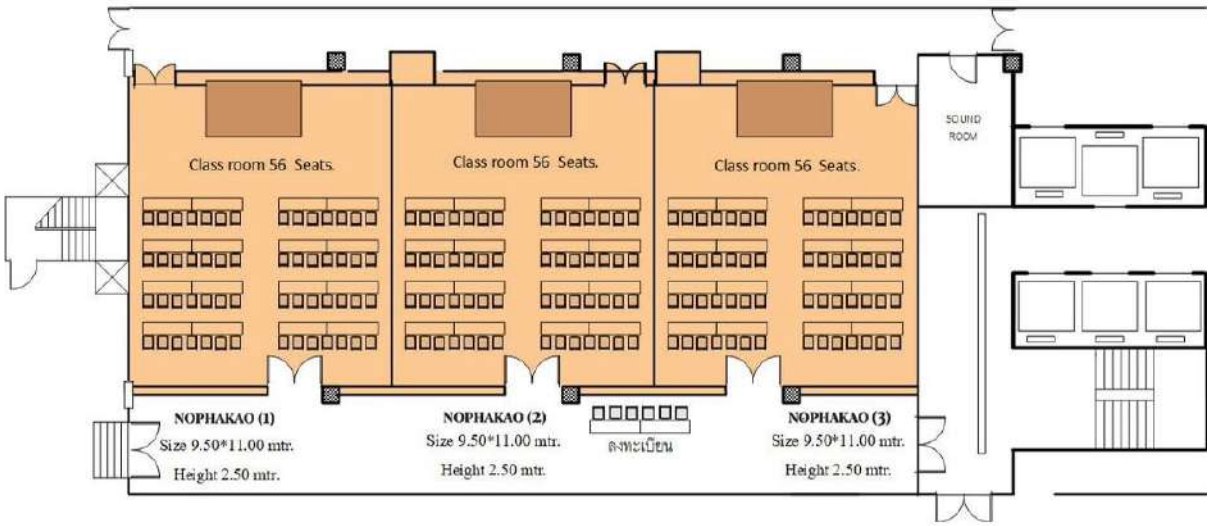
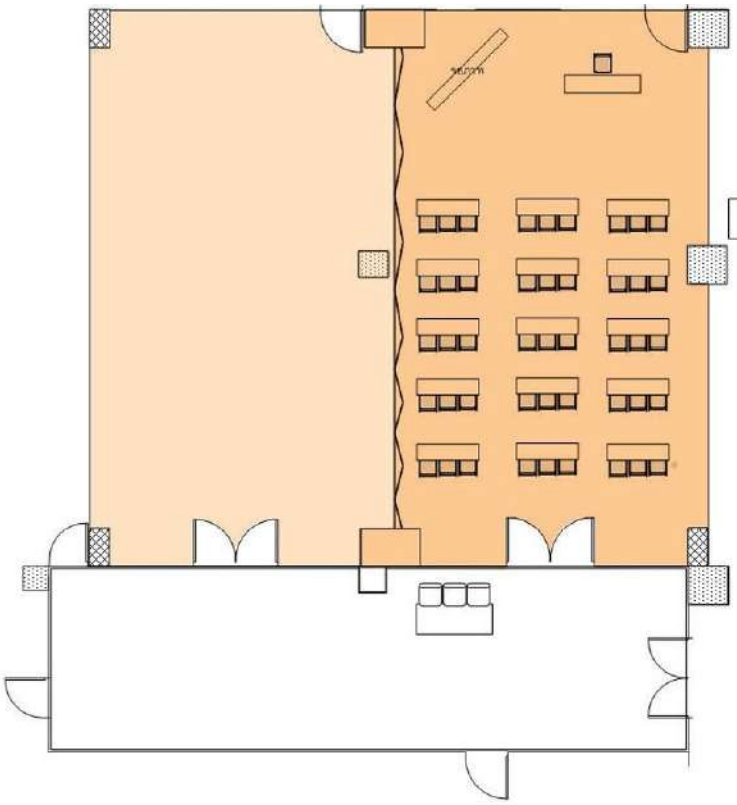
Height 3.50 mtr.

NOPHAKAO ROOM





VIMARN

Size 7.00*14.00 mtr.

Height 2.80 mtr.

Classroom 45 Seats.

PROGRAM FOR GRAND OPENING CEREMONY OF STT50

November 25th, 2024

THE EMPRESS CONVENTION CENTRE, THE EMPRESS HOTEL, CHIANG MAI

Time	Events
7:00-8:00	All guests register at the Lobby of the Empress Hotel (Main Building), Chiang Mai
8:30	All guests are seated in the Empress Convention Centre, The Empress Hotel, Chiang Mai
9:30	- Arrival of **Her Royal Highness Princess Maha Chakri Sirindhorn** - Presentation of Program Book and Souvenirs from Professor Dr. Pranut Potiyaraj (Chairperson of STT50), Associate Professor Dr. Thanuttkhul Mongkolaussavarat (President of The Science Society of Thailand under the Patronage of His Majesty the King), and Professor Dr. Pongruk Sribanditmongkol (President of Chiang Mai University) - Report on STT50 by Associate Professor Dr. Thanuttkhul Mongkolaussavarat (President of The Science Society of Thailand) - **Her Royal Highness Princess Maha Chakri Sirindhorn** graciously presents plaques to the 2024 Senior Scientists, 2024 Thailand Outstanding Scientist, 2024 Outstanding Technologist, 2024 Young Scientists, 2024 Outstanding Science Teachers, and the winners of 2023 National Science Project Competition - Grand Opening Address by **Her Royal Highness Princess Maha Chakri Sirindhorn**
	- Brief introduction of the Keynote Speaker, Professor Dr. Takaaki Kajita by Professor Dr. Pranut Potiyaraj (Chairperson of STT50) - Keynote Lecture: "The Discovery of Neutrino Oscillations" by Professor Dr. Takaaki Kajita
	- Brief introduction of the Keynote Speaker, Professor Dr. Anchalee Tassanakajon, 2024 Thailand Outstanding Scientist by Professor Dr. Torranin Chairuangsri (Dean of Faculty of Science, Chiang Mai University) - Keynote Lecture: "Shrimp Innate Immunity - Discovering Crucial Functions of Immune Molecules and Applications in Disease Control" by Professor Dr. Anchalee Tassanakajon
	- Brief introduction of the Keynote Speaker, Dr. Kallaya Sritunyalucksana-Dangtip, 2024 Thailand Outstanding Scientist by Professor Dr. Suttichai Assabumrungrat (Co-chairperson of STT50) - Keynote Lecture: "Scientific, Technological and Social Solutions for Shrimp Emerging and Re-emerging Diseases for Sustainable Aquaculture in Thailand" by Dr. Kallaya Sritunyalucksana-Dangtip
	- **Her Royal Highness Princess Maha Chakri Sirindhorn** presides at photo sessions with - Administrative Committee of the Science Society of Thailand under the Patronage of His Majesty the King - The Council of Science Dean of Thailand - Administrative and STT50 Organizing Committees of Chiang Mai University
13:00	**Her Royal Highness Princess Maha Chakri Sirindhorn** departs from The Empress Hotel, Chiang Mai

KEYNOTE SPEAKER: PROF. DR. TAKAAKI KAJITA

DISCOVERY OF ATMOSPHERIC NEUTRINO OSCILLATIONS

Takaaki Kajita[1,*]

[1] Institute for Cosmic Ray Research (ICRR), The University of Tokyo, 5-1-5, Kashiwanoha, Kashiwa, Chiba 277-8582, Japan
*e-mail: kajita@icrr.u-tokyo.ac.jp (2015 Nobel Prize in Physics)

Abstract:
In the Standard Model of particle physics, neutrinos have been assumed to have no mass. It was predicted that, if a neutrino has mass, it could change the type during the propagation, which is called neutrino oscillation. Neutrino oscillation was discovered in 1998 by the Super-Kamiokande experiments, which studies neutrinos produced by cosmic ray interactions in the atmosphere. I will discuss the discovery of neutrino oscillations. I will also discuss the implications of the small neutrino mass and the future prospects for neutrino experiments.

Takaaki Kajita was born in Higashimatsuyama, Saitama, Japan. He studied at Saitama University and at the University of Tokyo where he received his doctorate in 1986. At the University of Tokyo, he joined Masatoshi Koshiba's research group because neutrinos "seemed like they might be interesting." His doctoral advisor was the future Nobel Laureate, Masatoshi Koshiba. Since 1988 he is affiliated with the Institute for Cosmic Radiation Research, University of Tokyo, where he became an associate professor in 1992 and professor in 1999, and served as the director from 2008 to 2022. He served as the president of the Science Council of Japan from 2020 to 2023.

KEYNOTE SPEAKER: PROF. DR. ANCHALEE TASSANAKAJON

SHRIMP INNATE IMMUNITY – DISCOVERING CRUCIAL FUNCTIONS OF IMMUNE MOLECULES AND APPLICATIONS IN DISEASE CONTROL

Anchalee Tassanakajon[1,*]

[1] Center of Excellence for Molecular Biology and Genomics of Shrimp, Department of Biochemistry, Faculty of Science, Chulalongkorn University, Thailand
*e-mail: anchalee.k@chula.ac.th (Thailand Outstanding Scientist Award 2024)

Abstract:
Diseases have caused devastating losses to the shrimp aquacultural industry. The major diseases in shrimps are such as early mortality syndrome or officially named of acute hepatopancreatic necrosis disease (AHPND), white spot disease, white feces syndrome and an emerging disease caused by a microsporidian parasite *Enterocytozoon hepatopenaei* (EHP). Lacking an adaptive immune system, shrimp mainly relies on innate immunity to protect themselves against invading microbes by recognizing and destroying them through cellular and humoral immune responses. Detection of pathogens by pattern recognition receptors (PRRs) triggers the signal transduction pathways resulting in the activation of several immune components involved in the shrimp's immune responses. From the genome and transcriptome analyses, genes encoding several immune proteins were identified and they were further characterized for their crucial functions against pathogens. Understanding the molecular basis of the innate immune system of shrimp can lead to the development of novel strategies to improve health and disease resistance, ultimately contributing to the sustainability of shrimp aquaculture.

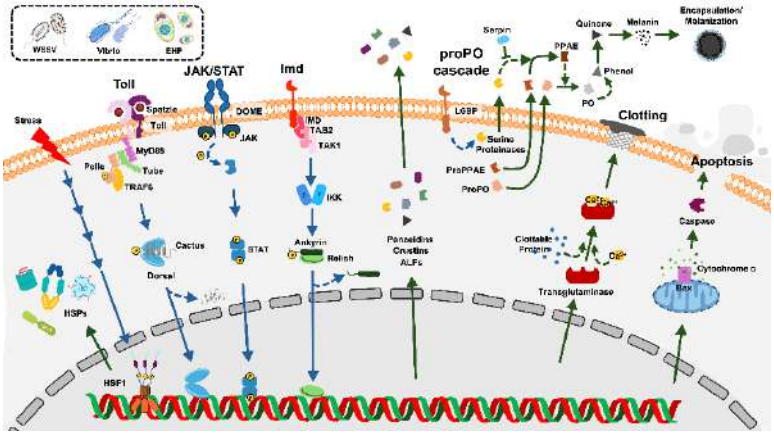


Figure. Schematic model of shrimp innate immune system

Professor Dr. Anchalee Tassanakajon was born in Bangkok, Thailand in 1961. She received the bachelor's degree in Science from Department of Chemistry, Faculty of Science, Chulalongkorn University, Thailand in 1981. She received the M.Sc. and Ph.D. in Biochemistry in 1984 and 1987, respectively from University of Montana, USA. She works at Department of Biochemistry, Faculty of Science, Chulalongkorn University, Thailand. Her research interest focuses on the molecular mechanisms of the innate immune system of shrimp. She has been awarded the 2024 Outstanding Scientist Award from the Foundation of the Promotion of Science and Technology under the Patronage of His Majesty the King.

KEYNOTE SPEAKER: DR. KALLAYA SRITUNYALUCKSANA-DANGTIP

SCIENTIFIC, TECHNOLOGICAL AND SOCIAL SOLUTIONS FOR SHRIMP EMERGING AND RE-EMERGING DISEASES FOR SUSTAINABLE AQUACULTURE IN THAILAND

Kallaya Sritunyalucksana-Dangtip,[1,2,*] Jiraporn Srisala,[1] Piyachat Sanguanrut,[1] Rungkarn Suebsing,[1] Suparat Taengchaiyaphum,[1] Anuphap Prachumwat,[1,2] Timothy W. Flegel[1,2]

[1] Aquatic Animal Health Research Team, Integrative Aquaculture Biotechnology Research Group, National Center for Genetic Engineering and Biotechnology (BIOTEC), National Science and Technology Development Agency (NSTDA), Rama VI Road, Rajthevi District, Bangkok 10400, Thailand

[2] Center of Excellence for Shrimp Molecular Biology and Biotechnology (Centex Shrimp), Faculty of Science, Mahidol University, Rama VI Road, Rajthevi District, Bangkok 10400, Thailand

*e-mail: kallaya@biotec.or.th (Thailand Outstanding Scientist Award 2024)

Abstract:

Aquaculture is playing a vital role in economic development, and global food supply in many developing countries. Emergent diseases, often with cryptic or syndromic aetiology (such as early mortality syndrome in shrimp), have collapsed production in nations across Asia, confirming disease as the major constricting factor for expansion of the aquaculture industry. To avoid the massive economic losses that can result from periodic epidemics and to ensure an uninterrupted supply of aquaculture products, it is needed from all stakeholders' support to prevent the illegal transboundary movement of living aquatic species destined for aquaculture and the use of living or fresh aquatic animal species to feed all life stages of all cultured species. The defining basic research needs (e.g., on host and pathogen genomics) must cater to tangible translation (e.g., to rapid diagnostics) and application (e.g., pond-side testing by farmers or government, automated detection of pathogens and other remote sensing applications) are required. A regional effort must be made to prioritize and coordinate the development of domesticated SPF breeding stocks for a prioritized list of major cultivated species. In addition, it is increasingly apparent that development of production systems that are closed or semi-closed optimized for maximum production efficiency and biosecurity to ensure reliable and sustainable aquaculture production with a minimal negative impact on the environment will be required.

In this context, the Shrimp Genetic Improvement Center (SGIC) was founded under a cooperation of three Thai governmental institutes: Ministry of Higher Education, Science, Research and Innovation represented by the National Center for Genetic Engineering and Biotechnology (BIOTEC), National Science and Technology Development Agency (NSTDA), Prince of Songkla University and Mahidol University has been established to provide research and production facilities for the selective breeding program to produce SPF *Penaeus monodon* broodstocks with favorable traits, such as high growth rate, disease resistance, etc. to the shrimp industry. NSTDA attempt to establish a closed production system for shrimp with a goal to provide the reliable productivity with the recirculating aquaculture system under the RAS-BCG project is on-going through a collaboration with Rajamangala University of Technology Tawan-ok and Burapha University (Chanthaburi campus). The collaboration with Kasetsart University and Thai Department of Fisheries to work on an innovative solution to combat antimicrobial resistance in aquaculture has been focused. These active collaborations pave a way to support an expanding and sustainable industry.

Dr. Kallaya Sritunyalucksana-Dangtip was born in Bangkok, Thailand. She received the bachelor's degree in science (Medical Technology) from Faculty of Associated Medical Sciences (AMS), Chiang Mai University, Thailand in 1992. She received the master's degree in science (Biotechnology) from Faculty of Science, Mahidol University in 1997 and her Ph.D. in Comparative Physiology, Department of Comparative Physiology, Evolutionary Biology Center, Uppsala University, Sweden in 2001 and in Biotechnology from Faculty of Science, Mahidol University in 2002. From 2003 to present, She worked at National Center for Genetic Engineering and Biotechnology (BIOTEC), National Science and Technology Development Agency (NSTDA). Her research interests are in shrimp-pathogen interaction, control of shrimp disease outbreak and immunostimulants in shrimp.

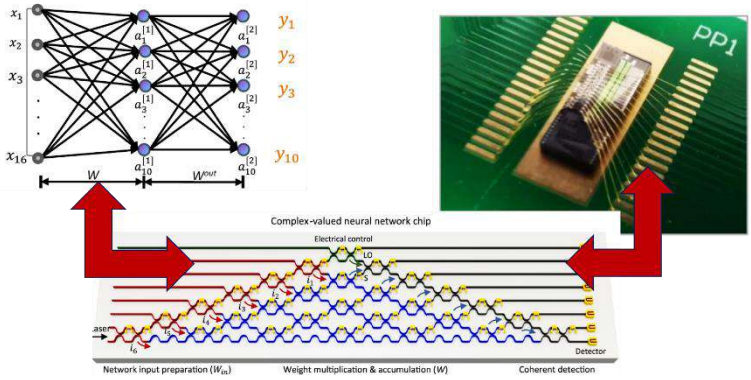
PLENARY SPEAKER: PROF. DR. LEONG CHUAN KWEK

QUANTUM AND OPTICAL TECHNOLOGIES WITH INTEGRATED SILICON PHOTONICS

Leong Chuan Kwek[1,*]

[1] Centre for Quantum Technologies, National University of Singapore; School of Electrical and Electronic Engineering, Nanyang Technological University; The National Institute of Education, Nanyang Technological University, Singapore
*e-mail: cqtklc@nus.edu.sg, leongchuan.kwek@nie.edu.sg

Abstract:
Integrated photonics have emerged as a promising approach towards efficient and high-performance information, both quantum and classical, processing. By harnessing the unique properties of photons, such as their quantum nature, ecofriendliness or high- speed characteristics, these integrated systems have the potential to revolutionize various fields, ranging from quantum computing and cryptography to artificial intelligence and data analytics. However, challenges such as efficient photon detection, scalability, and noise mitigation remains. This talk will also highlight some of these challenges.



Prof. Dr. Kwek is currently a Principal Investigator (PI) at the Center for Quantum Technologies, National University of Singapore and a Professor of Education at the National Institute of Education, Singapore. He is currently a co-Director of the Quantum Science and Engineering Centre (QSEC) at the Nanyang Technological University. He was (until December 2020) also the current Deputy Secretary General of the International Union of Pure and Applied Physics (IUPAP).

Dr Kwek has published more than 300 publications with several papers in Nature Photonics, Nature Communications, Physical Review Letters, Review of Modern Physics, Physics Reports and so forth. He is the PI or co-PI for numerous projects totaling about $43.1 million from 2021-2023). He supervises more than 25 PhD students (current and graduated). He has received numerous awards: Laureate of Scientia Vinces Award of the First President of the Republic of Sakha; Institute of Physics President Award, Singapore, National Science Award, Singapore and so forth. He is the Editor in Chief for The Physics Educator and Dandelion (Pu Gongyin), an associate Editor with AVS Quantum Science and Physical Review A, an editor of Entropy and the International Journal of Quantum Information. He is also an elected Fellow of the American Association for the Advancement of Science, Institute of Physics (UK) and the Institute of Physics Singapore.

His main research interests are foundation in quantum mechanics including quantifying multipartite quantum entanglement; quantum cryptography, quantum synchronization, quantum computation and atomtronics.

PLENARY SPEAKER: PROF. DR. JEYAKUMAR HENRY

FOOD THE NEW MEDICINE: CONTRIBUTION OF ASIAN FOOD INNOVATIONS

Jeyakumar Henry[1,*]

[1] Senior Advisor, Global Centre for Asian Women's Health, National University of Singapore
*e-mail: Henrykumar39@gmail.com

Abstract:
The concept of "Food the new medicine" is the merger of two scientific disciples: namely food and health. We are in the midst of a global food revolution. A revolution driven by consumer demand for "healthy foods" and novel advances in food innovation. The numerous advances in food and nutrition have enabled us to appreciate the role food Technology can play in public health. Asia is currently amid a pandemic in Type 2 diabetes, cardiovascular disease and metabolic syndrome. Of the 450 million Type 2 diabetics diagnosed worldwide, approximately 50% live in our region. The high prevalence of Type 2 diabetes in Asians has been partly ascribed to the high carbohydrate (CHO) and high Glycaemic content of our diets. Whilst economic growth and prosperity has improved the quality of life in our region, the double burden of over and under- nutrition still plagues many nations. This presentation will illuminate how nutrition research and food innovation can play a pivotal role in improving the health and well- being of mothers, infants, and elderly. Using illustrative examples, the presentation will highlight how we have applied scientific principles in developing foods to modulate glycaemia, lipid metabolism and appetite control. This has been achieved by the judicious combination of food innovations, food formulation and/or the inclusion of novel ingredients. Thailand has great potential to become the regional thought leader in melding the sciences of food innovation and nutrition.

Professor Jeyakumar Henry is currently Senior Advisor, Global Centre for Asian Women's Health, National University of Singapore. Trained initially as a Food Scientist, he obtained his MSc and PhD in Nutrition from the London School of Hygiene and Tropical Medicine. He was a Board member of UK Food Standards Agency, and Founding Director of the Functional Food Centre, Oxford, and the first Clinical Nutrition Research Centre, Singapore, A Star. Prof. Henry is on the Board of Directors of International Life Science Institute South East Asia (ILSI-SEA), and Advisory board of Monell Chemical Centre, USA. He was made a Fellow of the International Academy of Food Scientists and Technologists (2012), the W.K. Kellogg International Food Security Award & Lectureship in 2019 Institute of Food Technologists (IFT, USA) - His International contribution to Food and Nutrition research was recognized in 2024 by being made a Fellow of the American Society of Nutrition, the highest award in Human Nutrition.

PLENARY SPEAKER: PROF. DR. IL-DOO KIM

NANOFIBER TECHNOLOGIES FROM LAB. TO COMMERCIALIZATION

Il-Doo Kim[1,*]

[1] Department of Materials Science and Engineering, KAIST
*e-mail: idkim@kaist.ac.kr

Abstract:
Electrospinning, a powerful technique for nanomaterial fabrication, plays a critical role in the advancement of next-generation materials and devices. Through precise nanomaterial engineering, we can significantly enhance performance, particularly in environments that demand exceptional mechanical stability and efficiency. Recent breakthroughs have centered on the creation of advanced composite materials, including high-entropy and multi-elemental nanoparticles, and the integration of stable single-atom catalysts onto robust nanostructured supports. These innovations are critical for a wide range of applications, from chemical sensing to energy storage and conversion technologies such as lithium-air batteries, water splitting, and CO_2 reduction. The design of highly efficient catalysts is pivotal to these advancements, requiring materials that resist agglomeration, maintain high thermal stability, and deliver superior performance with minimal catalyst loading. This plenary presentation will delve into the diverse applications of nanostructured supports, including metal oxides and carbon fibers, optimized for the stable immobilization of catalysts. Additionally, the discussion will cover the journey from laboratory research to commercialization, highlighted by the development of custom electrospinning equipment and roll-to-roll manufacturing processes. These innovations enable the production of fibers with specialized properties, such as colorimetric, thermochromic, and antiviral functionalities. In conclusion, this talk will provide a comprehensive overview of the innovative material synthesis made possible through electrospinning, illustrated by compelling case studies that showcase the practical application of these advanced materials in real-world devices.

Il-Doo Kim is Endowed Chair Professor of Materials Science and Engineering at KAIST. He received Ph.D. degree from KAIST (2002). He was a postdoc. Fellow at MIT (Prof. Harry L. Tuller group, 2003-2005). From 2005 to January 2011, Dr. Kim worked as a senior research scientist at Korea Institute of Science and Technology. Dr. Kim moved to KAIST in February 2011. Up to date, Prof. Kim has published over 411 articles (including 77 cove-featured papers) and holds 249 patents. A number of patents have been successfully licensed to 13 companies. Recent selected awards include the KAIST Grand Research Prize (2022), The Scientist of the Year from Korean Journalists (2019), Songok Science Award (2018), Prof. Kim served as an Associate Editor for ACS Nano for four and a half years. Starting from July 1, 2023, he has taken on the role of Executive Editor. He is a fellow of Korea Academy of Science and Technology. Prof. Kim founded a KAIST tech-based startup company, IDKLAB Inc. in 2019.

PROGRAM FOR SESSIONS, SYMPOSIUMS AND MEETINGS

NOVEMBER 25TH, 2024

AFTERNOON PROGRAM

Session:	PLENARY SPEAKER		
Room:	EMPRESS GRAND HALL, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Anucha Watcharapasorn		
Time	ID	Speaker	Title
13:00-13:45	-	Leong Chuan Kwek	QUANTUM AND OPTICAL TECHNOLOGIES WITH INTEGRATED SILICON PHOTONICS

Session:	A - PHYSICS / APPLIED PHYSICS		
Room:	EMPRESS GRAND HALL, EMPRESS CONVENTION CENTRE		
Chairperson:	Asst. Prof. Dr. Jatuporn Saisut Assoc. Prof. Dr. Anucha Watcharapasorn Assoc. Prof. Dr. Duangmanee Wongratanaphisan		
Time	ID	Speaker	Title
14:00-14:30	A_INV01	Somsak Dangtip	IS ADVANCING IN FUSION TECHNOLOGY ALSO CRAFTING PATHWAY TOWARDS CARBON NEUTRALITY?
14:30-14:45	A_001	Pornrad Srisawad	MEASUREMENT OF RADON CONCENTRATION IN PHASAVAN AND THAM PHRA CAVES IN NAKHON SAWAN PROVINCE USING CR-39 PLASTIC TRACK DETECTORS
14:45-15:00	A_002	Krittaporn Anukulkich	HIGH ORDER CUMULANTS OF NET-PROTON NUMBLE IN Au+Au COLLISION AT 14.5, 16.5 AND 19.6 GeV BY USING UrQMD MODEL
BREAK			
15:15-15:30	A_003	Kantaphon Damminsek	DEVELOPMENT OF THz FREE ELECTRON LASER BEAMLINE AT PBP-CMU ELECTRON LINAC LABORATORY, CHIANG MAI UNIVERSITY
15:30-15:45	A_004	Surendiran Mohan	DEVELOPMENT OF HNT INCORPORATED POLYMER/MINERAL-COMPOSITE HAP COATING ON TITANUM SUBSTRATE
15:45-16:00	A_005	Napatsorn Kimaporn	STUDY OF TEMPERATURE AND TOTAL DEFORMATION OF HARD DISK DRIVE COMPONENTS IN A REFLOW SOLDERING PROCESS USING MULTIPHYSICS
16:00-16:15	A_006	Pakorn Prajuabwan	COMPARISON OF CIRCULAR SHAPE AND SQUARE SHAPE LIGHT GUIDE PLATE ATTACHED WITH THE SAME NUMBER OF LIGHT EMITTING DIODE AS THE ARTIFICIAL LIGHTING FOR WHEATGRASS SPROUT GROWING
16:15-16:30	A_007	Parinya Udommai	MONOTONIC MANIPULATION OF ATOMIC DENSITY IN AN ISOVOLUMETRIC FOCUSED-BEAM TRAP FOR QUANTUM ATOM EXPERIMENTS
16:30-16:45	A_008	Supasilp Fuengfung	PARTICLE MANIPULATION IN SOLUTION WITH FOCUSED OPTICAL VORTEX BEAM

Session:	B - BIOLOGICAL SCIENCES		
Room:	CHIANG MAI 1, EMPRESS CONVENTION CENTRE		
Chairperson:	Prof. Dr. Tavan Janvilisri Co-Chair: Assoc. Prof. Dr. Aussara Panya		
Time	ID	Speaker	Title
14:00-14:30	B_INV01	George Baillie	TARGETTED PROTEIN DEGRADATION: A NEW DAWN FOR PHOSPHODIESTERASE INHIBITION
14:30-14:45	B_001	Onnicha Srisopar	AN *IN VITRO* CARDIOPROTECTIVE EFFECT OF SMALL THERAPEUTIC PEPTIDES DERIVED FROM HUMAN SECRETORY LEUKOCYTE PROTEASE INHIBITOR (hSLPI) AGAINST MYOCARDIAL HYPOXIA/REPERFUSION INJURY
14:45-15:00	B_002	Udom Sae-Ueng	DECIPHERING BACTERIOPHAGE INFECTION THROUGH THEIR STRUCTURES AND NANOMECHANICS
BREAK			
15:15-15:30	B_003	Phitchayapak Wintachai	EVALUATION OF BACTERIOPHAGE ECPW09 AS A POTENTIAL THERAPEUTIC AGAINST ANTIBIOTIC-RESISTANT *Escherichia coli*
15:30-15:45	B_004	Surang Chankhamhaengdecha	STRESS-INDUCED FORMATION OF L-FORM *Clostridioides difficile*
15:45-16:00	B_005	Pimpaka Rongkratok	DETECTION OF *Burkholderia pseudomallei* WITH CRISPR/CAS12A USING THE SPECIFIC MARKER ORF2 OF THE FIRST TYPE III SECRETION SYSTEM (T3SS-1)
16:00-16:15	B_006	Natchaya Pakdeesiriwong	INHIBITION OF *Staphylococcus aureus* HEMOLYTIC ACTIVITY IN A DOSE-DEPENDENT MANNER BY *Enterococcus faecalis* R3
16:15-16:30	B_007	Kunakorn Deesophon	COFFEE PULP PECTIN AS A POTENTIAL PREBIOTIC SOURCE
16:30-16:45	B_008	Wannakan Sawaspaen	APPLICATION OF DIELECTRIC BARRIER DISCHARGE PLASMA TECHNOLOGY ON MICROBIAL INHIBITION
16:45-17:00	B_009	Lela Susilawati	*Aerococcus sp.* ISOLATED FROM NATIVE INDONESIAN FROG SKIN *Sumaterana crassiovis* AS A POTENT BIOCONTROL AGENT AGAINST CHILI ANTHRACNOSE DISEASE

Session:	B - BIOLOGICAL SCIENCES		
Room:	CHIANG MAI 2, EMPRESS CONVENTION CENTRE		
Chairperson:	Asst. Prof. Dr. Puey Ounjai Co-Chair: Dr. Sittiruk Roytrakul		
Time	ID	Speaker	Title
14:00-14:30	B_INV02	Seung Joon Baek	EFFECTS OF COLD ATMOSPHERIC MICROWAVE PLASMA ON WOUND HEALING AND HAIR GROWTH
14:30-14:45	B_010	kanyapak Sakheatkarn	EXPLORING THE POTENT ANTI-CANCER PROPERTIES OF THAI *Dictyophora indusiata*: A STUDY ON EXTRACTS FROM DIFFERENT MUSHROOM PARTS
14:45-15:00	B_011	Chayanisa Phutiyothin	EXOGENOUS LOADING OF RECOMBINANT HUMAN SECRETORY LEUKOCYTES PROTEASE INHIBITOR (rhSLPI) INTO EXOSOME
BREAK			
15:15-15:30	B_012	Kanjana Soodpakdee	THE EFFECT OF *Cordyceps militaris* EXTRACT ON THE PROLIFERATION OF HUMAN DERMAL FIBROBLAST CELLS *in vitro* STUDY
15:30-15:45	B_013	Natthanan Khankham	COMPARATIVE ANALYSIS OF PROKARYOTIC AND EUKARYOTIC PRODUCTION SYSTEMS FOR ANTI-GD2 TRI-SPECIFIC KILLER ENGAGER (TriKE)
15:45-16:00	B_014	Nichakarn Sanguankaew	EXPLORING THE PHYTOCHEMICAL CONSTITUENTS AND BIOLOGICAL PROPERTIES OF *Piper sarmentosum* LEAVES: INSIGHTS FROM CULINARY PREPARATION
16:00-16:15	B_015	Thitinun Sumranwanich	EXPLORING THE POTENTIAL OF SOIL-DERIVED BACTERIA IN LIGNIN DEGRADATION AND SUSTAINABLE BIOMASS UTILIZATION
16:15-16:30	B_016	Pholpipat Srisuwan	EVALUATION OF BENEFICIAL BACTERIA INHIBITION *Pyricularia oryzae* CAUSING RICE BLAST DISEASE AND ENHANCE SEED GERMINATION AND VIGOR
16:30-16:45	B_017	Pakhapol Triserikij	EFFECT OF NITROGEN CONCENTRATION ON BIOMASS AND LUTEIN PRODUCTION IN GREEN MICROALGA *Chlorococcum humicola* CULTURED IN PHOTOBIOREACTORS

Session:	C - CHEMISTRY		
Room:	CHIANG MAI 3, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Nawee Kungwan Co-Chair: Assoc. Prof. Dr. Jaroon Jakmunee		
Time	ID	Speaker	Title
14:00-14:30	C_INV01	Purim Jarujamrus	TAILORED FUNCTIONAL NANOMATERIALS AS PEROXIDASE MIMICS ON MICROFLUIDIC PAPER-BASED ANALYTICAL DEVICES (µPADs) FOR INNOVATIVE POINT-OF-CARE APPLICATIONS
14:30-14:45	C_001	Thanyada Rungrotmongkol	MECHANISMS OF 2-PAM IN REACTIVATING HUMAN ACETYLCHOLINESTERASE
14:45-15:00	C_002	Chawin Srisomwat	SAMPLE PREPARATION-FREE COLORIMETRIC DEVICE FOR SALIVARY ETHANOL AND TETRAHYDROCANNABINOL DETECTION USING A CAPILLARY-DRIVEN MICROFLUIDIC INTEGRATED WITH A PAPER-BASED DEVICE
BREAK			
15:15-15:45	C_INV02	Suwat Nanan	BIOSYNTHESIS OF METAL OXIDE PHOTOCATALYSTS USING PLANT EXTRACT FOR PHOTOCATALYTIC DEGARDATION OF ANTIBIOTICS AND ORGANIC DYES IN WASTEWATER
15:45-16:00	C_003	Yuki Suenari	PHOTOLUMINESCENCE CONTROL OF $CsPbX_3$ QUANTUM DOTS COUPLED WITH PHOTOCHROMIC MOLECULES; MECHANISTIC STUDY BY ULTRAFAST TIME-RESOLVED ABSORPTION SPECTROSCOPY
16.00-16:15	C_004	Nirinthana Ungudonpakdee	SUSTAINABLE SYNTHESIS OF NITROGEN-DOPED CARBON DOTS FOR FORMALIN DETECTION AND HYDROCHAR FOR DYE REMOVAL FROM CASSAVA WASTE
16:15-16:30	C_005	Dini Aulia	SYNTHESIS OF 2,3-DIOXOPYRROLIDINE DERIVATIVES AND EVALUATION OF THEIR INHIBITORY ACTIVITY AGAINST NS5 METHYLTRANSFERASE OF DENGUE VIRUS

Session:	E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		
Room:	NOPPHAKAO 1, THE EMPRESS HOTEL		
Chairperson:	Prof. Dr. Sirirat Jitkarnka Assoc. Prof. Dr. Chanatip Samart Asst. Prof. Dr. Adisak Siyasukh Asst. Prof. Dr. Chaiyasit Banjongprasert		
Time	ID	Speaker	Title
14:00-14:30	E_INV01	Guoqing Guan	PRODUCTION OF HYDROGEN FROM BIOMASS WASTES USING A CO-GASIFICATION PROCESS
14:30-14:45	E_001	Thannithi Anusontiwong	ACTIVATED CARBON DERIVED FROM RICE HUSKS ENHANCED BY METHYLENE BLUE AND GAMMA IRRADIATION FOR SUPERCAPACITORS
14:45-15:00	E_002	Akkarapong Jaidej	GREEN SYNTHESIS OF TITANIUM DIOXIDE USING *Brassica oleracea* LEAF EXTRACT FOR PHOTOCATALYTIC DEGRADATION OF RHODAMINE B DYE
BREAK			
15:15-15:30	E_003	Watase Yuya	SELECTIVE ACETIC ACID FORMATION BY ELECTROCHEMICAL CO_2 REDUCTION USING AgCu NANOPARTICLES
15:30-15:45	E_004	Nongnapas Aenguthaiwat	INNOVATIVE ENCAPSULATION OF PURIFIED ENZYME FROM *Bacillus subtilis* L. FOR POLYETHYLENE AND POLYLACTIC ACID BIODEGRADATION
15:45-16:00	E_005	Nutnicha Kumwung	METHYLENE BLUE REMOVAL FROM WASTEWATER USING THE HYDROGEL BEADS OF POLY(VINYL ALCOHOL)-SODIUM ALGINATE-CHITOSAN-ACTIVATED CARBON-FeO
16:00-16:15	E_006	Taisei Nagamine	SUPERCRITICAL CO_2-MEDIATED HYDROTHERMAL LIQUEFACTION OF MICROALGAE PRETREATED WITH MICROWAVE
16:15-16:30	E_007	Yuki Shimada	ELUCIDATING THE CO DETECTION MECHANISM OF Pd-LOADED SnO_2 GAS SENSOR VIA OPERANDO SPECTROSCOPY
16:30-16:45	E_008	Chanya Thawonsuk	SYNTHESIS OF Mg-MODIFIED MESOPOROUS SILICA ADSORBENT VIA SOFT TEMPLATE FOR SELECTIVE ADSORPTION OF CONGO RED DYE CONTAMINATED IN WASTEWATER
16:45-17:00	E_009	Murugesan Arukkani	FABRICATION OF COPPER BASED METAL ORGANIC FRAMEWORK USING RECOVERED TEREPHTHALIC ACID FROM WASTE PET WITH COPPER NITRATE FOR POTENTIAL ENERGY APPLICATIONS

Session:	E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		
Room:	NOPPHAKAO 3, THE EMPRESS HOTEL		
Chairperson:	Prof. Dr. Pitsanupong Kanjanapayont Assoc. Prof. Dr. Alice Sharp Assoc. Prof. Dr. Pisanu Wongpornchai Assoc. Prof. Dr. Prasert Reubroycharoen		
Time	ID	Speaker	Title
14:00-14:30	E_INV02	Thasinee Charoentitirat	INSIGHTS AND GEOLOGY RESEARCH CHALLENGES AROUND GREAT WALL STATION, ANTARCTICA
14:30-14:45	E_010	Aut Sriwisan	NEW DISCOVERY OF VERTEBRATE FOSSILS AT PHUWAT SITE, NONG BUA LAMPHU PROVINCE, THAILAND
14:45-15:00	E_011	Rattanaphorn Hanta	DIVERSITY OF POTHOLE LANDFORM AT SAM SIB SANG HILL GEOSITE, SUNG NOEN, NAKHON RATCHASIMA
15:00-15:15	E_012	Pichawut Manopkawee	IDENTIFYING EROSIONAL HOTSPOTS USING FLUVIAL MORPHOMETRIC ANALYSIS IN MAE CHAN RIVER WATERSHED, NORTHERN THAILAND
BREAK			
15:30-15:45	E_013	Waraporn Rattanongphisat	EARTHEN HOUSE WITH CROSS VENTILATION IMPROVING NATURAL COOLING PERFORMANCE
15:45-16:00	E_014	Prapas Kunnam	DUCTILITY ENHANCEMENT OF A SINTERED MULTIPHASE STEEL BY PARTITIONING PROCESS
16:00-16:15	E_015	Saitharn Limsakul	HETEROJUNCTION TITANIUM DIOXIDE/HIERARCHICAL POROUS CARBON COMPOSITES FOR AZO DYE ROMOVAL VIA ADSORPTION AND PHOTOCATALYSIS
16:15-16:30	E_016	Wanrudee Kaewmesri	PREPARATION AND CHARACTERIZATION OF MUNG BEAN-BASED FILMS FOR POTENTIAL ELECTROLYTIC APPLICATION

Session:	F - FOOD SCIENCE AND TECHNOLOGY / AGRICULTURAL SCIENCE		
Room:	CHIANG MAI 5, EMPRESS CONVENTION CENTRE		
Chairperson:	Prof. Dr. Pornchai Rachtanapun Co-Chair: Prof. Dr. Zhao Zhang		
Time	ID	Speaker	Title
14:00-14:30	F_INV01	Li Minzan	SOIL AND CROP SENSING IN SMART AGRICULTURE
14:30-14:45	F_001	Kwansuda Kongthong	BIODEGRADABLE STARCH FOOD PACKAGING WITH FISH BIOWASTE FILLER
14:45-15:00	F_002	Piyapong Sonkaew	QUALITY OF FRESH-CUT MONTHONG DURIAN WRAPPED IN STRETCHABLE POLYVINYL CHLORIDE FILM COUPLED WITH A PERFORATED CLAMSHELL BOX AS RETAIL PACKAGING
BREAK			
15:15-15:45	F_INV02	Zhao Zhang	AI-POWERED APPLE PRODUCTION IN CHINA
15:45-16.00	F_003	Piyapong Sonkaew	DEVELOPMENT OF POLYDIACETYLENE-SILICA NANOCOMPOSITE CARBOXYMETHYLCELLULOSE-BASED AS SULFUR COMPOUND INDICATOR LABEL FOR DURIAN PRODUCE
16:00-16:15	F_004	Supakarn Sukviset	ENHANCEMENT OF HEALTH BENEFIT OF OKARA THROUGH MIX-CULTURE FERMENTATIONS FOR DEVELOPMENT INTO FUNCTIONAL FOOD PRODUCT
16:15-16:30	F_005	Fozia Ibrahim	INVESTIGATION OF ANTIFUNGAL PROPERTIES OF ESSENTIAL OIL FROM FRUIT PEEL OF CALAMONDIN (*Citrofortunella microcarpa*) AGAINST *Candida albicans*
16:30-16:45	F_006	Aroonsiri Khuanlay	SUSTAINABLE INSECT FEED: UTILIZING SPENT MUSHROOM SUBSTRATE FOR BLACK SOLDIER FLY LARVAE (*Hermetia illucens* (Linnaeus, 1758))
16:45-17:00	F_007	Pun Sangchai	CHITOSAN NANOPARTICLE ENCAPSULATED Pva-pre-mir-11881 MIXED IN SHRIMP FEED IMPROVES SHRIMP SURVIVAL RATE AGAINST WSSV INFECTION
17:00-17:15	F_008	Kunlaya Somboonwiwat	ROLE OF PIWI-INTERACTING RNAs (piRNAs) IN MODULATING IMMUNE RESPONSES OF PACIFIC WHITE SHRIMP (*Litopenaeus vannamei*) TO VIRAL AND BACTERIAL INFECTIONS

Symposium:	SP1-MULTI-MESSENGER ASTRONOMY, COSMIC RAYS AND SPACE WEATHER IMPACTS SP6-QUANTUM SCIENCE AND TECHNOLOGY		
Room:	VIMARN 1, THE EMPRESS HOTEL		
Chairperson:	Asst. Prof. Dr. Siramas Komonjinda		
Time	ID	Speaker	Title
14:00-14:20	SP1_INV01	Aya Ishihara	EXPLORING THE HIGH-ENERGY UNIVERSE THROUGH MULTIMESSENGER ASTRONOMY
14:20-14:40	SP1_INV02	Warit Mitthumsiri	IMPLICATIONS OF POSITRON FRACTION MEASURUREMENTS ON LOCAL COSMIC-RAY SOURCES
14:40-15:00	SP1_INV03	Pornchai Supnithi	MULTI-SENSOR ANALYLIS OF EQUATORIAL PLASMA BUBBLES (epb) DURING THE SOLAR MAXIMUM OF THE 25th SOLAR CYCLE IN ASEAN REGION
15:00-15:20	SP1_INV04	Sittiporn Channumsin	ADVANCEMENTS IN SPACE SAFETY AND SECURITY RESEARCH AT GISTDA: OBJECTIVES, ACCOMPLISHMENTS AND SYSTEM INNOVATION
BREAK			
Chairperson:	Asst. Prof. Dr. Narupon Chattrapiban		
15:35-15:55	SP6_INV01	Rainer Dumke	TOWARDS SCALABLE QUANTUM HARDWARE: INNOVATIONS IN ELECTRONIC CONTROL AND QUANTUM PROCESSORS
15:55-16:15	SP6_INV02	Worawat Meevasana	QUANTUM TECHNOLOGY FOR ENERGY STORAGE AND ELECTRICITY GRID OPTIMIZATION
16:15-16:35	SP6_INV03	Pruet Kalasuwan	PHOTONICS UPDATES IN THAILAND
16:35-16:55	SP6_INV04	Piyaphat Poonthong	HOW OPTICAL CLOCKS WILL TRANSFORM THAILAND STANDARD TIME?

Symposium:	SP2-BIOMATERIALS AND MEDICAL DEVICES		
Room:	PETCHARAT 1, THE EMPRESS HOTEL		
Chairperson:	Assoc. Prof. Dr. Winita Punyodom Assoc. Prof. Dr. Sarawut Kumphune		
Time	ID	Speaker	Title
14:00-14:30	SP2_INV01	Her-Hsiung Huang	SURFACE MODIFICATION OF DENTAL IMPLANTS
14:30-14:45	SP2_001	Andrea Warnnissorn	IN SILICO INVESTIGATION OF ANTICANCER DRUGS AS POTENTIAL INHIBITORS FOR INTERLEUKIN 1 WHICH COULD BE USED TO TREAT LUNG CANCER CAUSED BY PM2.5 INFLAMMATION
14:45-15:00	SP2_002	Hiroyuki Kudo	WEARABLE CHEMICAL SENSOR FOR SWEAT MONITORING DURING EXERCISE
BREAK			
Chairperson:	Assoc. Prof. Dr. Winita Punyodom Dr. Robert Molloy		
15:15-15:30	SP2_003	Chayapol Jawannatoom	A CYTOPROTECTIVE EFFECTS OF NANOPARTICLES DELIVERY OF RECOMBINANT HUMAN SECRETORY LEUCOCYTE PROTEASE INHIBITORS ON BACTERIAL LIPOPOLYSACCHARIDE INDUCE CELL INJURY
15:30-15:45	SP2_004	Faprathan Pikwong	CARDIAC CELL MEMBRANE COATED MESOPOROUS SILICA NANOPARTICLES FOR DELIVERY TO CARDIAC TARGETS
15:45-16:00	SP2_005	Wannapat Chouyratchakarn	IMMOBILIZATION OF RECOMBINANT HUMAN SECRETORY LEUKOCYTE PROTEASE INHIBITOR (RHSLPI), BY PLASMATIZATION ON TITANIUM SURFACE, ENHANCED OSTEOBLAST CELL ADHESION

Symposium:	SP10-UNIVERSITY - INDUSTRY RESEARCH COLLABORATION		
Room:	PETCHARAT 2, THE EMPRESS HOTEL		
Chairperson:	Asst. Prof. Dr. Jomkhwan Meerak Asst. Prof. Dr. Worapong Thiemsorn		
Time	ID	Speaker	Title
14:00-14:30	SP10_INV01	Edward Sihua Yang	MY ENTREPRENEURIAL JOURNEY: FROM GREENING THE SILICON VALLEY TO GREENING THE WORLD
14:30-16.00	INDUSTRY RESEARCH COLLABORATION AND NETWORKING		
BREAK			

Symposium:	SP 11-X-RAY CRYSTALLOGRAPHY		
Room:	KINNAREE 1, EMPRESS PREMIER HOTEL		
Chairperson:	Assoc. Prof. Dr. Kittipong Chainok		
Time	ID	Speaker	Title
14:00-15:00	SP11_INV01	Horst Puschmann	SMALL-MOLECULE REFINEMENT WITH OLEX2 (I)
BREAK			
15:15-16:30	SP11_INV01	Horst Puschmann	SMALL-MOLECULE REFINEMENT WITH OLEX2 (II)

Session:	SCIENCE DEANS & CHAIR & KEYNOTE / PLENARY / INVITED SPEAKER RECEPTION		
Room:	IMPERIAL BALLROOM, THE EMPRESS HOTEL		
Time	ID	Speaker	Title
17:30-19:00	-	-	RECEPTION

NOVEMBER 26th, 2024

MORNING PROGRAM

Session:	PLENARY SPEAKER		
Room:	EMPRESS GRAND HALL, EMPRESS CONVENTION CENTRE		
Chairperson:	Asst. Prof. Dr. Hataichanok Pandith		
Time	ID	Speaker	Title
8:30-9:15	-	Jeyakumar Henry	FOOD THE NEW MEDICINE: CONTRIBUTION OF ASIAN FOOD INNOVATIONS

Session:	A - PHYSICS / APPLIED PHYSICS		
Room:	EMPRESS GRAND HALL, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr.Yongyut Laosiritaworn Assoc. Prof.Atchara Punya Jaroenjittichai Asst. Prof. Dr. Surachet Phadungdhitidhada		
Time	ID	Speaker	Title
9:30-10:00	A_INV02	Weerachai Siripunvaraporn	UNVEILING THE UNEXPECTED 2014 CHIANG RAI EARTHQUAKE WITH 3-D ELECTROMAGNETIC TOMOGRAPHY
10:00-10:30	A_INV03	Auttasit Tubtimtae	PHYSICAL PROPERTIES OF BINARY AND TERNARY SEMICONDUCTOR THIN FILMS FOR OPTOELECTRONIC AND SOLAR CELL APPLICATIONS
BREAK			
10:45-11:00	A_009	Chukwuebuka Usulor	OPTIMIZING LIGHT ABSORPTION IN PEROVSKITE SOLAR CELL THROUGH IODED SALT PASSIVATION
11:00-11:15	A_010	Sukhanidhan Singh	EXCELLENT PHOTOVOLTAIC PERFORMANCE OF ORGANIC SMALL MOLECULE PASSIVATED CARBON-BASED PEROVSKITE SOLAR CELL
11:15-11:30	A_011	Natcha Kanjad	FORCED CONVECTION HEAT TRANSFER DUE TO HOT AIR FOR THE REFLOW SOLDERING PROCESS IN A HARD DISK DRIVE FACTORY INVESTIGATED BY COMPUTATIONAL FLUID DYNAMICS
11:30-11:45	A_012	Nuththawat Kitchongcharoenying	NUMERICAL AND EXPERIMENTAL STUDY OF THE WILBERFORCE PENDULUM BEHAVIOR WITH MAGNETIC INTERACTIONS
11:45-12:00	A_013	Thanyanan Somnam	ENHANCING DATA ANALYSIS SKILLS FOR ASTRONOMY OLYMPIAD COMPETITORS THROUGH TEAM-BASED LEARNING: A CASE STUDY FROM THAILAND

Session:	B - BIOLOGICAL SCIENCES		
Room:	CHIANG MAI 1, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Yingmanee Tragoolpua Co-Chair: Assoc. Prof. Dr. Padchanee Sangthong		
Time	ID	Speaker	Title
9:30-10:00	B_INV03	Hans Bäumler	PROTEIN PARTICLES AS CARRIER FOR TARGETED DRUG DELIVERY, OXYGEN TRANSPORT AND AS BIOREACTORS
10:00-10:15	B_018	Pirun Mikled	DUAL FOLATE/BIOTIN-DECORATED LIPOSOMES MEDIATED DELIVERY OF METHYLNAPHTHAZARIN FOR ANTI-CANCER ACTIVITY
10:15-10:30	B_019	Ratchaneewan Sumankan	THE COMBINATION TREATMENT OF ANTI-CD47 ANTIBODY AND BORTEZOMIB ENHANCES MULTIPLE MYELOMA CELL DEATH
BREAK			
10:45-11:15	B_INV04	Sittiruk Roytrakul	PEPTIDOPROTEOMICS FOR BIOMARKER DISCOVERY AND MOLECULAR MECHANISM ANALYSIS
11:15-11:30	B_020	Supitcha Wanvimonsuk	THE FUNCTION OF circRNA in miRNA REGULATION AND BIOGENESIS IN HEAT-STRESSED SHRIMP
11:30-11:45	B_021	Sainamthip Rangdist	THE EFFECT OF Amt2 AND Dur3 GENES IN TRANSMIGRATION PROCESS OF *Cryptococcus neoformans*
11:45-12:00	B_022	Sasipat Teerawongsuwan	EVALUATING CELL-FREE DNA IN SPENT CULTURE MEDIUM FOR ASSESSING BLASTOCYST QUALITY AND CHROMOSOMAL ABNORMALITIES

Session:	C - CHEMISTRY		
Room:	CHIANG MAI 3, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Wong Phakhodee Co-Chair: Asst. Prof. Dr. Natthawat Semakul		
Time	ID	Speaker	Title
9:30-10:00	C_INV03	Prasat Kittakoop	PASSION MADE POSSIBLE: GREEN CHEMISTRY ON WATER-ASSISTED NITRILE OXIDE CYCLOADDITIONS AND A SIMPLE, CLEAN, BY-PRODUCT FREE, SITE-SELECTIVE DEUTERATION
10:00-10:15	C_006	M. Rofif Nurfaizi	EFFECTS OF SULFUR SUBSTITUTION IN A NICKEL COMPLEX FEATURING A N_4-SCHIFF BASE MACROCYCLE ON THE ELECTROCATALYTIC ACTIVITY TOWARDS CO_2 REDUCTION
10:15-10:30	C_007	Noval Herfindo	CHIRAL PYRIMIDINYL-PIPERAZINE CARBOXAMIDE DERIVATIVES AS POTENT YEAST □-GLUCOSIDASE INHIBITORS
BREAK			
Chairperson:	Assoc. Prof. Dr. Apinpus Rujiwatra Co-Chair: Assoc. Prof. Dr. Burapat Inceesungvorn		
Time	ID	Speaker	Title
10:45-11:15	C_INV04	David J. Harding	ADVENTURES IN MOLECULAR MAGNETISM
11:15-11:30	C_008	Cinta Ihya	MAGNETIC LIQUID MARBLES FOR HYDROGEN SULFIDE GAS DETECTION
11:30-11:45	C_009	The Thanh Ngo	PINOSTROBIN HYDRAZONE DERIVATIVES AS NEW□□-GLUCOSIDASE INHIBITORS
11:45-12:00	C_010	Poom Tookammee	APPLICATION OF THE DESIGN THINKING PROCESS IN THE DEVELOPMENT OF MAYONGCHID NAKHON NAYOK BOARD GAMES: A STUDY WITH 12TH-GRADE STUDENTS

Session:	D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI		
Room:	BOARD ROOM 3, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Chartchai Leenawong Asst. Prof. Dr. Nifatamah Makaje Dr. Chularat Srikul		
Time	ID	Speaker	Title
9:30-9:50	D_INV01	Theerawit Wilaiprasitporn	AI FOR BIOMEDICAL SIGNAL PROCESSING TOWARD HEALTHCARE AND MEDICINE
9:50-10:05	D_001	Peerawit Kalaphakdee	PRICING OPTION ON COMMODITY UNDER SCHWARTZ MODEL BY USING FINITE METHODS
10:05-10:20	D_002	Worarat Srisurat	OPTIMIZING THE PARAMETERS OF PROFIT-RELATIVE VIGOR INDEX STRATEGY
10:20-10:35	D_003	Suphannee Chueanun	COMPARISON OF FORECASTING METHODS FOR DIGITAL MARKETING PLANNING
BREAK			
10:45-11:00	D_004	Monchai Kooakachai	WIN-PROBABILITIES FOR COMPARING TWO NEGATIVE BINOMIAL RANDOM VARIABLES
11:00-11:15	D_005	Pongrawee Chumworathayee	STOCHASTIC MODELLING OF TRAFFIC FLOW USING A MODIFIED TASEP INCORPORATION
11:15-11:30	D_006	Kittimasak Naijit	A GENDER EQUALITY ANALYSIS OF THE PARIS 2024 OLYMPIC GAMES
11:30-11:45	D_007	Nuttapusit Keatipimol	SECURE DOMINATING SET OF SPLIT GRAPHS
11:45-12:00	D_008	Phapaengmuang Sukkasem	AN ALGORITHM FOR ILLUMINATING N NON-OVERLAPPING CIRCULAR DISC' BOUNDARIES ON THE PLANE
12:00-12:15	D_009	Prondanai Kaskasem	MACHINE LEARNING-BASED PREDICTION OF THONG DEE POMELO SWEETNESS

Session:	E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY		
Room:	NOPPHAKAO 1, THE EMPRESS HOTEL		
Chairperson:	Prof. Dr. Supon Ananta Prof. Dr. Tetsuya Kida Assoc. Prof. Dr. Pakorn Opaprakasit Assoc. Prof. Dr. Thapanee Sarakonsri Dr. Mati Horprathum		
Time	ID	Speaker	Title
9:30-9:45	E_INV03	Jyh-Tsung Lee	APPLICATIONS OF POLYMER BRUSHES IN LITHIUM-ION BATTERY ELECTRODES
9:45-10:00	E_017	Sayant Saengsuwan	RAPID SYNTHESIS AND CHARACTERIZATION OF UV-POLYMERIZED CASSAVA STARCH-GRAFTED-POLYACRYLIC ACID/GO COMPOSITE HYDROGELS AS LOW-COST AND BIODEGRADABLE SUPERABSORBENT : EFFECT OF GO CONTENTS
10:00-10:15	E_018	Panyawutthi Rimdusit	TOUGHNESS ENHANCEMENT OF POLYLACTIC ACID FILLED WITH ULTRAFINE FULLY VULCANIZED NATURAL RUBBER POWDER GRAFTED WITH METHYL METHACRYLATE MONOMER
10:15-10:30	E_019	Nipon Chumchery	EFFECT OF COBALT ADDITION ON MICROSTRUCTURE AND MECHANICAL PROPERTY OF SINTERED MULTIPHASE STEELS
BREAK			
10:45-11:00	E_020	Nattaya Tosangthum	EFFECT OF COPPER ADDITION ON MICROSTRUCTURE AND PROPERTY OF SINTERED Fe-Cr-Mo-Si-C-(Cu) ALLOYS PRODUCED UNDER SLOW COOLING
11:00-11:15	E_021	Natwara Tansungnern	GIANT DIELECTRIC PROPERTIES, ELECTRICAL RESPONSE, AND MICROSTRUCTURE OF $CaCu_3Ti_{4-x}Ga_xO_{12}$ CERAMICS
11:15-11:30	E_022	Thanyaporn Yotkaew	EFFECT OF MOLYBDENUM AND SILICON CARBIDE ON MICROSTRUCTURES AND PROPERTIES OF SINTERED Fe-Mo-Mn-Si-C ALLOYS
11:30-11:45	E_023	Pariwat Dumnui	EFFECTS OF Fe^{3+} DOPING ON STRUCTURE AND DIELECTRIC PROPERTIES OF $CaCu_3Ti_4O_{12}$ CERAMICS
11:45-12:00	E_024	Nattapong Sukseangjaew	CERAMIC MATERIAL $CaCu_3Ti_4O_{12}$ DOPED WITH Sr^{2+} and Al^{3+} IONS AT Ca^{2+} AND Ti^{4+} POSITIONS : STUDY AND DEVELOPMENT OF MATERIALS FOR APPLICATION AS CERAMIC CAPACITORS

Session:	F - FOOD SCIENCE AND TECHNOLOGY / AGRICULTURAL SCIENCE		
Room:	CHIANG MAI 5, EMPRESS CONVENTION CENTRE		
Chairperson:	Prof. Dr. Seung Joon Baek Co-Chair: Assoc. Prof. Dr. Inthawoot Suppavorasatit		
Time	ID	Speaker	Title
9:30-10:00	F_INV03	Seung Joon Baek	NANO-ENCAPSULATED PHYTOCHEMICALS BY SOLUBLE SOYBEAN POLYSACCHARIDE/CHITOSAN ENHANCE THEIR BIOLOGICAL ACTIVITIES
10:00-10:30	F_INV04	Chaiwut Gamonpilas	THE POWER OF UNDERUTILIZED PULSES: COMPLEMENTARY PROTEINS FOR A SUSTAINABLE FOOD SYSTEM
BREAK			
10:45-11:00	F_09	Nareekan Chaiwong	ENHANCING THE FUNCTIONAL PROPERTIES OF HEMP PROTEIN THROUGH ULTRASOUND-ASSISTED MAILLARD CONJUGATION WITH CHITOSAN DERIVATIVES
11:00-11:15	F_010	Hataichanok Pandith	COMPARISON OF THE AMOUNT OF ACTIVE COMPOUNDS AND ANTI-INFLAMMATORY EFFICACY OF UMBRELLA MOSS (*Rhodobryum giganteum*) EXTRACTS FROM FOREST AND TISSUE CULTURE
11:15-11:30	F_011	Nialmas Samuela	ENHANCEMENT OF OCTENYL SUCCINYLATION OF CASSAVA STARCH VIA DRY HEATING TREATMENT
11:30-11:45	F_012	Wascharin Udchumpisai	IMPACT OF WATER AND GLUCOSE DURING STEAM-HEAT MOISTURE TREATMENT ON PHYSICOCHEMICAL PROPERTIES OF CASSAVA FLOUR
11.45-12.00	F_013	Chanya Jirapawasut	2 IN 1 INNOVATIVE APPARATUS FOR CHEMICAL DETECTION IN AGRICULTURAL AND ENVIRONMENTAL APPLICATIONS

Symposium:	SP3-MICROBIAL DIVERSITY AND SUSTAINABLE UTILIZATION		
Room:	CHIANG MAI 2, EMPRESS CONVENTION CENTRE		
Chairperson:	Emeritus Prof. Dr. Saisamorn Lumyong Dr. Sirasit Srinunpan Dr. Nakarin Suwannarach		
Time	ID	Speaker	Title
9:30-10:00	SP3_INV01	Guangce Wang	THE COMMUNICATION BETWEEN MARINE DIATOM CELLS AND THEIR TRANSPORTERS IN RESPONSE TO GLOBAL WARMING THROUGH THE ABSORPTION AND TRANSFORMATION OF KEY BIOGENIC ELEMENTS
10:00-10:30	SP3_INV02	Arinthip Thamchaipenet	MICROBIOMES BENEFIT GROWTH AND STRESS TOLERANCE OF PLANTS
BREAK			
10:45-10:57	SP3_001	Napalai Chaiwan	ANTI-SKIN AGING PROPERTIES OF CULTURABLE ENDOPHYTIC FUNGI ISOLATED FROM ONION
10:57-11:09	SP3_002	Madhara Wimalasena	MYCOREMEDIATION FOR DECOLORIZING CRYSTAL VIOLET USING *Lasiodiplodia spp.* ISOLATED FROM SRI LANKA
11:09-11:21	SP3_003	Wenhua Lu	A STUDY OF BIOLUMINESCENCE FUNGI IN CHINA AND THAILAND
11:21-11:33	SP3_004	May Tharaphu Thein Win	GENOMIC INSIGHTS INTO PLANT GROWTH PROMOTION AND SALT STRESS TOLERANCE IN *Tsukamurella* sp. MT6.1T
11:33-11:45	SP3_005	Vidyamali Koodalugodaarachchi	UNVEILING DUAL LIFESTYLES OF *Colletotrichum fructicola* AND *Colletotrichum siamense ON Camellia sinensis* FROM NORTHERN THAILAND
11:45-11:57	SP3_006	Xian Zhang	ADDITIONS OF SAPROBIC FUNGI ASSOCIATED WITH MACADAMIA TREES IN CHINA AND THAILAND

Symposium:	SP5-DATA SCIENCE AND DATA PRIVACY		
Room:	PETCHARAT 1, THE EMPRESS HOTEL		
Chairperson:	Assoc. Prof. Dr. Jakramate Bootkrajang		
Time	ID	Speaker	Title
9:30-9:55	SP5_INV01	Juggapong Natwichai	PRIVACY VIOLATION FROM BASIC ATTACKS TO JOINT ATTACKS
9:55-10:20	SP5_INV02	Sarawoot Kongyoung	BALANCING ACCURACY AND ETHICS: DATA CLEANSING AND PRIVACY PRESERVATION IN LARGE LANGUAGE MODEL TRAINING
10:20-10:35	SP5_001	Sitthichoke Subpaiboonkit	CAUSALITY DISCOVERY USING MARKOV BLANKET AND DOMAIN KNOWLEDGE INTEGRATION FOR IDENTIFYING DRUG-DRUG INTERACTIONS
BREAK			
10:45-11:05	SP5_INV03	Vorapong Suppakitpaisarn	PUBLISHING NUMBER OF WALKS AND KATZ CENTRALITY UNDER LOCAL DIFFERENTIAL PRIVACY
11:05-11:30	SP5_INV04	Sira Sriswasdi	FEDERATED LEARNING AND FULL-LOOP MEDICAL AI EXPERIENCES AT CHULA
11:30-11:55	SP5_INV05	Thaned Rojsiraphisal	NEW RELATIONSHIP OF SEA SURFACE VARIABILITY ON THAILAND RAINFALL

Symposium:	SP8-THE SCIENCE OF RESTORING TROPICAL FOREST ECOSYSTEMS: 30 YEARS OF PROGRESS AND BEYOND		
Room:	PETCHARAT 2, THE EMPRESS HOTEL		
Chairperson:	Asst. Prof. Dr. Sutthathorn Chairuangsri Asst. Prof. Dr. Dia Shannon		
Time	ID	Speaker	Title
9:30-10:00	SP8_001	Stephen Elliott	RESEARCH FOR RESTORING THAILAND'S TROPICAL FOREST ECOSYSTEMS - 30 YEARS OF PROGRESS
10:00-10:30	SP8_INV01	Dian Latifah	ESTABLISHING A FOREST RESTORATION RESEARCH UNIT IN INDONESIA
BREAK			
10:45-11:15	SP8_INV02	Nigel Tucker	DEVELOPMENT AND COLONISATION OF WILDLIFE CORRIDOR HABITAT - ASPECTS OF STRUCTURAL AND FUNCTIONAL CONNECTIVITY 25 YEARS AFTER RESTORATION
11:15-11:30	SP8_002	Vonona Randrianasolo	DEVELOPING THE FRAMEWORK SPECIES APPROACH FOR DRY FOREST IN MADAGASCAR
11:30-11:45	SP8_003	Afzaa Aziz	ELMINA URBAN BIODIVERSITY CORRIDOR: A MALAYSIAN CASE STUDY URBAN ECOLOGICAL RESTORATION
11:45-12:00	SP8_004	Nur Bahar	LEVERAGING DIGITAL PLATFORMS FOR FOREST RESTORATION AND SUPPLY CHAIN SUSTAINABILITY

Symposium:	SP10-UNIVERSITY - INDUSTRY RESEARCH COLLABORATION		
Room:	NOPPHAKAO 3, THE EMPRESS HOTEL		
Chairperson:	Assoc. Prof. Dr. Pitiwat Wattanachai Asst. Prof. Dr. Datchanee Pattavarakorn		
Time	ID	Speaker	Title
9:30-10:00	SP10_INV02	Jirawut Junkasem	WASTE CIRCULATION: INNOVATION TO COMERCIALLIZATION
10:00-10:30	SP10_001	Torranin Chairuangsri	PRACTICAL GUIDE TO THE IDENTIFICATION OF M_7C_3, $M_{23}C_6$ AND M_6C CARBIDES IN AS-CAST HIGH CHROMIUM IRONS CONTAINING Mo OR W BY ELECTRON MICROSCOPY
BREAK			
10:45-11:00	SP10_INV03	Vayuree sukrungreungsanti	FROM UNIVERSITY RESEARCH TO STARUP'S JOURNEY FOR IMUNEUP: WORLD'S FIRST BIOTECH INNOVATION FOR IMMUNE-BOOSTING INGREDIENTS TARGETING THE FUTURE FOOD MARKET
11:00-11:15	SP10_002	Sankum Nusen	EFFECT OF OXIDE FILMS ON NITROCARBURIZING OF ROLLED LOW CARBON STEEL
11:15-11:30	SP10_003	Kittikhun Ruangchai	IMPROVEMENT IN WEAR RESISTANCE OF HIGH CHROMIUM CAST IRONS BY MO AND W ADDITION AND HEAT TREATMENT

Symposium:	SP 11-X-RAY CRYSTALLOGRAPHY		
Room:	KINNAREE 1, EMPRESS PREMIER HOTEL		
Chairperson:	Assoc. Prof. Dr. Kuakarun Krusong Assoc. Prof. Dr. Kittipong Chainok		
Time	ID	Speaker	Title
9:30-10:00	SP11_INV02	Christoph Janiak	ACETYLENEDICARBOXYLATE AS LINKER IN THE ENGINEERING OF METAL-ORGANIC FRAMEWORKS: CHALLENGES AND POTENTIAL
10:00-10:30	SP11_INV03	Yuan-E Lee	STUDY OF PROTEIN STRUCTURES USING X-RAY CRYSTALLOGRAPHY AND CRYO-ELECTRON MICROSCOPY (CRYO-EM)
BREAK			
10:45-11:00	SP11_001	Watthanachai Saradhuldhat	CO-CRYSTALLIZATION OF INACTIVE GLYCOGEN DEBRANCHING ENZYME FROM CORYNEBACTERIUM GLUTAMICUM (CgGDE) AND MALTOTRIOSE
11:00-11:15	SP11_002	Nanthawat Wannarit	INVESTIGATING THE INFLUENCE OF pH ON THE STRUCTURAL DIVERSITY OF NEW ZINC(II) AND CADMIUM(II) COORDINATION POLYMERS CONSTRUCTED FROM 4,4-BIPYRIDINE AND BENZOATE LIGANDS
11:15-11:30	SP11_003	Kenika Khotchasanthong	CRYSTAL TRANSFORMATION AND CARBON DIOXIDE ADSORPTION IN ULTRAMICROPOROUS RARE EARTH METAL-OXLATE FRAMEWORKS
11:30-11:45	SP11_004	Aaqib Khurshid	EFFECT OF HYDROXYL GROUP ON STRUCTURES AND CATALYTIC ACTIVITIES OF LANTHANIDE COORDINATION POLYMERS
11:45-12:00	SP11_005	Phasini Kasantikul	CRYSTAL STRUCTURE AND CARBON DIOXIDE ADSORPTION IN 2D RARE-EARTH-OXALATE COORDINATION POLYMERS

Symposium:	SP12-RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY		
Room:	VIMARN 2, THE EMPRESS HOTEL		
Chairperson:	Dr. Yutthana Tumnoi Co-Chair: Dr. Wipada Ngansom		
Time	ID	Speaker	Title
09:30-10:00	SP12_INV01	Shinji Tokonami (On-line)	PRESENT STATUS AND FUTURE PERSPECTIVE ON RADON/THORON STUDIES
10:00-10:30	SP12_INV02	Narongchai Autsavapromporn	IDENTIFICATION OF METABOLIC BIOMARKERS FOR LUNG CANCER SCREENING IN HIGH NATURAL BACKGROUND RADIATION AREAS
BREAK			
10:45-11:15	SP12_INV03	Worawat Poltabtim	NOVEL PASSIVE RADIOACTIVE RADON GAS MEASUREMENT TECHNIQUE USING MODIFIED GAFCHROMIC FILM
11:15-11:30	SP12_001	Dumrongsak Rodphothong	NUMERICAL INVESTIGATION OF RADON GAS DISPERSION FROM GRANITE SURFACE: EFFECTS OF METEROLOGICAL DATA ON ATMOSPHERIC TRANSPORT
11:30-11:45	SP12_002	Suttiwat Madlee	MONTE CARLO SIMULATION OF RADON DETECTION IN TEMPLE AREA IN THAILAND
11:45-12:00	SP12_003	Saroh Niyomdecha	RADIUM AND RADON CONCENTRATION IN GEOTHERMAL SPRING, SURAT THANI, THAILAND

Symposium:	SP14-SCIENCE COMMUNICATION AND SCIENCE LITERACY		
Room:	CHIANG MAI 4, EMPRESS CONVENTION CENTRE		
Chairperson:	Dr. Ganigar Chen		
Time	ID	Speaker	Title
9:30-9:45	-	The President of the National Science Museum and The President of the Science Society of Thailand	INTRODUCTORY AND OPENING SPEECHES
9:45-10:20	SP14_INV01	Sook-Kyoung Cho	GLOBAL PERSPECTIVE IN RESEARCH AND PRACTICE IN SCIENCE COMMUNICATION
10:20-10:40	SP14_INV02	Legoh Finarya	ENGAGING SCIENTISTS IN SCIENCE, HEALTH, AGRICULTURE, RISK AND ENVIRONMENT (SHARE) COMMUNICATION
10:40-11:00	SP14_INV03	Lan-Yu Liu	CURRENT TREND IN DESIGNING SCIENCE COMMUNICATION CURRICULUM
BREAK			
11:20-11:40	SP14_INV04	Paonrach Yodnane	ENHANCING SCIENCE COMMUNICATION THROUGH AESTHETIC AND COMMUNICATION ARTS APPROACHES
11:40-12:00	SP14_INV05	Peerapon Anutarasoat	BRIDGING THE GAP BETWEEN SCIENCE AND THE PUBLIC
12:00-12:20	SP14_INV06	Sasivimon Swangpol	CULTIVATING SCIENCE COMMUNICATORS: A CURRICULUM DEVELOPMENT EXPERIENCE AT FACULTY OF SCIENCE, MAHIDOL UNIVERSITY, THAILAND

Symposium:	SP16-NATURE BASED SOLUTIONS FOR CLIMATE MITIGATION		
Topic:	NATURE-BASED SOLUTIONS FOR CLIMATE MITIGATION AND DRIVING NbS IN THAILAND AND INTERNATIONALLY		
Room:	VIMARN 1, THE EMPRESS HOTEL		
Chairperson:	Prof. Dr. Anchana Prathep Co-Chair: Prof. Dr. Siriporn Jungsuttiwong Co-Chair: Dr. Milica Stankovic		
Time	ID	Speaker	Title
9:00-9:20	SP16_INV01	Peter Macreadie	THE CONCEPT OF NATURE-BASED SOLUTIONS (NbS) AND THEIR IMPLEMENTATION AT THE INTERNATIONAL LEVEL
9:20-9:40	SP16_INV02	Pakkasem Tongchai	THE CONCEPT OF NATURE-BASED SOLUTIONS (NbS) AND THEIR IMPLEMENTATION AT THE REGIONAL LEVEL
9:40-10:00	SP16_INV03	Wongkot Wongsapai	THE IMPLEMENTATION OF NbS IN NATIONAL POLICY
10:00-10:30		Anchana Prathep Siriporn Jungsuttiwong Milica Stankovic	Q&A
BREAK			
Topic:	HIGH PERFORMANCE RESEARCHERS IN CARBON VERIFIERS THROUGH NATURE BASED SOLUTION FOR CARBON NET ZERO		
Room:	VIMARN 1, THE EMPRESS HOTEL		
Chairperson:	Prof. Dr. Anchana Prathep Co-Chair: Prof. Dr. Siriporn Jungsuttiwong		
10:45-11:00	SP16_INV04	Kobsak Wanthongchai	NbS PROJECT IMPLEMENTATION IN FOREST ECOSYSTEM
11:00-11:15	SP16_INV05	Tassanee Jiaphasuanan	NbS PROJECT IMPLEMENTATION IN FRESHWATER ECOSYSTEM
11:15-11:30	SP16_INV06	Kanyanat Kaewutai	NbS PROJECT IMPLEMENTATION IN MARINE AND COASTAL ECOSYSTEM
11:30-12:00		Anchana Prathep Siriporn Jungsuttiwong	Q&A

Session:	MEETING OF THE SCIENCE DEANS		
Room:	NOKYOONG 3, EMPRESS PREMIER HOTEL		
Time	ID	Speaker	Title
9:00-11:00	-	-	MEETING OF THE SCIENCE DEANS

Session:	ANNUAL MEETING OF THE SCISOC		
Room:	NOKYOONG 3, EMPRESS PREMIER HOTEL		
Time	ID	Speaker	Title
12:00-13:30	-	-	ANNUAL MEETING OF THE SCISOC

AFTERNOON PROGRAM

Session:	PLENARY SPEAKER		
Room:	EMPRESS GRAND HALL, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Apinpus Rujiwatra		
Time	ID	Speaker	Title
13:00-13:45	-	Il-Doo Kim	NANOFIBER TECHNOLOGIES FROM LAB. TO COMMERCIALIZATION

Session:	POSTER PRESENTATION – SESSION / SYMPOSIUM / YRSS / JYRSS		
Room:	HALL WAY, EMPRESS CONVENTION CENTRE		
Time	ID	Speaker	Title
14:00-17:00	-	-	POSTER PRESENTATION (YRSS / JYRSS'S COMMITTEE)
16:00-18:00	-	-	POSTER PRESENTATION (SESSION / SYMPOSIUM'S COMMITTEE)

Session:	A - PHYSICS / APPLIED PHYSICS		
Room:	EMPRESS GRAND HALL, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Auttakit Chatrabhuti Asst. Prof. Dr. Sakhorn Rimjaem Asst. Prof.Dr. Sukrit Sucharitakul		
Time	ID	Speaker	Title
14:00-14:30	A_INV04	Ignatios Antoniadis	UNVEILING THE FUNDAMENTAL LAWS OF NATURE
14:30-14:45	A_014	Spyros Sypsas	STATISTICS OF PRIMORDIAL RANDOM FIELDS
14:45-15:00	A_015	Vicharit Yingcharoenrat	FINITE ACTION FOR A SINGULAR INSTANTON
BREAK			
15:15-15:30	A_016	Hiroshi Isono	THIN-WALL VACUUM DECAY IN THE PRESENCE OF A COMPACT DIMENSION
15:30-15:45	A_017	Daniele Bielli	JT GRAVITY FROM NON-ABELIAN T-DUALITY
15:45-16:00	A_018	Apimook Watcharangkool	HEAT KERNEL COMPUTATION FOR ONE-LOOP EFFECTIVE ACTION OF eV-SCALE STERILE NEUTRINOS IN JUNO EXPERIMENT

Session:	B - BIOLOGICAL SCIENCES		
Room:	CHIANG MAI 1, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Angkhana Inta Co-Chair: Assoc. Prof. Dr. Aussara Panya		
Time	ID	Speaker	Title
14:00-14:30	B_INV05	Angkhana Inta	WOMEN'S WELLNESS IN THE MOUNTAINS: AN EXPLORATION OF MEDICINAL PLANTS AMONG TIBETO-BURMAN GROUPS IN THAILAND
14:30-14:45	B_023	Sirintip Pechroj	POTENTIAL OF *Clinacanthus nutans* and *Barleria prionitis* EXTRACTS IN REDUCING PATHOGENIC FACTORS CONTRIBUTING TO PERIODONTITIS
14:45-15:00	B_024	Waranya Ardburai	EFFICACY OF BOTANICAL EXTRACTS AGAINST LARVAL STAGE OF HOUSE FLY, *Musca domestica* (DIPTERA: MUSCIDAE)
BREAK			
15:15-15:45	B_INV06	Puey Ounjai	CRYOGENIC ELECTRON MICROSCOPY AND THE REVOLUTIONS IN STRUCTURAL AND CELLULAR BIOLOGY
15:45-16:00	B_025	Nattawat Angkuljarernpon	THE APPLICATION OF BARCODE DNA-HIGH RESOLUTION MELTING (BAR-HRM) ANALYSIS FOR AUTHENTICATIONC OF *Clinacanthus nutans*
16:00-16:15	B_026	Yuga Priandana	LAND UTILIZATION FOR PUBLIC HEALTH
16:15-16:30	B_027	Satayu Panjinda	GAMING AND SIMULATION FOR SHARE LEARNING ABOUT THE IMPORTANCE AND CO-CONSTRUCTION OF URBAN GREEN SPACE
16:30-16:45	B_028	Euakarn Thongchot	BIRD NEST SITE CHARACTERISTICS IN URBAN GREEN AREAS OF CHULALONGKORN UNIVERSITY

The poster session for Session B will start at 16:45.

Session:	C - CHEMISTRY		
Room:	CHIANG MAI 3, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Jaroon Jakmunee Co-Chair: Assoc. Prof. Dr. Nawee Kungwan		
Time	ID	Speaker	Title
14:00-14:30	C_INV05	Itthipon Jeerapan	CRAFTING INNOVATION: MATERIALS AND BIOELECTROCHEMISTRY IN FLEXIBLE SENSORS AND MINIATURIZED ELECTROCHEMICAL ENERGY DEVICES
14:30-14:45	C_011	Nattanit Suddee	SYNTHESIS OF ALKYLATED 9-*O*-BERBERRUBINE DERIVATIVES AS YEAST α-GLUCOSIDASE INHIBITORS
14:45-15:00	C_012	Pitranan Kunthanasap	DEVELOPMENT OF ELECTROCHEMICAL SENSOR BASED ON MOLECULARLY IMPRINTED POLYMER FOR DETERMINATION OF ROXARSONE
BREAK			
15:15-15:30	C_013	Patcharee Taenglek	DETERMINATION OF CANNABIDIOL IN PRODUCT SAMPLES BY HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY
15:30-15:45	C_014	Saloem Salot	ANTIOXIDANT ACTIVITIES OF CHINESE HERBS: HUANG QIN, HUANG LIAN, AND HUANG BAI
15:45-16:00	C_015	Nuryanee Hama	FORMALDEHYDE DETERMINATION IN *Hevea brasiliensis* LATEX BASED ON CASEIN/FERRIC CHLORIDE/POLYVINYL ALCOHOL COMPOSITE

Session:	D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI		
Room:	BOARD ROOM 3, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Chartchai Leenawong Asst. Prof. Dr. Kuntalee Chaisee Asst. Prof. Dr. Nawinda Chutsagulprom		
Time	ID	Speaker	Title
14:00-14:20	D_INV02	Aniruth Phonon	QUASI-CONFORMAL IMAGE AUGMENTATION: A NOVEL APPROACH FOR CONVOLUTION NEURAL NETWORKS
14:20-14:35	D_010	Rasryne Hirankalyakorn	APPLICATION FOR PILL AND CAPSULE MEDICINE IDENTIFICATION BY PHYSICAL METHODS
14:35-14:50	D_011	Krisda Tapracharoen	DEVELOPMENT OF A SURGICAL PLANNING SYSTEM FOR MAXILLOFACIAL SURGERY
14:50-15:05	D_012	Chadaporn Keatmanee	ADAPTIVE KALMAN FILTER FOR IMPROVED LANE TRACKING
BREAK			
15:15-15:30	D_013	Thanawat Kongrak	QNN TRAINER: A TOOL TO SUPPORT QUANTUM NEURAL NETWORK TRAINING
15:30-15:45	D_014	Sathit Prasomphan	APPLYING MACHINE LEARNING TECHNIQUES FOR SNAKE SPECIES IDENTIFICATION
15:45-16:00	D_015	Araya Hamkamhak	ANALYTICAL SOLUTIONS OF SOME CONFORMABLE FRACTIONAL DIFFERENTIAL EQUATIONS
16:00-16:15	D_016	Asma Yafad	NUMERICAL SOLUTION OF THE ABSOLUTE VALUE EQUATIONS USING TWO STEPS
16:15-16:30	D_017	Wasawat Kitcharoensubdee	SOLUTION SETS OF SOME TWO-TERM QUADRATIC EQUATIONS INVOLVING FOCAL POINTS
16:30-16:45	D_018	Thanomsak Laokul	APPROXIMATING ENDPOINTS OF MULTI-VALUED NONEXPANSIVE MAPPINGS
16:45-17:00	D_019	Sastra Boonyachan	NEW DELAY-DEPENDENT UNIFORM STABILITY ANALYSIS FOR THE CONFORMATION

Symposium:	SP3-MICROBIAL DIVERSITY AND SUSTAINABLE UTILIZATION		
Room:	CHIANG MAI 2, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Wasu Pathom-aree Dr. Jaturong Kumla Dr. Nakarin Suwannarach		
Time	ID	Speaker	Title
14:00-14:30	SP3_INV03	Savitree Limtong	EXPLOITATION OF YEAST BIODIVERSITY TOWARDS BIOTECHNOLOGICAL APPLICATIONS
14:30-15:00	SP3_INV04	Anurag Sunpapao	DIVERSITY OF BENEFICIAL MICROORGANISMS IN AGRICULTURAL SCIENCE FOR SUSTAINABILITY
BREAK			
15:00-15:12	SP3_007	Pharada Rangseekaew	CULTIVABLE ACTINOBACTERIA FROM NORTHERN THAILAND LIMESTONE HABITATS: UNVEILING THEIR POTENTIAL FOR PLANT GROWTH PROMOTION
15:12-15:24	SP3_008	Alviti Kankanamalage Hasith Priyashantha	ENTOMOPATHOGENIC FUNGI STUDY IN NORTHERN THAILAND
15:24-15:36	SP3_009	Erfu Yang	INTEGRATED ANTAGONISTIC STRATEGIES OF TERMITES AND THEIR SYMBIOTIC GARDEN MICROBES AGAINST GARDEN-CONTAMINATED FUNGI
15:36-15:48	SP3_010	Toe Swe Zin Ei	ENDOPHYTIC FUNGI ASSOCIATED WITH *Cannabis sativa* AND THEIR ANTAGONISTIC POTENTIAL
15:48-16:00	SP3_011	Fara Nazim	FUNGAL DIVERSITY IN WAHAVA HOT SPRING IN SRI LANKA

Symposium:	SP4-CHALLENGES AND OPPORTUNITIES IN CLIMATE AND ENVIRONMENTAL CHANGES		
Room:	NOPPHAKAO 1, THE EMPRESS HOTEL		
Chairperson:	Assoc. Prof. Dr. Somporn Chantara		
Time	ID	Speaker	Title
14:10-14:40	SP4_INV01	Mukand Babel	CLIMATE CHANGE AND HYDROMETEOROLOGICAL EXTREMES: DROUGHT RISK ASSESSMENT IN NORTHEAST OF THAILAND
14:40-14: 50	SP4_001	Panaya Kotchaplai	BACTERIAL POLYMERS: A POTENTIAL SOLUTION FOR ENVIRONMENTAL CHALLENGES
14:50-15:00	SP4_002	Pumis Thuptimdang	ADSORPTION OF DICLOFENAC IN MUNICIPAL WASTEWATER ON ACTIVATED SLUDGE BIOMASS
BREAK			
15:10-15:40	SP4_INV02	Surat Bualert	GLOBAL WARMING, CLIMATE CHANGE AND ITS EFFECTS ON ENVIRONEMENT: AIR POLLUTION
15:40-15:50	SP4_003	Sharjeel Shakeel	SEASONAL VARIATIONS OF BLACK CARBON AND PM2.5 DURING THE BIOMASS BURNING SEASON IN CHIANG MAI, THAILAND
15:50-16:00	SP4_004	Supanut Suntikoon	EVALUATION OF CLIMATE CHANGE IMPACT ON SEASONAL BIOGEOCHEMICAL VARIATIONS IN THE MUN RIVER WATERSHED USING WATER QUALITY DATA AND GEOCHEMICAL MASS BALANCE METHOD

Symposium:	SP8-THE SCIENCE OF RESTORING TROPICAL FOREST ECOSYSTEMS: 30 YEARS OF PROGRESS AND BEYOND		
Room:	PETCHARAT 2, THE EMPRESS HOTEL		
Chairperson:	Asst. Prof. Dr. Pimonrat Tiansawat Assoc. Prof. Dr. Stephen Elliott		
Time	ID	Speaker	Title
14:00-14:30	SP8_INV03	Kate Hardwick	FROM TINY SEEDS TO GLOBAL RESTORATION
14:30-14:45	SP8_005	Dia Shannon	DIRECT SEEDING - AN EFFECTIVE ALTERNATIVE TO TREE PLANTING?
14:45-15:00	SP8_006	George Gale	BIODIVERSITY RECOVERY: ADVANCES IN BIOACOUSTIC MONITORING OF BIRDS
BREAK			
15:15-15:45	SP8_INV04	Maxime Réjou-Méchain	USING VERY HIGH RESOLUTION REMOTE SENSING DATA TO MONITOR FOREST STRUCTURE AND COMPOSITION
15:45-16:45	Poster section	12 “Flash” presentations by poster presenters (4 minutes each)	Reference forests, seed banks, seedling survival, carbon, drones, lidar and the soil mycobiome

Symposium:	SP9-GENERATIVE AI: AN EMERGING AI TECHNOLOGY		
Room:	PETCHARAT 1, THE EMPRESS HOTEL		
Chairperson:	Asst. Prof. Dr. Papangkorn Inkeaw Assoc. Prof. Dr. Jakramate Bootkrajang		
Time	ID	Speaker	Title
14:00-14:25	SP9_INV01	Sanparith Marukatat	GENERATIVE AI FOR EVERYONE
14:25-14:50	SP9_INV02	Sarawoot Kongyoung	ADVANCEMENTS IN THAI LLM DEVELOPMENT: CHALLENGES, AND THE FUTURE DIRECTION FOR THAI LLMS
14:50-15:05	SP9_001	Kornprom Pikulkaew	INTEGRATING QR CODES WITH AI-GENERATED ART FOR ENHANCED PATIENT IDENTIFICATION AND NAVIGATION IN HEALTHCARE SETTINGS
BREAK			
15:15-15:40	SP9_INV03	Ekapol Chuangsuwanich	GENERATIVE AI IN SPEECH FOR DENOISING, TTS, AND ANTI-SPOOFING APPLICATIONS
15:40-15:55	SP9_002	Napat Supasiripenpong	AUTOMATIC SEGMENTATION OF CARIES EXTENSIONS IN BITEWING RADIOGRAPHS USING *YOLOv8* WITH DENTAL CROSS-SECTIONS AS GROUND TRUTH

Symposium:	SP10-UNIVERSITY - INDUSTRY RESEARCH COLLABORATION		
Room:	NOPPHAKAO 3, THE EMPRESS HOTEL		
Chairperson:	Asst. Prof. Dr. Jomkhwan Meerak Asst. Prof. Dr. Worapong Thiemsorn		
Time	ID	Speaker	Title
14:00-14:30	SP10_INV04	Pitiwat Wattanachai	ENGAGEMENT MANAGEMENT
14:30-14:45	SP10_004	Pitcharat Ineure	DEVELOPMENT AND FUTURE OF THE GLASS INDUSTRY IN THAILAND
14:45-15:00	SP10_005	Teerawat Ngamnok	NOVEL COFFEE FERMENTATION PROCESS UTILIZING CO-CULTURE OF LACTIC ACID BACTERIA AND YEAST FOR ECO-FRIENDLY IN COFFEE INDUSTRY
BREAK			

Symposium:	SP12-RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY		
Room:	VIMARN 2, THE EMPRESS HOTEL		
Chairperson:	Dr. Yutthana Tumnoi Co-Chair: Dr. Wipada Ngansom		
Time	ID	Speaker	Title
14:00-14:30	SP12_INV04	Young-Yong Ji	TECHNICAL STATUS AND CHALLENGS OF ENVIRONMENTAL RADIATION MONITORING BASED ON UNCREWED AERIAL VEHICLES
14:30-15:00	SP12_INV05	Taehyung Lim	EVALUATION OF DETECTORS FOR ANOMALY DATA INTERPRETATION IN THE ENVIRONMENTAL RADIATION MONITORING
BREAK			
15:15-15:30	SP12_004	Pimchanok Nakchuai	THAILAND'S IMPLEMENTATION OF THE OBLIGATIONS UNDER THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY (CTBT)
15:30-15:45	SP12_005	Thawatchai Itthipoonthanakorn	DRY SEASON ELEVATED RADIOACTIVITY IN PM2.5 RAISES CONCERNS IN THAILAND
15:45-16:00	SP12_006	Pannaporn Pusomjit	MEASUREMENT OF RADIOACTIVITY IN SEAFOOD IMPORTED FROM JAPAN FOLLOWING THE RELEASE OF ALPS-TREATED WATER

Symposium:	SP13-HARNESSING DIGITAL SCIENCE AND ENGINEERING FOR ENVIRONMENTAL SUSTAINABILITY		
Room:	KINNAREE 1, EMPRESS PREMIER HOTEL		
Chairperson:	Assoc. Prof. Dr. Teerawat Sema Prof. Dr. Benjapon Chalermsinsuwan Dr. Prathana Nimmanterdwong Dr. Ratchanon Piemjaiswang		
Time	ID	Speaker	Title
14:00-14:25	SP13_INV01	Worapon Kiatkittipong	LIPID-BASED BIOREFINERY RESEARCH ALIGNED WITH THAI STRATEGIC INDUSTRY ALLIANCES
14:25-14:50	SP13_INV02	Sakdinun Nuntang	EFFECTS OF SURFACE MODIFICATION METHOD ON THE PREPARATION OF ACIDIC MESOPOROUS SILICA NANOCOMPOSITES FOR GREEN SYNTHESIS OF ESTER PRODUCTS
14:50-15:05	SP13_001	Kaung Sat Han	CARBON DIOXIDE EFFICIENCY ANALYSIS OF ADSORPTION AND DESORPTION USING K_2CO_3/Al_2O_3 SORBENT UNDER VARIOUS OPERATING PARAMETERS WITH AVRAMI KINETIC MODEL
BREAK			
15:15-15:40	SP13_INV03	Suparit Tangparitkul	THAILAND'S CCS TECHNOLOGY ROADMAP: SUCCESSIVE TECHNOLOGIES IN SUPPORT OF NATIONAL TARGETS ON CARBON NEUTRALITY AND NET-ZERO EMISSIONS
15:40-15:55	SP13_002	Phuwadech Prayurathanes	CELLULAR AUTOMATA BASED MODEL TO PREDICT WILDFIRE SMOKE DISPERSION

Symposium:	SP14-SCIENCE COMMUNICATION AND SCIENCE LITERACY		
Room:	CHIANG MAI 4, EMPRESS CONVENTION CENTRE		
Chairperson:	Dr. Ganigar Chen		
Time	ID	Speaker	Title
14:00-16:00	-	-	ROUNDTABLE DISCUSSION (BY INVITATION ONLY) FOCUS GROUP: SCIENCE COMMUNICATION CURRICULA AND RESEARCH IN HIGHER EDUCATION INSTITUTIONS
BREAK			

Symposium:	SP15-YOUNG RISING STARS OF SCIENCE 2024 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2024 (JYRSS)		
Room:	CHIANG MAI 5, EMPRESS CONVENTION CENTRE		
Chairperson:	Assoc. Prof. Dr. Kitipong Assatarakul Co-Chair: Asst. Prof. Dr. Pakawan Puangsombat Co-Chair: Asst. Prof. Dr. Jeeraporn Pekkoh Co-Chair: Asst. Prof. Dr. Parkpoom Phetpradap Co-Chair: Dr. Pumidech Puthongkham		
Time	ID	Speaker	Title
13:00-17:00	-	-	COMMITTEE MEETING
BREAK			

Symposium:	SP16-NATURE BASED SOLUTIONS FOR CLIMATE MITIGATION		
Topic:	NbS ALUMNI FOR DRIVING NbS IN THAILAND		
Room:	VIMARN 1, THE EMPRESS HOTEL		
Chairperson:	Prof. Dr. Anchana Prathep Co-Chair: Miss Kanyanat Kaewutai		
Time	ID	Speaker	Title
13:00-14:30	SP16_INV07	Anchana Prathep Miss Kanyanat Kaewutai [NbS Alumni]	COMMENTING ON PROJECT IMPLEMENTATION AND FUTURE PLANNING
BREAK			

Session:	STT50 CONGRESS BANQUET		
Room:	EMPRESS GRAND HALL, EMPRESS CONVENTION CENTRE		
Time	ID	Speaker	Title
18:00-21:00	-	-	BANQUET

NOVEMBER 27th, 2024

MORNING PROGRAM

Symposium:	SP7-CEMENT AND CONCRETE: SCIENCE, TECHNOLOGY AND APPLICATIONS TOWARDS GREEN AND SUSTAINABLE FUTURE		
Room:	BOARD ROOM 3, EMPRESS CONVENTION CENTRE		
Chairperson:	Prof. Dr. Arnon Chaipanich Co-Chair: Asst. Prof. Dr. Rattiyakorn Rianyoi		
Time	ID	Speaker	Title
8:20-8:45	SP7_INV01	Piti Sukontasukkul	SUSTAINABLE CONCRETE CRACK REPAIR USING MICP: NOVEL OBSERVATION TECHNIQUES AND pH MODIFICATION ENHANCEMENT
8:45-9:10	SP7_INV02	Darunee Wattanasiriwech	RECENT DEVELOPMENT in BIO-BASED-GEOPOLYMER FOR THE SUSTAINABLE CONSTRUCTION INDUSTRY
9:10-9:25	SP7_001	Maneerat Thala	MECHANICAL AND FIRE-RESISTANT PROPERTIES OF FIRED CLAY AND KAOLINITIC CLAY SUBSTITUTION IN COAL FLY ASH BASE GEOPOLYMERS
9:25-9:40	SP7_002	Kittiphat Kochchapong	EFFECT OF PLASMA ACTIVATED WATER ON EARLY-AGE HYDRATION REACTION AND STRENGTH ACTIVITY INDEX OF FLY-ASH CEMENT PASTE
9:40-9:55	SP7_003	Ananya Nararueang	MICROSTRUCTURE AND COMPRESSIVE STRENGTH OF FLY ASH-CALCINED CLAY-PORTLAND CEMENT MORTARS MIXED WITH SODIUM HYDROXIDE SOLUTION
9:55-10:10	SP7_004	Supakporn Aodkeng	EFFECTS OF WATER, PLASTIC SEALED AND AIR CURING ON COMPRESSIVE STRENGTH AND MICROSTRUCTURE OF PORTLAND CEMENT - CALCINED CLAY MORTARS
BREAK			

Symposium:	SP15-YOUNG RISING STARS OF SCIENCE 2024 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2024 (JYRSS) – PITCHING PRESENTATION – YRSS		
Room 1:	Bio > CHIANG MAI 1, EMPRESS CONVENTION CENTRE		
Room 2:	Chem > CHIANG MAI 2, EMPRESS CONVENTION CENTRE		
Room 3:	Math > Com > CHIANG MAI 3, EMPRESS CONVENTION CENTRE		
Room 4:	Food > Env > CHIANG MAI 4, EMPRESS CONVENTION CENTRE		
Room 5:	Mat > Phy > CHIANG MAI 5, EMPRESS CONVENTION CENTRE		
Time	ID	Speaker	Title
9:00-10:30	-	-	PITCHING PRESENTATION – YRSS
BREAK			

Session:	AWARDING CEREMONY – BEST ORAL & POSTER PRESENTATIONS – YRSS / JYRSS AWARDING SESSION		
Room:	EMPRESS GRAND HALL, EMPRESS CONVENTION CENTRE		
Time	ID	Speaker	Title
10:00-10:30	-	-	JYRSS AWARDING SESSION
10:30-11.00	-	-	AWARDING CEREMONY – BEST ORAL & POSTER PRESENTATIONS
11:00-12:00	-	-	YRSS AWARDING SESSION

SESSION A - PHYSICS / APPLIED PHYSICS

PHYSICS / APPLIED PHYSICS

Chair: Assoc. Prof. Dr. Auttakit Chatrabhuti
Co-Chair: Assoc. Prof. Dr. Atchara Punya Jaroenjittichai
Co-Chair: Asst. Prof. Dr. Sakhorn Rimjaem
Co-Chair: Asst. Prof. Dr. Jatuporn Saisut
Co-Chair: Asst. Prof. Dr. Sukrit Sucharitakul

For the STT50 conference in Chiang Mai, Thailand, we are inviting physicists in all fields to submit abstracts/complete papers. This annual conference aims to bring together experts to explore the theoretical and experimental frontiers of physics, as well as their applications. Our sessions cover the fields of accelerator physics, astrophysics, condensed matter physics, high energy physics, materials physics and quantum technology. This conference offers a forum for cooperation and exchange of ideas. We invite you to join us in developing creative solutions and advancing the goal of a sustainable future.

Invited Speakers

Prof. Dr. Ignatios Antoniadis

Assoc. Prof. Dr. Auttasit Tubtimtae

Assoc. Prof. Dr. Somsak Dangtip

Assoc. Prof. Dr. Weerachai Siripunvaraporn

SESSION B - BIOLOGICAL SCIENCES

BIOLOGICAL SCIENCES
Biochemistry / Biotechnology / Microbiology / Molecular biology / Biomedical science / Biodiversity

Chair: Prof. Dr. Tavan Janvilisri
Co-Chair: Prof. Dr. Alissara Reungsang
Co-Chair: Assoc. Prof. Dr. Sehanat Prasongsuk
Co-Chair: Assoc. Prof. Dr. Padchanee Sangthong
Co-Chair: Assoc. Prof. Dr. Wasu Pathom-aree
Co-Chair: Assoc. Prof. Dr. Aussara Panya
Co-Chair: Assoc. Prof. Dr. Yingmanee Tragoolpua
Co-Chair: Assoc. Prof. Dr. Tanawat Chaowasku
Co-Chair: Asst. Prof. Dr. Nattawadee Nantarat

We extend a warm invitation to researchers across all facets of life sciences to submit their abstracts/full papers for the upcoming STT50 conference in Chiang Mai, Thailand. This gathering aims to unite experts and scholars in an exploration of the pivotal role played by biological sciences in advancing sustainability on both national and international fronts. Biological sciences stand as a cornerstone in achieving sustainability goals worldwide. This conference provides a platform for collaboration and idea exchange among various branches of biological sciences. Researchers will have the opportunity to showcase their recent data, insights, and discoveries, highlighting their contributions to sustainable development. Our session encompasses a broad array of life sciences disciplines, including Biochemistry, Biotechnology, Microbiology, Molecular Biology, Biomedical Science, and Biodiversity. Join us in crafting innovative solutions and driving progress towards a sustainable future.

Invited Speakers

Prof. Dr. George Baillie

Prof. Dr. Hans Bäumler

Prof. Dr. Seung Joon Baek

Asst. Prof. Dr. Angkhana Inta

Asst. Prof. Dr. Puey Ounjai

Dr. Sittiruk Roytrakul

SESSION C - CHEMISTRY

CHEMISTRY
Analytical Chemistry / Inorganic Chemistry / Organic & Medicinal Chemistry / Physical & Theoretical Chemistry

Chair: Prof. Dr. Vatcharin Rukachaisirikul
Co-Chair: Assoc. Prof. Dr. Jaroon Jakmunee
Co-Chair: Assoc. Prof. Dr. Apinpus Rujiwatra
Co-Chair: Assoc. Prof. Dr. Wong Phakhodee
Co-Chair: Assoc. Prof. Dr. Thunwadee Limtharakul
Co-Chair: Assoc. Prof. Dr. Nawee Kungwan
Co-Chair: Assoc. Prof. Dr. Burapat Inceesungvorn

The Chemistry session endeavors to facilitate the convergence of professors, students, and scientists, providing a platform for the exchange of insights and research findings across four distinct sub-sessions: Analytical Chemistry, Inorganic Chemistry, Organic & Medicinal Chemistry, and Physical & Theoretical Chemistry. Each sub-session encompasses a diverse array of topics as outlined below. This comprehensive session aims to foster collaboration, inspire innovation, and drive advancements in the diverse fields of chemistry.

Analytical Chemistry: sample preparation, chromatographic methods, environmental chemistry, spectroscopic analysis, electroanalytical chemistry, chemical sensor, biosensors, and modern analytical techniques

Inorganic Chemistry: coordination chemistry, structural chemistry, crystal engineering, coordination polymer, metal organic framework, chemistry of main groups elements, lanthanide chemistry, bioinorganic chemistry, catalytic chemistry, supramolecular chemistry

Organic & Medicinal Chemistry: natural product chemistry, medicinal chemistry, chemical biology, synthetic organic chemistry, drug design

Physical & Theoretical Chemistry: novel spectroscopic methods, computational chemistry, quantum chemistry and molecular interaction, molecular dynamics

Invited Speakers

Prof. Dr. Prasat Kittakoop

Assoc. Prof. Dr. David James Harding

Assoc. Prof. Dr. Purim Jarujamrus

Assoc. Prof. Dr. Suwat Nanan

Asst. Prof. Dr. Itthipon Jeerapan

SESSION D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI

MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI

Chair: Assoc. Prof. Dr. Chartchai leenawong
Co-Chair: Asst. Prof. Dr. Nifatamah Makaje
Co-Chair: Asst. Prof. Dr. Kuntalee Chaisee
Co-Chair: Asst. Prof. Dr. Nawinda Chutsagulprom
Co-Chair: Dr. Chularat Srikul

This dynamic session serves as a collaborative hub for researchers across diverse fields, including Mathematics, Statistics, Computer Science, Data Science, and Artificial Intelligence. Participants are invited to exchange groundbreaking academic perspectives, emphasizing the latest research findings in these disciplines. The overarching theme revolves around harnessing the collective power of these fields to address sustainable solutions and actively contribute to the realization of the United Nations' 17 Sustainable Development Goals. While maintaining this theme, the session encourages exploration of innovative applications and interdisciplinary approaches, fostering collaboration and knowledge exchange. Join us in this engaging session that propels interdisciplinary dialogue and advances impactful research contributions.

Invited Speakers

Assoc. Prof. Dr. Aniruth Phon-On

Assoc. Prof. Dr. Theerawit Wilaiprasitporn

SESSION E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY

ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY

Chair: Prof. Dr. Pitsanupong Kanjanapayont
Co-Chair: Prof. Dr. Sirirat Jitkarnka
Co-Chair: Prof. Dr. Supon Ananta
Co-Chair: Assoc. Prof. Dr. Prasert Reubroycharoen
Co-Chair: Assoc. Prof. Dr. Chanatip Samart
Co-Chair: Assoc. Prof. Dr. Pakorn Opaprakasit
Co-Chair: Assoc. Prof. Dr. Thapanee Sarakonsri
Co-Chair: Assoc. Prof. Dr. Alice Sharp
Co-Chair: Assoc. Prof. Dr. Pisanu Wongpornchai
Co-Chair: Asst. Prof. Dr. Chaiyasit Banjongprasert
Co-Chair: Asst. Prof. Dr. Adisak Siyasukh
Co-Chair: Dr. Mati Horprathum

The purpose of this session is to bring together leading academic scientists, researchers and research scholars from all around the world to present research findings and innovation in ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY, and related fields. The session particularly focuses on energy technologies, both renewable and non-renewable energy (e.g., coal, natural gas, biomass, solar, geothermal, and wind energies), energy materials for energy generation and storage (e.g., dielectric, piezoelectric, and triboelectric materials), as well as other aspects such as energy conservation, energy efficiency, economic, policy, and environmental assessment. Beside the sustainable energy, the pioneer research in environmental fields related with waste treatment, upcycling, and pollution control especially carbon dioxide capture and utilization are encouraged for submission. The session is expected to be an interdisciplinary forum for scientists, engineers, and practitioners to exchange and share their experiences, ideas, developments, and applications of the technologies which make advancement towards the sustainable development goals (SDGs).

Invited Speakers

Prof. Dr. Guoqing Guan

Prof. Dr. Jyh-Tsung Lee

Assoc. Prof. Dr. Thasinee Charoentitirat

SESSION F - FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE

FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE

Chair: Assoc. Prof. Dr. Yuthana Phimolsiripol
Co-Chair: Prof. Dr. Pornchai Rachtanapun
Co-Chair: Assoc. Prof. Dr. Inthawoot Suppavorasatit
Co-Chair: Assoc. Prof. Dr. Natdanai Likhitrakarn
Co-Chair: Asst. Prof. Dr. Thararat Chitov
Co-Chair: Asst. Prof. Dr. Hataichanok Pandith
Co-Chair: Dr. Nilita Mukjang
Co-Chair: Dr. Kullacha Chayarop
Co-Chair: Dr. Sorawit Powtongsook

It is necessary to shift farm production from low-priced commodities to premium products by emphasizing standards for high quality and safety, as well as value creation through advanced processing technology and innovation, in order to improve the competitiveness and sustainability of agriculture (plant science, soil, and environmental science, agricultural engineering, animal science, livestock, and poultry production, fisheries, forestry, and natural resource management), food, biotechnology, and packaging industries.
We extend an invitation to scholars to submit research papers on any of the following subjects: food science and technology; Agro-industrial biotechnology; Packaging technology; Food process and engineering; Product development technology; Marine product technology; Process efficiency and emerging technologies; Food safety and security; Consumer research; Applied bioscience with an emphasis on biotechnology, applied biology, bioactive compounds, ingredients, nutrition, and nutraceuticals; Waste treatment and utilization and high value-added food byproducts; Energy and non-food production technology; Agri-food business; Agro-industrial management; and other relevant subjects.

Invited Speakers

Prof. Dr. Li Minzan

Prof. Dr. Seung Joon Baek

Prof. Dr. Zhao Zhang

Dr. Chaiwut Gamonpilas

SP1 - MULTI-MESSENGER ASTRONOMY, COSMIC RAYS AND SPACE WEATHER IMPACTS

MULTI-MESSENGER ASTRONOMY, COSMIC RAYS AND SPACE WEATHER IMPACTS
[ARTICLE SUBMISSION IS NOT AVAILABLE FOR THIS SYMPOSIUM]

Chair: Asst. Prof. Dr. Siramas Komonjinda
Co-Chair: Asst. Prof. Dr. Suwicha Wannawichian
Co-Chair: Asst. Prof. Dr. Waraporn nuntiyakul
Co-Chair: Dr. Achara Seripienlert

Multi-Messenger Astronomy, Cosmic Rays, and Space Weather Impacts are interconnected fields of study in astrophysics and space science that aim to understand the universe through multiple channels of observation and analysis.
Multi-Messenger Astronomy involves studying celestial phenomena using various signals, including electromagnetic radiation, cosmic rays, neutrinos, and gravitational waves. By analyzing data from these messengers, scientists can gain a comprehensive understanding of cosmic events like supernovae, black hole mergers, and neutron star collisions.
Cosmic Rays are high-energy particles, primarily protons and atomic nuclei, that travel through space at nearly the speed of light. They originate from sources such as supernova remnants and active galactic nuclei, providing insights into particle acceleration processes and magnetic fields in the universe. Studying cosmic rays helps understand the composition and dynamics of galaxies and beyond.
Space Weather refers to dynamic conditions in space influenced by the Sun's activity, generating events like solar flares and coronal mass ejections. These events can disrupt Earth's magnetosphere and ionosphere, impacting satellite communications, GPS navigation, power grids, and endangering astronauts and spacecraft. Understanding and predicting space weather are crucial for safeguarding technological infrastructure and space missions. Bringing together these three areas—multi-messenger astronomy, cosmic rays, and space weather impacts—provides a holistic perspective on the interconnectedness of astrophysical processes and their effects on our solar system and beyond. Research in this field involves observations from ground-based and space-based telescopes, particle detectors, and space weather monitoring instruments, as well as theoretical modelling and data analysis techniques. Collaboration among astronomers, astrophysicists, space physicists, and engineers is essential for advancing our understanding of the universe and mitigating the impacts of space weather on society. It would bring together researchers and experts from various disciplines to discuss recent advancements, challenges, and opportunities in understanding cosmic phenomena and their effects on space weather.

Invited Speakers

Prof. Dr. Aya Ishihara

Prof. Dr. Pornchai Supnithi

Asst. Prof. Dr. Warit Mitthumsiri

Dr. Sittiporn Channumsin

SP2 - BIOMATERIALS AND MEDICAL DEVICES

BIOMATERIALS AND MEDICAL DEVICES

Chair: Assoc. Prof. Dr. Winita Punyodom
Co-Chair: Dr. Robert Molloy
Co-Chair: Assoc. Prof. Dr. Sarawut Kumphune

This symposium covers a wide range of biomaterials and medical devices, both of which are revolutionizing what can be achieved in modern medicine. Nowadays, biomaterials play an important role in restoring function and assisting recovery from injury or disease. Biomaterials can be polymers, ceramics, metals, glasses, or composite materials. They can also be either biodegradable or non-biodegradable depending on the application. Examples of biomedical applications include surgical sutures, contact lenses, wound dressings, 3-D scaffolds for tissue engineering, drug delivery systems, and nanotechnology.
Similarly, medical devices are also used in a wide range of applications ranging from common medical operations such as bandaging a sprained ankle to diagnosing HIV/AIDS and artificial hip replacement. Medical devices include any instrument, apparatus, machine, appliance, implant, or other related product that is intended for use in a medical application. The medical device industry is currently one of the most high-potential sectors in Thailand.
Since it covers a wide area, this symposium aims to showcase just a few of the interesting developments in biomaterials and medical devices taking place in Thailand at the present time. It is hoped that it will attract the attention of both scientists and technologists alike.

Invited Speakers

Prof. Dr. Her-Hsiung Huang

SP3 - MICROBIAL DIVERSITY AND SUSTAINABLE UTILIZATION

MICROBIAL DIVERSITY AND SUSTAINABLE UTILIZATION

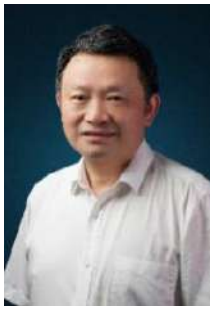
Chair: Emeritus Prof. Dr. Saisamorn Lumyong
Co-Chair: Assoc. Prof. Dr. Wasu Pathom-aree
Co-Chair: Dr. Nakarin Suwannarach
Co-Chair: Dr. Jaturong Kumla
Co-Chair: Dr. Sirasit Srinuanpan

Selected peer- reviewed papers from the work presented in this symposium will be published in the Special Issue of Chiang Mai Journal of Science Q4 (2023, Scopus).

Microbial diversity encompasses a wide range of microorganisms, including archaea, bacteria, fungi, microalgae, protists, and viruses, which can be found in various habitats, including terrestrial, aquatic, atmospheric, living hosts, and extreme environments. Different kinds of microorganisms are distinguished by their different characteristics of cellular metabolism, physiology, and morphology, by their various ecological distributions and activities, and by their distinct genomic structure, expression, and evolution. Nowadays, the question of how many microbial species actually exist is indisputably important. Additionally, microbial diversity is essential for maintaining ecosystem function and stability. Microorganisms also produce bioactive compounds, enzymes, and secondary metabolites of biotechnological importance for industrial and commercial applications, as well as for environmentally friendly agricultural processes. After two decades, microorganisms continue to be promising sources of various applications in agriculture, biotechnology, and medicine. " Microbial Diversity and Sustainable Utilization" delves into the current knowledge of microbial diversity, genetics, taxonomy, and distribution across the globe and various environments. Moreover, this includes the findings in applications, utilization, and conservation of targeted microorganisms for future sustainability. This symposium will provide valuable scientific contributions to the existing understanding of microbial taxonomy and diversity. Furthermore, it will also promote future research collaboration and contribute to consolidating and expanding the knowledge of both current and future microbial applications and utilization.

Invited Speakers

Prof. Dr. Arinthip Thamchaipenet



Prof. Dr. Guangce Wang

Prof. Dr. Savitree Limtong

Assoc. Prof. Dr. Anurag Sunpapao

SP4 - CHALLENGES AND OPPORTUNITIES IN CLIMATE AND ENVIRONMENTAL CHANGES

CHALLENGES AND OPPORTUNITIES IN CLIMATE AND ENVIRONMENTAL CHANGES

Chair: Assoc. Prof. Dr. Somporn Chantara
Co-Chair: Prof. Dr. Wanida Jinsart
Co-Chair: Assoc. Prof. Dr. Jaroon Jakmunee
Co-Chair: Assoc. Prof. Dr. Alice Sharp
Co-Chair: Asst. Prof. Dr. Pumis Thuptimdang
Co-Chair: Asst. Prof. Dr. Kullapa Chanawanno
Co-Chair: Dr. Nattawut Sareein
Co-Chair: Dr. Nuttipon Yabueng
Co-Chair: Dr. Supattarachai Saksakulkrai

The global phenomenon of climate change is not a prospective concern but a current reality. Shifts in Earth's climate patterns, propelled by heightened human emissions are already inducing extensive impacts on the environment. These effects include the repositioning of geographic ranges for plants and animals, heightened the frequency and severity of wildfires. Moreover, the warming climate has contributed to a depletion in water resources, reduced agricultural yields, and provoked health repercussions related to heat in urban areas. Careful planning facilitates benefiting from changes. Adaptation measures can be seen as an opportunity. Efforts to mitigate and adapt to climate change, such as resource efficiencies, adoption of low-emission energy sources and pollution, can be considered. "Challenges and Opportunities in Climate and Environmental Changes" is a topic for the session. We will examine innovative solutions in the areas included but not limited to climate mitigation and adaptation, technologies for preventing environmental changes, and emerging pollution and measures. The symposium will feature presentations from invited speakers and applicants. This symposium is designed for researchers, students, and all those interested in environmental changes and improvement for a better future. This event will provide an enriching platform to learn, collaborate, and discover more ideas to better environmental quality and more sustainable future. STT50 extends a warm welcome to all scientists and technologists, both from academia and industry, as well as students and all other interested persons. All participants will have the opportunity to present their work either orally or in the form of a poster as well as submit a written article for publication.

Invited Speakers

Distinguished Prof. Mukand S Babel

Assoc. Prof. Dr. Surat Bualert

SP5 - DATA SCIENCE AND DATA PRIVACY

DATA SCIENCE AND DATA PRIVACY
[ORAL PRESENTATION ONLY]

Chair: Asst. Prof. Dr. Phimphaka Taninpong
Co-Chair: Asst. Prof. Dr. Jakramate Bootkrajang

Data science plays a vital role in the era where organizational decisions are driven by data. Business and governmental organizations are now collecting and maintaining a large repository of data, ready for further analysis. Novel data analysis algorithms are being proposed daily with an aim to understand the data and to extract useful information from it. Despite the technical advancement, less attention was paid to the issues associated with the right to decide when, how and to what extent an analysis can be performed on one's own data. This is particularly concerning for sensitive data such as medical records, social network usage or web-browsing history, to name a few.

The main aim of this symposium is to bring together researchers, practitioners, policy makers to discuss the challenges in data privacy and to share their ideas for privacy-preserving data science.

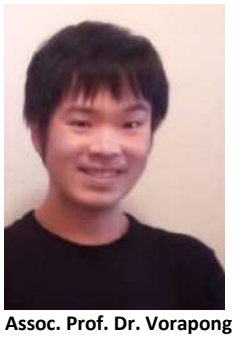
We would like to encourage work in the form of abstract or full paper that counters the issues of data privacy in data science. Topics of interest include (but are not limited to) the following: Privacy- preserving data storage, including data anonymization, data retention, and data access policies; Data minimization; Privacy- preserving data analytic algorithms; Theoretical advances in machine unlearning; Federated machine learning, differential privacy, Peer- 2- Peer federated learning.

Submissions are solicited for oral presentation at the symposium. The author guidance and paper format of the main conference should be followed. All submissions will be peer-reviewed, and the papers accepted for the workshop will be included in the conference proceeding.

Invited Speakers

Assoc. Prof. Dr. Juggapong Natwichai

Assoc. Prof. Dr. Thaned Rojsiraphisal

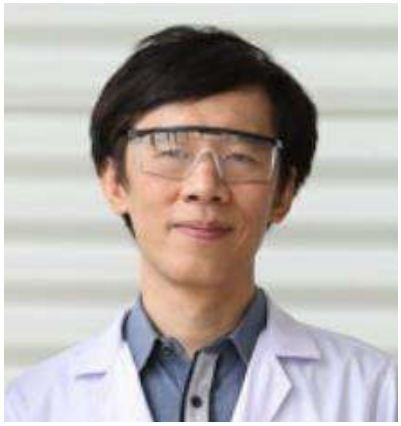


Assoc. Prof. Dr. Vorapong Suppakitpaisarn

Dr. Sarawoot Kongyoung

Dr. Sira Sriswasdi

SP6 - QUANTUM SCIENCE AND TECHNOLOGY



QUANTUM SCIENCE AND TECHNOLOGY

[ARTICLE SUBMISSION IS NOT AVAILABLE FOR THIS SYMPOSIUM]

Chair: Asst. Prof. Dr. Narupon Chattrapiban
Co-Chair: Dr. Nithiwadee Thaicharoen

Quantum science and technology represent a frontier of innovation with transformative potential across various domains. From quantum computing to quantum communication and sensing, these advancements promise to revolutionize how we process information, secure communications, and understand fundamental physics. Our symposium aims to delve into these cutting-edge developments and explore their practical implications. The special session highlights updates on quantum science and technology research and ecosystems in Thailand. The invited talks feature experts in photonic-based quantum communication, quantum metrology, multipartite quantum networks, and quantum synchronization. Participants will have the opportunity to engage with speakers, network with peers, and explore collaborative opportunities. This symposium caters to researchers, engineers, industry professionals, policymakers, and students interested in quantum science and its applications. Whether you are an academic researcher, a technology developer, or a business leader exploring opportunities in quantum science and technology, this event offers valuable insights and networking opportunities.

Invited Speakers

Assoc. Prof. Dr. Rainer Dumke

Assoc. Prof. Dr. Worawat Meevasana

Asst. Prof. Dr. Pruet Kalasuwan

Dr. Piyaphat Poonthong

SP7 - CEMENT AND CONCRETE: SCIENCE, TECHNOLOGY AND APPLICATIONS TOWARDS GREEN AND SUSTAINABLE FUTURE

CEMENT AND CONCRETE: SCIENCE, TECHNOLOGY AND APPLICATIONS TOWARDS GREEN AND SUSTAINABLE FUTURE

Chair: Prof. Dr. Arnon Chaipanich
Co-Chair: Assoc. Prof. Dr. Kedsarin Pimraksa
Co-Chair: Assoc. Prof. Dr. Pitiwat Wattanachai

Global Portland cement production exceeds 4 billion tonne per year. It is the binder component in concrete, an important versatile construction material. Due to large emission of carbon dioxide during Portland cement production, alternative materials such as supplementary cementitious materials have been used, many are by-products from industry which helps to maintain the sustainability of raw materials used in Porland cement production. However, ongoing research works are still needed in order to keep working towards carbon net zero emissions, using science and technology towards greener and more sustainable future, while maintaining desirable properties. This scope covers areas involving pozzolanic materials used as supplementary cementitious materials, alkali activated materials/geopolymer, carbon capture, recycled aggregates, and other related works. This symposium welcomes researchers, engineers, students, and all those interested in the topic. Authors will also have an opportunity to submit their article to a journal associated with this congress for consideration to be published in a special issue via the journal peer-review process.

Invited Speakers

Prof. Dr. Piti Sukontasukkul

Assoc. Prof. Dr. Darunee Wattanasiriwech

SP8 - THE SCIENCE OF RESTORING TROPICAL FOREST ECOSYSTEMS: 30 YEARS OF PROGRESS AND BEYOND

THE SCIENCE OF RESTORING TROPICAL FOREST ECOSYSTEMS: 30 YEARS OF PROGRESS AND BEYOND

Chair: Assoc. Prof. Dr. Stephen Elliott
Co-Chair: Asst. Prof. Dr. Sutthathorn Chairuangsri
Co-Chair: Asst. Prof. Dr. Dia Shannon
Co-Chair: Asst. Prof. Dr. Pimonrat Tiansawat

Over the past 30 years, scientific research has transformed the perception of tropical forest ecosystem restoration from the wishful thinking of a few ecologists into a practicable reality. During the 1980–1990s, a lack of technical knowledge about the ecology and propagation of the myriad of tree species that comprise tropical forests posed a major technical obstacle to restoration. However, research, by several groups around the world over the past 3 decades, has advanced practical techniques of performing various restoration tasks: site assessment, tree-species selection, seed collection, genetic conservation, direct seeding and tree propagation, planting, maintenance and monitoring of both carbon storage and biodiversity recovery. Such research has resulted in a spectrum of effective restoration strategies, tailored to address various degradation scenarios, from simple protective measures and assisted natural regeneration (ANR), on moderately degraded sites, to the framework-species method and maximum diversity techniques, where natural regeneration is lacking, and nurse-tree plantations, on the most severely degraded sites. The design, size and placement of restoration plots have also received considerable attention, with concepts such as wildlife corridors, buffer zones and “applied nucleation” becoming mainstream. The morning session will review progress in restoration science over the past 30 years and identify remaining knowledge gaps. Stephen Elliott will review advances in the achieved by CMU’s Forest Restoration Research Unit, whilst guest speaker, Nigel Tucker, restoration ecologist, from James Cook University, will present his personal view of 40 years of restoration research from tropical north Queensland.
In the afternoon, we will explore how recent advances in technologies might be used to improve the scientific basis of global initiatives that employ forest restoration as a nature-based contribution to climate-change mitigation. Guest speaker Kate Hardwick from the Royal Botanic Gardens, Kew will review the need for more seed banks to upscale restoration, whilst Maxime Réjou-Méchain, from the French National Research Institute for Sustainable Development, will discuss how high-resolution remote sensing can contribute to restoration monitoring. The symposium will conclude with audience participation, to prioritize future research needs and thus assist prospective graduate students with research-topic selection. A poster session may also be included. A post-symposium social event, to celebrate the 30th anniversary of Chiang Mai University’s Forest Restoration Research Unit, is planned.

Invited Speakers

Dr. Dian Latifah

Dr. Kate A. Hardwick

Dr. Maxime Réjou-Méchain

Dr. Nigel Tucker

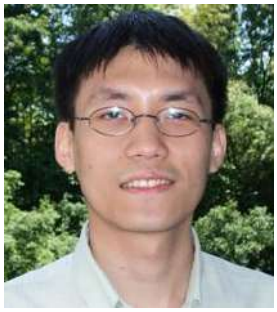
SP9 - GENERATIVE AI: AN EMERGING AI TECHNOLOGY

GENERATIVE AI: AN EMERGING AI TECHNOLOGY
[ORAL PRESENTATION ONLY]

Chair: Asst. Prof. Dr. Papangkorn Inkeaw
Co-Chair: Asst. Prof. Dr. Jakramate Bootkrajang

Artificial intelligence (AI) is fast developing and becoming a part of our everyday lives. A remarkable progress in generative AI enables machines to create brand-new content in various forms such as text, image, sound or even video. The applications of generative AI span across various domains, revolutionizing industries and opening new possibilities. However, these advancements come with ethical and societal considerations. Moreover, there are concerns about the misuse of generative AI for malicious purposes, such as generating fake news, deepfakes, or other forms of misinformation.
This symposium aims to bring together researchers from academia and the industry to cross-pollinate ideas, facilitate collaboration, and expand the breadth and reach of generative AI methodology, algorithms, and applications. It also aims to serve as a venue for discussing the impacts of generative AI on society. We would like to encourage work in the form of abstract or full paper that explore the following topics of interest, which include (but are not limited to):
New generative AI techniques
Large language model and its applications.
Applications of generative AI in various domains.
Managing the impacts of generative AI to society
Computational resources and infrastructure for generative AI
Submissions are solicited for oral presentation at the symposium. The author guidance and paper format of the main conference should be followed. All submissions will be peer-reviewed, and the papers accepted for the workshop will be included in the conference proceeding.

Invited Speakers



Asst. Prof. Dr. Ekapol Chuangsuwanich

Dr. Sanparith Marukatat

Dr. Sarawoot Kongyoung

SP10 - UNIVERSITY - INDUSTRY RESEARCH COLLABORATION

UNIVERSITY - INDUSTRY RESEARCH COLLABORATION

Chair: Asst. Prof. Dr. Worapong Thiemsorn
Co-Chair: Assoc. Prof. Dr. Prasert Reubroycharoen
Co-Chair: Asst. Prof. Dr. Datchanee Pattavarakorn
Co-Chair: Asst. Prof. Dr. Jomkhwan Meerak

Nowadays, university-industry collaboration plays a crucial role in driving innovation and economic development. It involves partnerships between universities and industries to bridge the gap between theoretical knowledge and practical application, preparing researchers for industry roles. This symposium is an event where representatives from universities and industries gather to discuss and share best practices for collaborating on research projects. These events often feature presentations from experts in the field, panel discussions, and networking opportunities. The goal of the symposiums is to foster partnerships between universities and industries that can lead to innovative research and commercialization opportunities by sharing and promoting solutions for sustainable development and technology transfer with industrial, academic, and research partners.

Key figures from various sectors participate in this event, interesting topics such as novel materials, green processing, environmental safety, industrial/ agricultural sustainable development, health and medical approaches, foods, waste circulation and cutting-edge research areas are discussed. The symposium aims to facilitate breakthroughs in research, support technological advancements, and contribute to balanced industrial development, ultimately benefiting both local and international communities.

This symposium offers valuable opportunities for students, researchers, and professionals to learn from experts, network with industry leaders, and contribute to the development of sustainable innovations in their respective fields. Selected peer-reviewed papers from the work presented in this symposium will be published in the proceeding of STT50.

Invited Speakers

Assoc. Prof. Dr. Pitiwat Wattanachai

Dr. Jirawut Junkasem

Mr. Edward Sihua Yang

Miss Vayuree Sukrungreungsanti

SP11 - X-RAY CRYSTALLOGRAPHY

X-RAY CRYSTALLOGRAPHY

Chair: Prof. Dr. Nongnuj Muangsin
Co-Chair: Assoc. Prof. Dr. Kuakarun Krusong
Co-Chair: Assoc. Prof. Dr. Kittipong Chainok

The experimental science known as X-ray crystallography is by far the most effective way to ascertain how atoms are arranged in a crystalline solid in three dimensions. This technique has been employed in the field of structural chemistry and the study of biological macromolecules for more than a century. In biological crystallography, three-dimensional molecular structures including proteins and nucleic acids are ascertained atomic level. This facilitates our comprehension of the fundamental mechanisms of biomolecules, while also assisting in the exploration of new medicine development. Apart from macromolecular crystallography, the determination of crystal structures of organic, organometallic and coordination compounds, known as small molecule or chemical crystallography, is crucial and extremely valuable for comprehending the relationship between structure and properties, as well as the supramolecular interactions (such as hydrogen bonds, halogen bonds, and π–π stacking) of crystalline solids. Significantly, it also facilitates crystal engineering to enhance structural design and achieve desired functionality.

Invited Speakers

Prof. Dr. Christoph Janiak

Prof. Dr. Horst Puschmann

Dr. Lee Yuan-E

SP12 - RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY

RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY

Chair: Dr. Yutthana Tumnoi
Co-Chair: Dr. Wipada Ngansom

Radioecology is a multidisciplinary scientific concerning the presence/concentration of both natural (e.g., 238U, 232Th, 226Ra, 222Rn, 40K, 7Be, 14C, and others) and artificial (e.g., 90Sr, 134Cs, 137Cs, and others) radionuclides in the environment, the complexity of their transfer processes within and between ecosystems, and the effects of ionizing radiation on human and non-human biota. Investigations in radioecology consist of field samplings and experiments, controlled-lab experiments, and laboratory procedures including radiochemistry and radioactivity measurement. Radioecological studies normally focus on three main environments in the biosphere: marine environment, freshwater environment, and land environment. They could provide necessary data for radiation dose estimation and radiological risk assessment on human and the environmental health using predictive models. Interest and studies in the area of radioecology, environmental radioactivity, and utilization of radiotracers to reveal biogeochemical and ecological processes have significantly increased to ascertain and manage radiological risks associated with both routine and accidental releases from the historical nuclear testing, the nuclear accidents/facilities, and non-nuclear facilities. This session welcomes presentations on both basic and advanced research programmes on radioecology, environmental radioactivity, and related disciplines in order to promote and advance the science of environmental radioactivity research, and to enhance the radiological protection of humans and the environment.

Invited Speakers

Prof. Dr. Shinji Tokonami

Assoc. Prof. Dr. Narongchai Autsavapromporn

Dr. Worawat Poltabtim

Dr. Young-Yong Ji

Mr. Taehyung (Terry) Lim

SP13 - HARNESSING DIGITAL SCIENCE AND ENGINEERING FOR ENVIRONMENTAL SUSTAINABILITY

HARNESSING DIGITAL SCIENCE AND ENGINEERING FOR ENVIRONMENTAL SUSTAINABILITY

Chair: Assoc. Prof. Dr. Teerawat Sema
Co-Chair: Prof. Dr. Benjapon Chalermsinsuwan
Co-Chair: Dr. Prathana Nimmanterdwong
Co-Chair: Dr. Ratchanon Piemjaiswang

Environmental sustainability presents one of the most critical challenges of our time. Climate change, resource depletion, and pollution threaten the delicate balance of our planet. Yet, within this challenge lies immense opportunity. Digital science and engineering offer transformative tools to address these issues from advanced modeling to AI-powered optimization. This symposium explores how we can leverage these technologies to create a more sustainable future.

"Harnessing Digital Science and Engineering for Environmental Sustainability" delves into the cutting-edge applications of digital technologies across environmental sectors. We'll examine innovative solutions in areas included, but not limited to: renewable energy, smart waste management, climate mitigation technology, sustainable policy and planning, and emerging pollution. The symposium will feature keynote addresses, panel discussions, and presentations illuminating the power of digital solutions.

This symposium is designed for researchers, industry professionals, policymakers, students, and all those dedicated to environmental progress. Whether you're a data scientist, engineer, sustainability expert, or simply passionate about the planet, this event will provide an enriching platform to learn, collaborate, and discover new pathways to a greener future.

Selected peer-reviewed papers from the work presented in this symposium will be published in the special issue of Applied Environmental Research. Q3 (2023, Scopus)

Invited Speakers

Assoc. Prof. Dr. Suparit Tangparitkul

Assoc. Prof. Dr. Worapon Kiatkittipong

Asst. Prof. Dr. Sakdinun Nuntang

SP14 - SCIENCE COMMUNICATION AND SCIENCE LITERACY

SCIENCE COMMUNICATION AND SCIENCE LITERACY

Chair: Dr. Ganigar Chen
Co-Chair: Dr. Cho Sook - Kyoung

Science communication helps the general public to understand scientific concepts and discoveries, which is crucial in an increasingly technology-driven world. In addition, for todays challenge, effective science communication can counteract misinformation and myths, which are in prevalent in areas such as health and nutrition, climate change, and energy. Promoting science literacy also fosters and culture of curiosity and critical thinking, encourage people to engage with science and appreciate its impact on everyday life. This symposium aims at bringing together the international participants who work in academic research and practice, to share knowledge from their studies and practical experience in science communication, including the global effort to promoting science literacy.

Invited Speakers

Dr. Lan-Yu Liu

Dr. Finarya Legoh

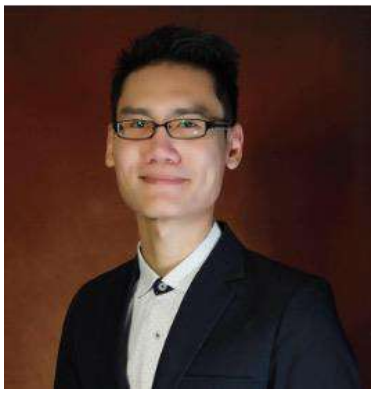
Dr. Paonrach Yodnane

Dr. Sasivimon Swangpol

Dr. Sook-kyoung Cho

Mr. Peerapon Anutarasoat

SP15 - YOUNG RISING STARS OF SCIENCE 2024 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2024 (JYRSS)



YOUNG RISING STARS OF SCIENCE 2024 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2024 (JYRSS)

Chair: Assoc. Prof. Dr. Kitipong Assatarakul
Co-Chair: Asst. Prof. Dr. Pakawan Puangsombat
Co-Chair: Asst. Prof. Dr. Jeeraporn Pekkoh
Co-Chair: Asst. Prof. Dr. Parkpoom Phetpradap
Co-Chair: Dr. Pumidech Puthongkham

The Science Society of Thailand under the patronage of His Majesty the King (SCISOC) recognizes the need of training new scientist and technologist to advance to the position of highly skilled scientists and technologists in the country. This leads to a boost in research and development, which is critical for the country's long-term economic and social development in Thailand's Science Society. Accordingly, SCISOC establishes the Junior Young Rising Stars of Science Award (JYRSS) for high-school science research projects with remarkable performances under the supervision of the Faculty of Science in Thailand's universities and the Young Rising Stars of Science (YRSS) awards for undergraduate's science research projects with outstanding achievement each year since 2020. In addition to honoring these students, it also inspires interest among them in pursuing a graduate degree in science. It is expected that these youths will continue to be highly competent scientists or technologists at national and international levels.

SP16 - NATURE BASED SOLUTIONS FOR CLIMATE MITIGATION

NATURE BASED SOLUTIONS FOR CLIMATE MITIGATION [ARTICLE SUBMISSION IS NOT AVAILABLE FOR THIS SYMPOSIUM]

Chair: Prof. Dr. Anchana Prathep
Co-Chair: Prof. Dr. Siriporn Jungsuttiwong
Co-Chair: Miss Kanyanat Kaewutai
Co-Chair: Dr. Milica Stankovic

Nature-based Solutions (NbS) are approaches that work with and enhance nature by maintaining or improving the health and integrity of nature to address various challenges. A key goal of implementing NbS is to manage the impacts of climate change, including both mitigation and adaptation, as well as to tackle biodiversity loss. NbS encompasses a wide range of activities, such as restoration, protection, management of ecosystems, sustainable land and water management, and the creation of new ecosystems. These solutions rely on a deep understanding of ecosystems and biodiversity as a fundamental basis. Additionally, NbS have proven to be more successful than other methods in managing climate impacts. As a result, more than 105 countries around the world have incorporated NbS into their strategies for climate change mitigation and adaptation within their Nationally Determined Contributions (NDCs) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC).

Invited Speakers

Prof. Dr. Peter Macreadie

Mr. Pakkasem Tongchai

Assoc. Prof. Dr. Wongkot Wongsapai

Asst. Prof. Dr. Kobsak Wanthongchai

Asst. Prof. Dr. Tassanee

Miss Kanyanat Kaewutai Jiaphasuanan

NbS Alumni

ABSTRACTS FOR INVITED SPEAKERS

INVITED SPEAKER: A_INV01

IS ADVANCING IN FUSION TECHNOLOGY ALSO CRAFTING PATHWAY TOWARDS CARBON NEUTRALITY?

Somsak Dangtip,[1,*] TT-1[1], CPaF Teams[2]
[1] Thailand Institute of Nuclear Technology (TINT), Ongkarak, Nakornnayok, Thailand
[2] Center for Plasma and Nuclear Fusion Technology, a consortium with TINT as a host
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Abstract:
Fusion energy is recognized as one of the most environmentally friendly sources of energy because it produces no harmful carbon emissions or greenhouse gases. If successfully scaled up to commercial levels, fusion could provide endless amounts of clean energy without contributing to carbon emissions, supporting global efforts to achieve carbon neutrality and combat climate change. The current goal of Thailand is to achieve carbon neutrality by 2050. While fusion energy has the potential to play a significant role in achieving emission reduction targets due to its high energy output and low environmental impact, it is still in the experimental stage. Although a certain fusion startup company has already signed a contract to deliver fusion electricity by 2028, the timeline for commercial fusion energy deployment is uncertain, and it may take longer time before it can be integrated into the power grid at scale. Therefore, while fusion energy could contribute to Thailand's carbon neutrality goals, it's important to consider the current state of technology and the country's existing plans that focus on renewable energy sources such as solar, wind, and hydroelectric power. These sources are more likely to be the primary contributors to Thailand's carbon neutrality by 2050. We will briefly present the current global and regional status of fusion energy research and development. In addition, we will also present the progress towards fusion technology in Thailand such as infrastructure, advancement in research and development and human resource development plan.

Associate Professor Dr. Somsak Dangtip received bachelor and master degrees in Physics from Department of Physics, Faculty of Science, Chiang Mai University in 1992 and 1995, respectively. He continued his doctoral degree in Applied Neutron Research and was awarded the degree in 2000 from Uppsala University, Sweden. From 2000, he worked at Fast Neutron Research Facility, Department of Physics, Faculty of Science, Chiang Mai University, before joining Mahidol University in 2003. From 2019, he has moved to work for Thailand Institute of Nuclear Technology as a manager of Center of Advanced Engineering and Nuclear Technology. His research interests in Radiation Interaction with Matters, Plasma Technology and Applications and Fusion Energy.

INVITED SPEAKER: A_INV02

UNVEILING THE UNEXPECTED 2014 CHIANG RAI EARTHQUAKE WITH 3- D ELECTROMAGNETIC TOMOGRAPHY

Songkhun Boonchaisuk,[1] Sutthipong Noisagool,[2,3] Puwis Amatyakul,[2,3] Tawat Rung-Arunwan,[4] Chatchai Vachiratienchai,[4] Weerachai Siripunvaraporn[2,3,*]

[1] Geoscience Program, Mahidol University, Kanchanaburi Campus, Saiyok, Kanchanaburi, Thailand

[2] Department of Physics, Faculty of Science, Mahidol University, 272 Rama 6 Road, Rachatawee, Bangkok, Thailand

[3] ThEP Center, Commission on Higher Education, 328, Si Ayutthaya Road, Rachatawee, Bangkok, Thailand

[4] Curl- E Geophysics Co. , Ltd. , 85/ 87 Nantawan Village, Uttayan- Aksa Road, Salaya, Phutthamonthon, Nakornpathom 73170, Thailand

*e-mail: weerachai.sir@mahidol.ac.th

Abstract:

The unexpected Mw 6.5 Chiang Rai earthquake of May 5, 2014, was followed by thousands of aftershocks, whose epicenters were primarily concentrated within the Phayao Fault Zone (PFZ). To understand the cause of this earthquake, we employed 3-D magnetotelluric (MT) imaging, a geophysical technique that measures Earth's electrical properties by recording MT surface responses, ratios of electric and magnetic fields, that reveal subsurface conductivity variations. Here, we deployed 31 MT stations around the PFZ to image its deep 3-D structure. A computer model of the Earth's resistivity was built incorporating these station locations at the surface. We then solved the model's electric and magnetic fields using second-order Maxwell's equations to generate calculated responses. We then iteratively minimized the difference between these calculated responses and the acquired data to obtain the deep 3-D resistivity structure. Shallow resistivity matched surface geology well, while deeper structures revealed numerous intriguing resistive and conductive anomalies. The most significant was a large conductive anomaly at a 4 km depth to the mid-crust, situated beneath fault zones near the seismogenic zone. We interpreted this conductor as evidence of highly interconnected aqueous fluid within the fractured fault zone, potentially crucial to the May 5th earthquake sequence. Previous seismic studies indicated a high fault plane instability within the PFZ. The presence of this fluid within the fractures may have further reduced the fault strength. This strength reduction, combined with accumulated pre-existing tectonic stress from the north, could have ultimately overcome the fault's frictional strength, triggering the main shock and subsequent aftershocks.

Associate Professor Weerachai Siripunvaraporn is a DPST scholar who received a bachelor's degree in physics from Mahidol University, and a Ph.D. in Geophysics from Oregon State University, USA. Since 2000, he has been working at the Department of Physics, Faculty of Science, Mahidol University. His research interests include electromagnetic induction of the earth; earthquake seismology; geophysical computations and inverse problem; geothermal and deep groundwater explorations. He has received the Most Cited Publications from Mahidol University, the Mahidol University Award for Research, and Research Award from the National Research Council of Thailand (NRCT).

INVITED SPEAKER: A_INV03

PHYSICAL PROPERTIES OF BINARY AND TERNARY SEMICONDUCTOR THIN FILMS FOR OPTOELECTRONIC AND SOLAR CELL APPLICATIONS

Auttasit Tubtimtae[1,*]

[1] Division of Physics, Department of Physical and Material Sciences, Faculty of Liberal Arts and Science, Kasetsart University, Kamphaeng Saen Campus

*e-mail: tubtimtae@gmail.com

Abstract:

Currently, metal chalcogenide and oxide materials have attracted much attention due to their excellent optical and electrical properties for various applications such as photovoltaic, nonlinear optical, memory, and optoelectronic devices**.** The synthesis of binary and ternary semiconductor compounds in the form of quantum dot, thin film, and nanoparticles **(**NPs**)** or polycrystalline material for various optoelectronic applications was highlighted**.** In our study, binary and ternary semiconductor thin films were synthesized using various methods such as spray pyrolysis, chemical bath deposition **(**CBD**)**, and dip coating in accordance with various distinctive conditions and parameters**.** Then, the morphological, linear**/**non-linear optical, dispersion, optoelectrical, and electrical properties were examined and discussed**.** It noteworthy that our synthesized thin film materials show a further promising optical system in optoelectronic and nonlinear optical devices and an absorber layer for solar cell applications**.**

Associate Professor Dr. Auttasit Tubtimtae was born in Phrae, Thailand in 1983. He received the bachelor's degree in Education (Physics), Faculty of Education, Naresuan University, Thailand in 2005. He received the master's degree in Applied Physics, Faculty of Science, Chiang Mai University, Thailand in 2007, and his Ph.D. received from College of Science, National Chung Hsing University, Taiwan in 2011. Currently, he works at Division of Physics, Department of Physical and Material Sciences, Faculty of Liberal Arts and Science, Kasetsart University, Kamphaeng Saen Campus. His research interests in the synthesis of semiconductor thin films and nanoparticles for optoelectronic and solar cell applications.

INVITED SPEAKER: A_INV04

UNVEILING THE FUNDAMENTAL LAWS OF NATURE

Ignatios Antoniadis[1,*]

[1] High Energy Physics Research Unit, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand and Laboratoire de Physique Théorique et Hautes Energies – LPTHE Sorbonne University, CNRS, 4 Place Jussieu, 75005 Paris, France

*e-mail: antoniad@lpthe.jussieu.fr

Abstract:

Particle physics studies the elementary constituents of matter and their fundamental forces. Very short distances are explored by particle collisions at very high energies, creating conditions similar to those governing the Universe just after the Big Bang. This is the reason that the same physics is also explored by cosmology through observations on the sky at very large distances.

The current theory of particle physics, called Standard Model, provides an accurate description of all known physical phenomena in the micro-cosmos that are currently explored in the Large Hadron Collider (LHC) at CERN in Geneva, Switzerland. On the other hand, the Standard Model of cosmology describes very well observations, confirmed in particular by the Planck satellite experiments, pointing to the existence of a new dark sector of the Universe containing dark matter and dark energy.

Particle physics and Cosmology have currently entered into a new era of unexplored territories beyond the current standard models with new challenges and open questions to answer. A global effort is ongoing on both in theory and in experiment, promising new discoveries towards unveiling the fundamental laws of Nature.

Ignatios Antoniadis is a professor at the Laboratoire de Physique Theorique et Hautes Energies of Sorbonne University. In the past, he was a senior staff member of the Theory Division of CERN in Geneva for 15 years and its Head during the last four years. His research has covered a vast area of theoretical physics of elementary particles and he received the CNRS silver medal especially for his work on string theory and its phenomenological applications. Prof. Antoniadis has played a very important role in particular the construction of theories of four-dimensional strings, and the possibility of testing them experimentally. His works have received over 26,000 citations, and the SPIRES database listed him in the all-time list of top-cited theoretical physics authors. From January 2024, he joined the High Energy Physics Research Unit at Chulalongkorn University as a distinguished senior scholar.

INVITED SPEAKER: B_INV01

TARGETTED PROTEIN DEGRADATION: A NEW DAWN FOR PHOSPHODIESTERASE INHIBITION

Yuan Yan Sin,[1] George Baillie[2,*]
[1] School of Cardiovascular and Metabolic Health, University of Glasgow, Glasgow. UK
[2] School of Cardiovascular and Metabolic Health, University of Glasgow, Glasgow. UK
*e-mail: George.Baillie@glasgow.ac.uk

Abstract:
Phosphodiesterases (PDEs) are enzymes that degrade cyclic nucleotides and they represent valuable drug targets for a number of conditions that include cardiovascular disease, cancer and diseases of the Central Nervous System. Although a few PDE inhibitors have made it to the clinic, the number of successes has been limited by the restrictive therapeutic window of many compounds which induce intolerable side effects due to the lack of selectivity resulting from the mode of action which is to compete for space at the enzyme's active site. To circumvent this, we have developed the first Proteolysis Targetting Chimera (PROTAC) for PDEs. By engineering compounds that induce degradation of PDEs we have significantly enhanced the specificity, potency and duration of action compared with conventional PDE inhibitors. We predict that PDE PROTACS will be apt for a range of diseases that this new pharmacology will improve their tolerability.

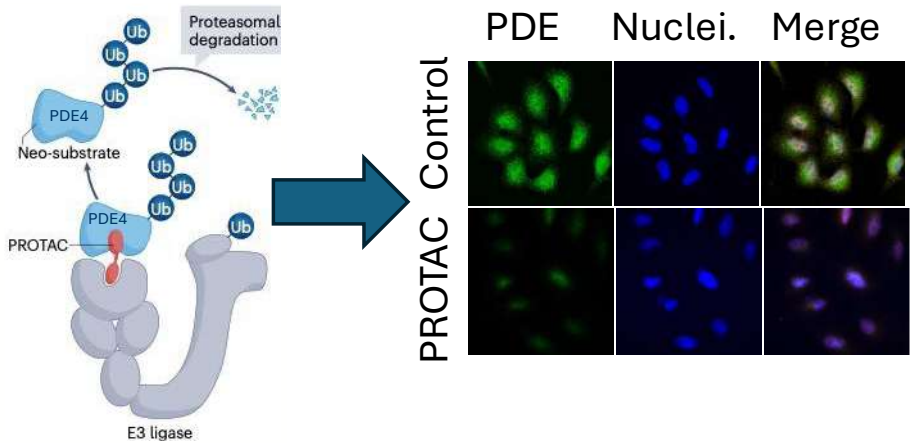

Figure.

Professor George Baillie was born in Glasgow, Scotland in 1966. He received the Bachelor's degree in Agricultural Botany from Department of Botany, Glasgow University, Glasgow in 1983. He received a Doctorate in Biochemistry in 1993, from Biological sciences Department, University of Kent, UK. From 1993 to 2003 he undertook Post Doctoral Fellowships at the Strathclyde University and Glasgow University both in Glasgow, Scotland. He has had a tenured, Principal Investigator position within the College of Medical, Veterinary and Life Science, University of Glasgow since 2003. His major research interests are in developing therapeutic peptides and studying the cyclic-AMP signalling pathway in a disease context.

INVITED SPEAKER: B_INV02

EFFECTS OF COLD ATMOSPHERIC MICROWAVE PLASMA ON WOUND HEALING AND HAIR GROWTH

Kuljira Mongkolpobsin,[1,2] Chanin Sillapachaiyaporn,[1,2] Pattawika Lertpatipanpong,[1] Kanokkan Boonruang,[1] Cheol-Yong Hwang,[3] Seung Joon Baek[1,*]

[1] Laboratory of Signal Transduction, Research Institute for Veterinary Science, College of Veterinary Medicine, Seoul National University, Seoul 08826, Korea

[2] Program in Clinical Biochemistry and Molecular Medicine, Department of Clinical Chemistry, Faculty of Allied Health Sciences, Chulalongkorn University, Bangkok 10330, Thailand

[3] Laboratory of Veterinary Dermatology, Research Institute for Veterinary Science, College of Veterinary Medicine, Seoul National University, Seoul 08826, Korea

*e-mail: baeksj@snu.ac.kr

Abstract:

Cold Atmospheric Microwave Plasma (CAMP) has emerged as a promising therapeutic option for skin infections, wound treatment, and potentially for treating hair loss or alopecia. However, the molecular mechanisms underlying CAMP-mediated wound healing and its effects on hair renewal are not well characterized. This study aims to elucidate the biological effects and molecular mechanisms of CAMP on wound healing in canine keratinocytes and its potential role in promoting hair renewal. CAMP-treated cells exhibited a significant increase in cell migration in both human keratinocytes (HaCaT) and canine keratinocytes (CPEK), as well as a positive effect on cell invasion in CPEK cells. RNA-seq data revealed that CAMP altered the expression of genes involved in cell cycle, cell proliferation, angiogenesis, cell adhesion, and wound healing. The Hippo pathway was analyzed, showing significant increases in YAP protein and mRNA levels in CAMP-treated cells. CAMP treatment also resulted in the downregulation of E-cadherin and upregulation of Vimentin, Snail, and Slug, contributing to enhanced cell migration. In hDPCs, CAMP treatment led to increased β-catenin signaling and YAP/TAZ activation. CAMP also induced β-catenin translocation and inhibited its ubiquitination by activating Akt/GSK-3β signaling and upregulating USP47 expression. Furthermore, HaCaT cells cultured in a conditioned medium derived from CAMP-treated hDPCs exhibited enhanced activation of YAP/TAZ and β-catenin signaling. Our findings suggest that CAMP treatment promotes beneficial effects in wound healing through the upregulation of genes involved in wound healing and the promotion of epithelial-mesenchymal transition (EMT) via the Hippo pathway. Additionally, CAMP may offer a new therapeutic alternative for alopecia by enhancing hair renewal through β-catenin signaling and the activation of YAP/TAZ.

Dr. Baek earned his bachelor's and master's degrees in Science from the Department of Agricultural Chemistry at Seoul National University in 1989. He then completed his PhD in Human Genetics at the University of Maryland School of Medicine and his postdoctoral studies at the National Institutes of Health in the USA. Dr. Baek previously served as a professor of Veterinary Medicine at the University of Tennessee and is currently a professor at Seoul National University. His research interests include the chemoprevention of metabolic diseases such as cancer, obesity, diabetes, and aging. Additionally, he is the director of the Lab of Signal Transduction. Dr. Baek has published over 175 papers in SCI journals and has a publication h-index of 60.

INVITED SPEAKER: B_INV03

PROTEIN PARTICLES AS CARRIER FOR TARGETED DRUG DELIVERY, OXYGEN TRANSPORT AND AS BIOREACTORS

Hans Bäumler,[1,2,*] Yu Xiong,[1] Radostina Georgieva,[1,3] Saranya Chaiwaree,[1,2] Yingmanee Tragoolpua[4]

[1] Charité-Universitätsmedizin Berlin, 10117 Berlin, Germany

[2] Faculty of Pharmacy, Payap University Chiang Mai, Thailand

[3] Trakia University of Stara Zagora, Stara Zagora, Bulgaria

[4] Department of Biology, Faculty of Science, Chiang Mai University, Chiang Mai, Thailand

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Abstract:

Proteins are essential macromolecules involved in nearly all cellular processes, and they are composed of one or more functional units known as domains. They can perform specific tasks, such as binding to other molecules, catalyzing biochemical reactions, or playing a role in structural integrity. Proteins as drug carriers represent a promising strategy in the field of drug delivery, offering several advantages over traditional delivery methods. Proteins' natural origin, biocompatibility, and ability to undergo specific modifications make them ideal candidates for delivering therapeutic agents. Advantages of Proteins as Drug Carriers are Biocompatibility and Biodegradability, Targeting Capabilities, Controlled Release, Versatility and Functionalization. Albumin and hemoglobin are two outstanding examples of proteins that are particularly suitable for targeted drug transport. We will demonstrate the production of albumin and hemoglobin particles approximately 700 nm in size loaded with doxorubicin or riboflavin. These particles can be functionalized by antigens, antibodies or receptors such as ACE-2 to recognize viruses that carry spike protein S. Last but not least, it is also possible to produce multicompartmental particles that contain different enzymes that are activated in a cascade.

Prof. Dr. Hans Bäumler is head of the Research Department of the Institute of Transfusion Medicine, Charité-Universitätsmedizin Berlin, Germany and member of the Faculty of Pharmacy of Payap University, Chiangmai, Thailand. His research activities are focused on the development of artificial and natural micro- and nano carriers for targeted drug delivery, cancer treatment, blood substitutes, and diagnostics. He has expertise on biomaterials for tissue engineering, flow properties of blood, cell-cell interactions, drug delivery and nanotechnology. Up to now, more than 25 doctoral students have successfully defended their dissertations under his supervision. He is author of more than 150 peer-reviewed scientific articles published in Nano Letters, Small, Advanced Functional Materials, ACS Nano, Biomacromolecules etc., 3 book-chapters, and 12 authorized patents. His projects have been granted by European Research funds, German Research Foundation and several German Federal Ministries.

INVITED SPEAKER: B_INV04

PEPTIDOPROTEOMICS FOR BIOMARKER DISCOVERY AND MOLECULAR MECHANISM ANALYSIS

Sittiruk Roytrakul,[1,*] Narumon Phaonakrop,[1] Sawanya Charoenlappanit,[1] Siriwan Thaisakun,[1] Suthathip Kittisenachai,[1] Janthima Jaresittikunchai[1]

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Abstract:

Peptidoproteomics represents an interdisciplinary domain merging elements from peptidomics and proteomics. It involves a comprehensive analysis of peptides and proteins within a cell, tissue, or organism. This field supplements other "omics" methodologies like genomics and transcriptomics by revealing the identity of peptides and proteins in an organism and understanding the structures and functions of specific peptides or proteins. The importance of peptidoproteomics lies in the fact that peptide and protein abundance may not always align with transcript levels due to various post- transcriptional and post-translational regulations. Peptides and proteins are pivotal in biological processes, signaling pathways, post- translational modifications, and interactions within complex systems. Peptidoproteomics encompasses a range of techniques, such as mass spectrometry, chromatography, and bioinformatics, to identify, quantify, and characterize peptides and proteins. Mass spectrometry stands out as a core component in contemporary peptidoproteomics investigations. The utilization of peptide barcodes through Maldi-TOF MS introduces distinctive peptide patterns serving as signatures for disease diagnosis, personalized medicine, and comprehending complex biological systems. LC-MS facilitates the identification and quantification of peptides or proteins, considering their temporal and spatial relationships within biological pathways. Peptidoproteomics finds diverse applications in numerous research areas, including the identification of diagnostic markers, vaccine development, elucidating pathogenicity mechanisms, analyzing expression patterns under various stimuli, uncovering peptide-protein interactions to aid in drug target discovery, and exploring natural defense molecules for potential therapeutic purposes.

Dr. Sittiruk Roytrakul was born in Songkla, Thailand in 1971. He received a bachelor's degree in Medical Technology from the Faculty of Associated Medical Sciences at Chiang Mai University in 1992. Subsequently, he completed his master's degree in Biochemistry from the Faculty of Science at Mahidol University in 1996, followed by his Ph.D. degree in Phytochemistry from University of Leiden, The Netherlands. Following his graduation in 2004, Dr. Sittiruk Roytrakul launched his career as a Researcher at the National Center for Genetic Engineering and Biotechnology, dedicating his expertise in biochemistry, medical science, and phytochemistry to advancing proteomics and peptidomics technologies. These technologies have since enhanced research endeavors within academic and industrial sectors for an extended period. Presently, he serves as the Research Team Leader of the Functional Proteomics Technology Team at the National Center for Genetic Engineering and Biotechnology under the National Science and Technology Development Agency.

INVITED SPEAKER: B_INV05

WOMEN'S WELLNESS IN THE MOUNTAINS: AN EXPLORATION OF MEDICINAL PLANTS AMONG TIBETO-BURMAN GROUPS IN THAILAND

Angkhana Inta,[1,*] Jatupol Kampuansai,[1] Wibhu Kutanan,[2] Metawee Srikummool,[3] Wittaya Pongamornkul,[4] Prachaya Srisanga,[4] Prateep Panyadee[4]

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[2] Faculty of Science, Naresuan University, Phitsanulok, Thailand

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Abstract:

This study provides important new information about the traditional medical care for women in four Tibeto-Burman ethnic groups. By focusing on women's wellness, the research sheds light on the often-neglected yet significant contributions made by women in the field of traditional medicine. The study aims to fill a knowledge gap in women's healthcare among Tibeto-Burman tribes in Thailand. Data from 15 group informants who lived in 12 distinct villages were compiled for the study. Combining free-listing, semi-structured interviews, focus groups, and the walk-to-the-wood approach were used to collect the information. To analyze the data, the researchers used various methods such as use-reports, Relative Frequency of Citation (RFC), Relative Importance Index (RI), and Cluster analysis. This study identified 200 plant species used in traditional women's healthcare practices, with leaves being the most frequently used part. Drinking was the most common method for internal use, while bathing and steam were the most emphasized for external use. *Blumea balsamifera* and *Buddleja asiatica* had high RI and RFC. Cluster analysis revealed that group-informants were divided by ethnicity and geographical location. This study contributes to the understanding of traditional healthcare practices among Tibeto-Burman groups in Thailand, with a particular focus on women's wellness. The results provide insight into the ethnobotanical knowledge of these communities and highlight the important role played by women in traditional medicine. The study underscores the need for continued research in this field to preserve and utilize this valuable knowledge.

Keywords: Herbal remedies, Knowledge erosion, Alternative medicine, Women healthcare, Sino-Tibetan

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Assistant Professor Dr. Angkhana Inta was born in Chiang Mai, Thailand in 1979. She obtained her Ph.D. from Faculty of Science, Chiang Mai University. She was a visited student of Kunming Institute of Botany, China and Department of Biology, Aarhus University, Denmark. Her field of interest are investigating, comparing and scientific validating the ethnobotanical knowledge of each ethic groups in northern Thailand. The relation between the knowledge and plant resource of each ethic groups in northern Thailand is investigated. The valuable data of traditional knowledge especially medicinal plants from various ethnic groups is provided to local communities for self-medication and hospital for alternative treatment.

INVITED SPEAKER: B_INV06

CRYOGENIC ELECTRON MICROSCOPY AND THE REVOLUTIONS IN STRUCTURAL AND CELLULAR BIOLOGY

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Abstract:
Cryo- electron microscopy (cryoEM) has transformed structural biology by enabling near-atomic resolution imaging of biomolecules in their native states, without the need for crystallization. Through vitrificaiton, biological structures can be preserved in near native state, allowing for detailed visualization of the dynamics of complex macromolecular assemblies like viruses, phages, enzymes and even disease- related proteins. Advances technology such as novel direct electron detectors, automated data acquisition and particle selection as well as enhanced image processing have greatly improved the resolution of 3D reconstruction from single particle analysis, and thus drive breakthroughs in structural analysis of biological systems and drug discovery. In addition, cryo- electron tomography (cryoET) also enables the imaging of pleiomorphic structures of different kinds of specimen including whole cells and organelles at nanometer resolution, providing a detailed map of cellular organization and dynamic processes in situ. The combination of single particle reconstruction and cryoET helps facilitate the visualization of individual molecular structures within the cellular contexts, which could offer a comprehensive view of biological systems from molecules to cells. This talk will cover the principles behind these sophisticated cryoEM techniques as well as the technical requirements for sample preparation for cryoEM. The latest developments in cryoEM infrastructure in Thailand will also be discussed.

Dr. Puey Ounjai earned his B.Sc. in Biotechnology from the Faculty of Science at King Mongkut Institute of Technology Ladkrabang and his Ph.D in Moelcular Genetics and Genetic Engineering from Mahidol University. He was a postgraduate fellow at Yale University from 2003-2006 and was a postdoctoral fellow at the University of Texas Southwestern Medical Center and Lawrence Berkeley National Laboratory in USA. Dr. Ounjai is currently an Assistant Professor in the Department of Biology, Faculty of Science, Mahidol Univeristy and an investigator of the Center of Excellence on Environmental Health and Toxicology. His research interests include utilization of advanced imaging technology in deciphering the mechanism of virus infection as well as phages, development of novel biotechnology and synthetic biology platform for ensure food safety and monitoring the spreading of environmental pathogens, development of novel scientific pedagogical and educational strategies to increase student engagement and science communications.

INVITED SPEAKER: C_INV01

TAILORED FUNCTIONAL NANOMATERIALS AS PEROXIDASE MIMICS ON MICROFLUIDIC PAPER- BASED ANALYTICAL DEVICES (µPADs) FOR INNOVATIVE POINT- OF- CARE APPLICATIONS

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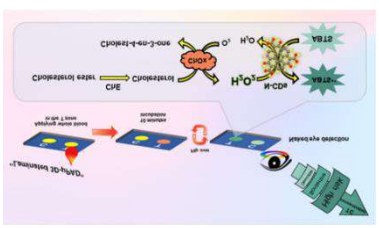
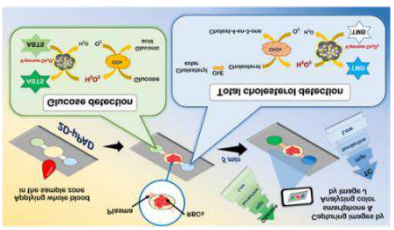
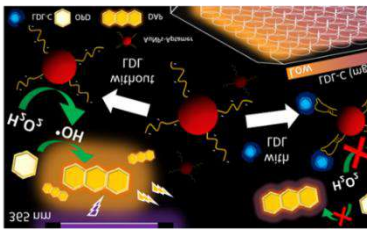
Abstract:

Our group has developed functional nanomaterials, such as nitrogen-doped carbon dots (N-CDs) and vanadium-doped porous cobalt oxide (V-porous Co_3O_4), as peroxidase mimics for point-of-care applications integrated into microfluidic paper- based analytical devices (µPADs) . In the first study, N- CDs were synthesized via a hydrothermal method and characterized thoroughly. These N-CDs served as peroxidase mimics for colorimetric total cholesterol (TC) analysis on 3D- µPADs, enabling semiquantitative TC detection in whole blood within 10 minutes, providing a low- cost, rapid, and sensitive alternative. In the second study, V- porous Co_3O_4 was synthesized as a superior peroxidase mimic for glucose and TC assessment in whole blood on a 2D-µPAD. Created using wax screen printing and cutting, this device allows simultaneous analysis of glucose and TC in 5 minutes with a 15 µL blood drop. The catalytic activity of V- porous Co_3O_4 oxidized H_2O_2, producing color indicators for glucose and TC levels. This 2D-µPAD offers a rapid, cost- effective solution for point- of- care blood biomarker detection. The third application involves a fluorometric aptasensor for low-density lipoprotein cholesterol (LDL-C) detection using aptamer-enhanced peroxidase activity of gold nanoparticles (AuNPs). Functionalizing AuNPs with an LDL- C- specific thiolated- aptamer increased their catalytic efficiency, oxidizing OPD by H_2O_2 into a fluorescent product. The aptasensor exhibited a linear relationship between signal intensity and LDL- C concentration in the range of 0.05−1 mg dL^{-1}, with a detection limit of 0.0230 mg dL^{-1}, correlating well with clinical methods. In summary, these cost-effective devices enable rapid, on-site monitoring of real samples. They offer low cost, easy fabrication, and scalability for mass production. They represent innovative, environmentally friendly, and affordable detection technologies with anticipated analytes.







Purim Jarujamrus is an Associate Professor at the Department of Chemistry, Ubon Ratchathani University, Thailand. He received his Ph.D. in Analytical Chemistry from Mahidol University, Thailand, in 2012. Since 2024, he has served as the National Representative (NR) of Thailand in the Analytical Chemistry Division of IUPAC. His research focuses on the development of functional nanomaterials for fiber-based microfluidic analytical devices for innovative chemical and biosensing applications. To date, he has published approximately 80 articles in peer-reviewed journals.

INVITED SPEAKER: C_INV02

BIOSYNTHESIS OF METAL OXIDE PHOTOCATALYSTS USING PLANT EXTRACT FOR PHOTOCATALYTIC DEGARDATION OF ANTIBIOTICS AND ORGANIC DYES IN WASTEWATER

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Abstract:

The biosynthesis of photocatalysts based on metal oxides is an interesting research topic owing to the beneficials of non-toxicity, simplicity, and environmentally friendly. In this presentation, firstly, we report the biosynthesis of ZnO with addition of leaf extract (using either water or ethanol as a solvent) of *Senna siamea.*. The prepared ZnO was used for removal of tetracycline (TC) antibiotic and reactive red 141 (RR141) azo dye. The complete removal of the toxic contaminant was obtained under both UV light and natural light. The ZnO-SV400, solvothermally grown using ethanol extract and then calcined at 400 °C, showed promising photoactivity assigning to the increment of the photogenerated charge carrier separation capacity and high crystallinity of the sample after thermal treatment. The degradation reaction follows nicely with the first-order reaction with a rate constant of 0.08 min^{-1}. The excellent cycling ability of about five time of use was achieved. The structural stability was also confirmed. Secondly, the preparation of natural-product-capped ZnO nanoparticles via a solvothermal method was demonstrated. The stem extracts of *Dalbergia parviflora* namely formononetin and pinocembrin were used as capping agents for preparation of ZnO denoted as Capped-ZnO-1 and Capped-ZnO-2, respectively. The ZnO photocatalysts showed hexagonal structure with a spherical morphology and band gap energy of 3.22 eV. The Capped-ZnO-2 photocatalyst showed the smallest average diameters of 10 nm with the greatest specific surface area of 36.19 $m^2 g^{-1}$. The photocatalyst provided 100 % and 98 % removal of RR141 dye and ofloxacin (OFL) antibiotic, respectively, due to high surface area and high charge-carriers separation rate at the interface. The prepared photocatalyst showed structural stability after three successive runs indicating its advantage of good cycling ability. The strategy presented here demonstrates that the green synthesis with addition of plant extracts is the main parameter governing the fabrication of sunlight-active ZnO photocatalyst for detoxification of the toxic contaminants including organic dyes and antibiotics in wastewater.

Dr. Suwat Nanan got his B.S. degree in Chemistry from Khon Kaen University in 2001 and MSc degree in Physical Chemistry from Mahidol University in 2003. He then became a lecturer in the Department of Chemistry, Khon Kaen University in 2004. He finished his PhD in Chemistry (Conducting Liquid crystals) from University of Leeds, UK in 2009. He was promoted to assistant professor and associate professor in 2015 and 2020, respectively. His research interests focus on. the development and fabrication of semiconducting photocatalysts for environmental protection including the creation of visible-light-driven photocatalysts for the complete removal of organic pollutants such as organic dyes, antibiotics, and insecticides in wastewater.

INVITED SPEAKER: C_INV03

PASSION MADE POSSIBLE: GREEN CHEMISTRY ON WATER- ASSISTED NITRILE OXIDE CYCLOADDITIONS AND A SIMPLE, CLEAN, BY- PRODUCT FREE, SITE- SELECTIVE DEUTERATION

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Abstract:

Water-assisted generation of nitrile oxides in buffer, pH 4-5, was discovered and applied for cycloadditions with alkynes and alkenes to give isoxazoles and isoxazolines, respectively. Since the generation of nitrile oxides can be performed in buffers, our method has been applied by other research groups for bioorthogonal isonitrile- chlorooxime ligation, modification of peptides, proteins and bacteriophage, protein modification via nitrile oxide cycloaddition, and the construction of peptide bicycles. Deuteration in drug discovery has received attention because two deuterated drugs were approved in 2017 and 2022. A simple, clean, and by- product- free, site- selective deuteration was achieved by acid- catalyzed reaction using deuterium halide (DX) generated from common and inexpensive reagents, i.e. prenyl-, allyl-, and propargyl halides. The deuterated products were obtained without chromatographic separation, and a gram- scale chromatography- free synthesis of some deuterated products was demonstrated in this work. This metal-free deuteration method covers a broad range of substrates including phenolic compounds (i.e. flavonoids and stilbenes), indoles, pyrroles, carbonyl compounds, and steroids, and it was applied for the deuteration of certain drugs, i.e. loxoprofen, haloperidol, stanolone, androstenedione, donepezil, ketorolac, adrenosterone, cortisone, pregnenolone, and dexamethasone.

Prasat Kittakoop received B.Sc. (1st Class Honors, Chemistry) in 1989 from Chiang Mai University, Thailand, and Ph.D. (Biochemistry) in 1992 from University of Wales, Swansea, UK. He was a researcher at the National Center for Genetic Engineering and Biotechnology (BIOTEC), NSTDA, and then moved to Chulabhorn Research Institute (CRI) in 2005. Currently, he is a Professor at Chulabhorn Graduate Institute (CGI). His research interests are centered in chemistry of natural products, green chemistry, and medicinal chemistry. Since 2020, he has been recognized as the World Top 2% Scientists in Medicinal & Biomolecular Chemistry, based on the number of citations from Scopus database. His hobbies are music and playing sports, e.g. triathlon, running, and football.

INVITED SPEAKER: C_INV04

ADVENTURES IN MOLECULAR MAGNETISM

Raúl Díaz-Torres,[1] Chantalaksana Chantarangkul,[2] Eliseo Ruiz,[1] Guillaume Chastanet,[3] Eric Collet,[4] Rodolphe Clérac,[5] Phimphaka Harding,[2] David J. Harding[2,*]

[1] Departament de Química Inorgànica, Institut de Recerca de Química Teòrica i Computacional, Universitat de Barcelona, Diagonal 645, 08028 Barcelona, Spain

[2] School of Chemistry, Suranaree University of Technology, Nakhon Ratchasima 30000, Thailand

[3] Institut de Chimie de la Matière Condensée de Bordeaux, Université de Bordeaux , 87 Av. Doc. A. Schweitzer, F-33608 Pessac, France

[4] Université de Rennes, CNRS, IPR (Institut de Physique de Rennes) – UMR 6251, F-35000, Rennes, France

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Abstract:

Magnet materials are central to our technologically driven lives. The design and discovery of new materials lie at the heart of new technologies. In this talk recent progress in the design of spin crossover and single-molecule magnetic materials will be presented.

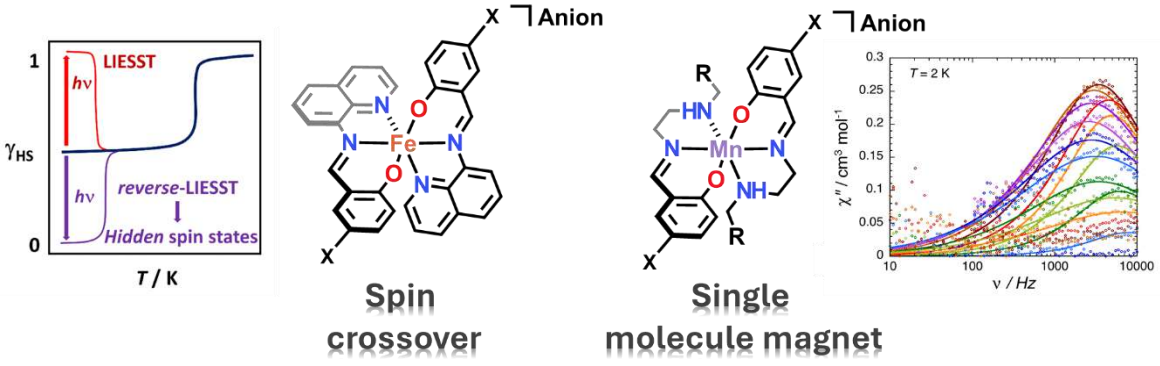

Figure. Molecular spin crossover and single-molecule magnets.

Associate Professor David Harding completed his BSc in 1997 from the University of Edinburgh before undertaking a PhD at the University of Bristol, graduating in 2000. After a few years of postdoctoral work, he moved to Thailand in 2002. Having worked at Thammasat and Walailak University, he now leads the Molecular Magnetic Materials Research Unit at Suranaree University of Technology. His research interests are varied and include the discovery of new materials with designed structural, optical and magnetic properties for molecular electronics. This encompasses spin crossover materials, single molecule magnets and supramolecular systems.

INVITED SPEAKER: C_INV05

CRAFTING INNOVATION: MATERIALS AND BIOELECTROCHEMISTRY IN FLEXIBLE SENSORS AND MINIATURIZED ELECTROCHEMICAL ENERGY DEVICES

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Abstract:

This talk explores reshaping devices in analytical chemistry, with a focus on sustainability and convenience. By integrating miniaturization and energy-efficient strategies, we aim to revolutionize sensor design. Our emphasis is on devices that provide noninvasive, on-demand analysis, delivering real-time insights into physiological status by tracking electrolytes and drugs. A key example is a diaper-based printed array capable of rapid and continuous detection of morphine and potassium ions. This sensing array utilizes screen-printable ink with a nanocomposite, ensuring both sensitive detection and durable electrodes. The integration of wireless smartphone technology enables real-time monitoring. Additionally, we explore the use of energy devices and enzymatic reactions on electrode nanomaterials for sensing and energy-harvesting applications. These advancements offer new opportunities for analysis across various fields, including biomedical and food monitoring.

Figure. Core idea of advancing research in materials and electrochemistry for sensors and miniaturized electrochemical energy devices.

Assistant Professor Itthipon Jeerapan, from the Division of Physical Science at Prince of Songkla University, Thailand, earned his Ph.D. and M.S. in NanoEngineering from the University of California, San Diego, USA and a Bachelor's degree in Chemistry (First Class Honors) from Prince of Songkla University. His research focuses on analytical chemistry, electrochemistry, and advanced materials, particularly in developing devices for biomedical, food, environmental, and energy applications, including biofuel cells and supercapacitors. His innovations extend to wearable, ingestible, and implantable platforms. He serves as an Associate Editor of ECS Sensors Plus and reviews for leading journals. His honors include the Thailand Young Scientist Award 2024, recognition among the Top 2% Scientists in the World in 2023, the Young Investigator 2023 from Analytical and Bioanalytical Chemistry, the Distinguished Young Chemist Award 2022, etc. He has authored over 60 publications, with more than 4,800 citations and an H-Index of 28.

INVITED SPEAKER: D_INV01

AI FOR BIOMEDICAL SIGNAL PROCESSING TOWARD HEALTHCARE AND MEDICINE

Theerawit Wilaiprasitporn[1,*]

[1] School of Information Science and Technology (IST), Vidyasirimedhi Institute of Science & Technology (VISTEC), Thailand

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Abstract:

In this talk, Theerawit will give an overview of his research team, including the history of setting up the team from scratch, which would benefit audiences new to a professional research career in Thailand. Then, he will go through the early series of works and present their impact on the real-world scenario during the unexpected lockdown period of the COVID-19 pandemic in Thailand. Moreover, he will continue explaining the late series of works in AI for biomedical signal processing toward healthcare and medicine, including the journey of translational research from the fundamental knowledge findings to the off-the-shelf product under the university spinoff company. In summary, this talk will not only disseminate the technical findings of the experimental studies but also inspire the audiences to work toward the emerging science and technology for the betterment of Thailand.

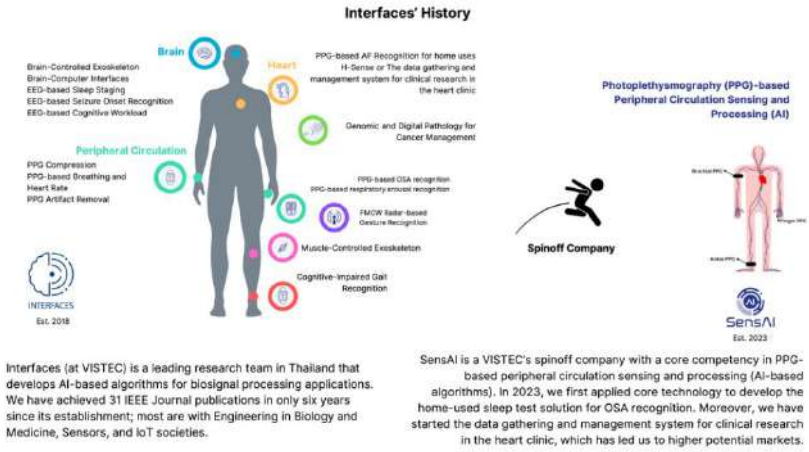

Figure. A brief introduction to a Thailand-leading research team in AI for biomedical signal processing toward healthcare and medicine

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Associate Professor Theerawit Wilaiprasitporn is a scientist specializing in medical AI. He founded Interfaces (AI in Health Research Team at VISTEC) and SensAI (VISTEC's spinoff company). Dr. Theerawit received the Young Scientist Awards 2024 of Thailand from the Foundation for the Promotion of Science and Technology under the Patronage of His Majesty the King. His efforts have played a crucial role in building remote health monitoring systems, benefitting over 30,000 people during the COVID-19 pandemic. This earned him a 2022 IEEE R10 Humanitarian Technology Activities Outstanding Volunteer Award. Dr. Theerawit supervises postgraduate students at VISTEC, guiding research and development efforts. He remains active in the Institute of Electrical and Electronics Engineers (IEEE) as an associate editor of IEEE Internet of Things Journal and IEEE Sensors Journal, further solidifying his impact on advancing technology for the benefit of humanity.

INVITED SPEAKER: D_INV02

QUASI-CONFORMAL IMAGE AUGMENTATION: A NOVEL APPROACH FOR CONVOLUTION NEURAL NETWORKS

Aniruth Phonon,[1,*] Kittiya Khongkraphan[1]
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Abstract:
In recent years, the demand for large and diverse image datasets has surged due to the increasing complexity of machine learning models, particularly in fields such as computer vision. However, traditional data augmentation techniques, while effective, sometimes produce limited variability in training datasets. They involve applying various transformations to existing images to create new, slightly altered versions. These transformations can range from simple geometric modifications, such as rotation and flipping, to more complex techniques like color adjustment and style transfer. By augmenting the training data, models can become more robust to variations and distortions in real-world images. This leads to improved generalization and performance. This talk explores the application of quasi-conformal mapping as an advanced data augmentation technique to enrich image datasets for machine learning. Quasi-conformal maps, which are a generalization of conformal maps and allow for controlled distortion of shapes, provide an innovative method for generating augmented images that preserve the essential features necessary for effective model training. By applying these mappings, we can generate a diverse set of images with varied perspectives and deformations, maintaining the semantic integrity of the original data. The talk primarily focuses on the mathematical aspects of quasi-conformal mappings and their potential for image modification. It also presents some experiments that demonstrate the superior performance of these mappings for image classification tasks compared to other augmentation methods.

Associate Professor Aniruth Phon-On was born in Nakhonsrithammarat, Thailand in 1980. He received the bachelor's degree in Science from Department of Mathematics, Faculty of Science, Prince of Songkla University, Thailand in 2003. He received the Master degree in Science from Chulalongkorn University in 2005 and Doctorate in Mathematics, in 2010 from Oregon State University, USA. From 2010 to present, he has worked at Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University,Pattani Campus, Thailand. His research interests in Analysis, Fixed Point Theory, and Mathematics in Image Processing.

INVITED SPEAKER: E_INV01

PRODUCTION OF HYDROGEN FROM BIOMASS WASTES USING A CO-GASIFICATION PROCESS

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Abstract:

Nowadays, hydrogen is mainly produced from fossil fuels and water splitting. Production from biomass could be a novel option since biomass is renewable and can replace part of fossil fuels in the future. There are many methods for the hydrogen production from biomass. One is the thermochemical way such as gasification. In this report, I will introduce the research progress in our group on the hydrogen production from biomass, which includes the development of small-scale gasifier, production of hydrogen-rich fuel gas by steam co-gasification of various biomass and steam reforming of tar derived from biomass pyrolysis. In addition, the progress in the H_2-generation from biomass in the word will be reviewed and discussed. Especially, the prospects and challenges in the future study will be outlooked.

Keywords: Hydrogen production; Biomass; Small-scale gasifier; Co-gasification; steam reforming.

Acknowledgment: This work is supported by JST Grant Number JPMJPF2104, Japan.

Dr Guoqing Guan is a full professor of Hirosaki University, Japan. He received his B.S., M.S. and Ph.D degrees in Chemical Engineering from Sichuan University, China and Kyushu University, Japan, in 1990, 1993,1995 and 2004. His research interests include sustainable energy system, coal and biomass pyrolysis and gasification, biorefinery, heterogeneous catalysts for energy conversion, energy materials and water splitting for hydrogen production. He has published over 460 international peer reviewed papers, 65 patents and 24 book chapters with a H-index 67 (WoS). He is now serving as associate editors of Carbon Resources Conversion and MetalMat; editorial board members of Fuel Processing Technology and Resources Chemicals and Materials.

INVITED SPEAKER: E_INV02

INSIGHTS AND GEOLOGY RESEARCH CHALLENGES AROUND GREAT WALL STATION, ANTARCTICA

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Abstract:
Recent geological expeditions around Great Wall Station, Fildes Peninsula, and Ardley Island have provided valuable insights into the region's volcanic history and geological processes through time. These areas are predominantly characterized by volcanic rocks, including basalt, andesitic basalt, and andesite, with occurrences of basalt/andesite and possibly dacite dikes. Microscopic analysis of the rocks indicates multiple volcanic events. The first eruption occurred during the Paleocene to early Eocene epochs, while the second took place from the middle Eocene to early Miocene. During the second volcanic eruption, volcanic ash and sediments were deposited alongside plant remains, forming what is now known as Fossil Hill. This site serves as a significant indicator of the region's past climate, suggesting a warmer climate in comparison to the current conditions. These geological investigations not only enhance our understanding of volcanic activity and sedimentary processes in this remote part of Antarctica but also provide important clues about past climatic conditions, highlighting the region's transition from a warmer environment to its present icy state.

Keywords: Antarctica; Geology; Paleo-Climate Change; Great Wall Station; Fossil Hill

Acknowledgement: Polar Research Project under the Information Technology Foundation under the Initiative of Her Royal Highness Princess Maha Chakri Sirindhorn

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Dr Thasinee Charoentitirat is an Associate Professor of Department of Geology, Faculty of Science, Chulalongkorn University. She received her B.Sc. from Chiang Mai University, M.Sc. from Chulalongkorn University and M.Sc. and Ph.D. from University of Tsukuba, Japan. Her research interests include microfossils, carbonate rock, sedimentology, tectonic evolution, etc.

INVITED SPEAKER: E_INV03

APPLICATIONS OF POLYMER BRUSHES IN LITHIUM-ION BATTERY ELECTRODES

Jyh-Tsung Lee,[1,2,*] Yu-Lung Chang,[1,2] Chia-Chen Li[1,2]
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Abstract:
We demonstrate the utilization of polymer brushes to enhance the performance of lithium-ion batteries. For lithium-ion batteries, a thin layer of poly{(3,4-ethylenedioxythiophene)-*co*-{3-[1-ethyl-2-(2-bromoisobutyrate)]thiophene} (P(EDOT-*co*-EBBT)) was polymerized onto Si, and then the P(EDOT-*co*-EBBT) layer was grafted with poly(methacrylic acid) (PMAA) brushes using surface-initiated atom transfer radical polymerization (SI-ATRP), resulting in a layer of Si@P(EDOT-*co*-EBBT)-*g*-PMAA) brush (Figure). This approach aimed to enhance the electrical conductivity of the polythiophene-based Si anodes. The polymer brush served as a binder, chemically binding to the Si electrode, contributing to excellent mechanical stability. Electrochemical impedance spectroscopy demonstrated lower impedance in the Si polymer brush electrode, resulting in enhanced C-rate capability and cycle-life performance. These findings deepen our understanding of the impact of polymer brush electrodes on battery performance, providing insights for further battery design optimization.

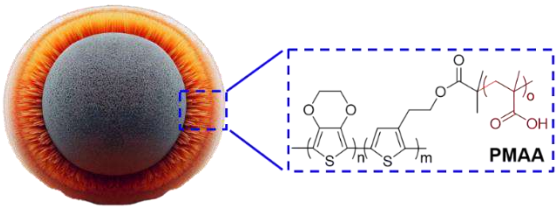

Figure. Schematic of Si@P(EDOT-*co*-EBBPT)-*g*-PMAA brush anode.

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[2] Lin, C. H.; Chau, C. M.; Lee, J. T. *Polym. Chem.* **2012**, *3*, 1467-1474.

He earned his Ph.D. degree from the Department of Chemistry at National Tsing Hua University in Taiwan in 2001. From 2002 to 2006, he dedicated his efforts to lithium-ion battery research at the Industrial Technology Research Institute, Taiwan. Subsequently, he pursued postdoctoral research at the University of Illinois at Urbana-Champaign in the Department of Materials Science and Engineering from 2006 to 2008. In 2008, he joined the Department of Chemistry at National Sun Yat-sen University (NSYSU), Taiwan, as an Assistant Professor, later advancing to the position of Associate Professor from 2012 to 2018. In 2018, he became a Professor and assumed the role of department chair (2018-2024). As of 2024, he holds the position of Dean for the College of Science at NSYSU.
His academic contributions have been recognized through various accolades, including the titles of Distinguished Junior Research Professor, NSYSU (2012-2015) and the Outstanding Industry-University Cooperative Research Award (2018-2023) at NSYSU. He has also received the Outstanding Research Award in multiple periods: 2018-2021, 2023, and 2024. His current research endeavors revolve around lithium-ion batteries, organic batteries, and flow batteries.

INVITED SPEAKER: F_INV01

SOIL AND CROP SENSING IN SMART AGRICULTURE

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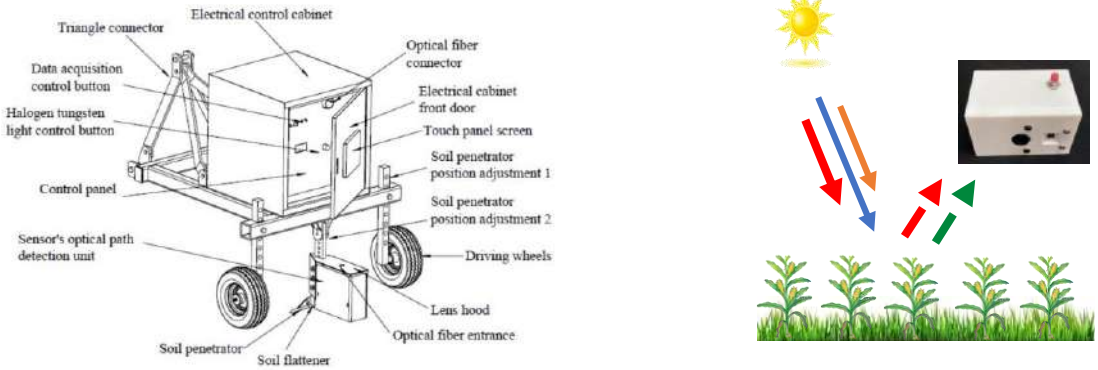
Abstract:
Smart agriculture realizes accurate perception, quantitative decision-making, intelligent operation and intelligent service in the process of crop production, to significantly improve land output, resource utilization and labor productivity. The soil and crop sensing is the essential of smart agriculture. Soil sensors can replace the cumbersome and time-consuming traditional means of measuring soil parameters and improve the efficiency of field operations by detecting changes in the content of soil nutrients, water content, EC and other components. Several portable and vehicle-mounted soil sensors have been developed in CAU based on the principle of Visible-Near Infrared Spectroscopy. Figure (a) shows a vehicle-mounted soil total nitrogen content detector including a mechanical unit, an optical unit and a control unit. It had a stable performance and a high precision, which could meet the requirements of field S-TN content detection. The imaging-type diagnostic systems of the crop canopy chlorophyll content were developed based on the new snapshot-mosaic multispectral sensors as shown in Figure (b). Considering the system performances of portable, efficient, integrated system were optimized with film coated optical sensor and camera. It can diagnose crop canopy chlorophyll content and generate distribution maps at multiple spatial scales through handheld, tractor-based and drone-based implementations.



(a) Vehicle-mounted soil total nitrogen detector

(b) Diagnostic systems of the crop canopy chlorophyll content

Figure. Soil and crop sensors for smart agriculture

LI Minzan, PhD, Professor of China Agricultural University (CAU), Director of the Research Center for Smart Agriculture at CAU. He received his Ph.D. degrees on Agricultural Engineering in 2000 from Tokyo University of Agriculture and Technology, Japan. He serves as a vice-chairman of the Agricultural Control Section (TC8.1) of IFAC, a boarding member of ACPA, and a member of AI Workgroup of CIGR. His current research interests include precision agriculture, smart agriculture, application of spectroscopy, agricultural informatics, and agricultural IoT. He has published more than 100 referred papers and filed more than 20 patents in agricultural informatics and spectroscopy.

INVITED SPEAKER: F_INV02

AI-POWERED APPLE PRODUCTION IN CHINA

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[1]Key Laboratory of Smart Agriculture (Ministry of Education), China Agricultural University, Beijing 100083, China
[2]College of Information and Electrical Engineering, China Agricultural University, Beijing 100083, China
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Abstract:
Apple is one of the most popular fruits in the world and China ranks top 1 in apple production. Increasing labor cost, shrinking labor and demanding requirement on high-quality apples put strains on apple production. With rapid technology progress in sensing and automation, robotic technology has gradually been applied in apple production in the aspects of harvest, infield sorting, pollination and bagging. Harvest robotics technology has been developed and tested, and commercial prototypes are undergoing extensive tests before finally going to commercial stage. Infield sorting technology, aiming to sort out low quality or defect apples from the fresh market level, has been developed for commercial application. In addition, further improvement is going on to enhance its performance for wide application. Drones for pollination can fully replace the function of insects, and guarantee good yield. Bagging can get rid of disease and insects for apples and improve the fruit quality, but there is no enough labor to complete the tasks. The developed apple bagging robot based on multiple DoF arm can automatically realize the bagging task and fully replace human labor. This presentation would summarize the technology progress in apple production in terms of harvest, infield sorting, pollination and bagging.

Figure. Apple harvest robot (left) and apple infield sorting machine (right)

Dr. Zhao Zhang is currently a professor with College of Information and Electrical Engineering, China Agricultural University (CAU), focusing on smart agriculture. Before joining CAU, he worked with Department of Agricultural and Biosystems Engineering, North Dakota State University (NDSU), as a research assistant professor. His major research direction related to sensing and automation in agriculture, focusing on applying and developing innovative technologies (e.g., UAVs and ground vehicle-based sensors) to support sustainable agriculture. Projects going on include, but are not limited to, using drone imagery for automatic crop disease detection and growth condition monitoring. In addition, he collaborates with a startup on developing an automatic rock picker. One project is to develop a proximal sensing system to recognize rocks and then guide an end-effector to the target rock. Before joining NDSU, he worked in the USDA Agricultural Research Service (ARS) Sugarbeet and Bean Research Unit at East Lansing, Michigan. His research focused on the development of innovative engineering technologies for harvesting and automated grading and sorting of apples in the orchard. He was primarily involved with system integration, as well as automatic control design and implementation. His research interests also included cost-benefit analysis of adopting mechanical harvest aid/sorting machines. He was a co-inventor for the infield sorting system (US Patent 9,919,345). In addition, he worked on the development and integration of an innovative apple harvest robot. Before joining USDA/ARS, he had completed his Ph.D. studies in the Department of Agricultural and Biological Engineering at The Pennsylvania State University. His Ph.D. research was focused on developing a low-cost apple harvest-assist unit to improve labor productivity and decrease pickers' occupational injuries. He earned both his M.S. and B.S. from Northwest A&F University in Agricultural Mechanization Engineering and Industrial Design Engineering, respectively. Zhao Zhang's M.S. research was focused on agricultural machinery design and optimization, as well as agricultural mechanization strategy and policy evaluation. His undergraduate senior design project was related to smart furniture design.

INVITED SPEAKER: F_INV03

NANO- ENCAPSULATED PHYTOCHEMICALS BY SOLUBLE SOYBEAN POLYSACCHARIDE/CHITOSAN ENHANCE THEIR BIOLOGICAL ACTIVITIES

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Abstract:
Dietary polyphenols are secondary plant metabolites known for preventing many chronic diseases. However, their high hydrophobicity results in low water solubility and bioavailability, limiting their therapeutic efficacy and applications in aqueous systems. Encapsulation may provide a solution to these challenges. Polysaccharides like soluble soybean polysaccharides (SSPS) and chitosan are commonly used as polymeric backbones for nanoparticle formation. We investigated the physicochemical properties of quercetin and stigmasterol encapsulated in SSPS with chitosan. Encapsulation was confirmed using dynamic light scattering, zeta potential, Fourier-transform infrared spectroscopy, differential scanning calorimetry, and transmission electron microscopy. Our findings indicate that encapsulated quercetin exhibits superior biological activity compared to free quercetin. In addition, stigmasterol shows neuroprotective effects by inhibiting glutamate-induced neurotoxicity, its efficiency is hampered by poor water solubility. To address this, we conjugated stigmasterol to SSPS with chitosan nanoparticles, significantly increasing its water solubility and enhancing its protective effect on the Cdk5/p35/p25 signaling pathway compared to free stigmasterol. Overall, the enhanced solubility of quercetin and stigmasterol in aqueous solutions demonstrates the potential of these nanoparticles for improved applications in the biomedical and food industries.

Dr. Baek earned his bachelor's and master's degrees in Science from the Department of Agricultural Chemistry at Seoul National University in 1989. He then completed his PhD in Human Genetics at the University of Maryland School of Medicine and his postdoctoral studies at the National Institutes of Health in the USA. Dr. Baek previously served as a professor of Veterinary Medicine at the University of Tennessee and is currently a professor at Seoul National University. His research interests include the chemoprevention of metabolic diseases such as cancer, obesity, diabetes, and aging. Additionally, he is the director of the Lab of Signal Transduction. Dr. Baek has published over 175 papers in SCI journals and has a publication h-index of 60.

INVITED SPEAKER: F_INV04

THE POWER OF UNDERUTILIZED PULSES: COMPLEMENTARY PROTEINS FOR A SUSTAINABLE FOOD SYSTEM

Janjira Buakaew,[1] Pawadee Methacanon,[1] Chaiwut Gamonpilas,[1,*] Ployfon Boonkor,[2] Leonard Sagis[2], Stephan Drusch[3]

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Abstract:

Food production is the second largest source of greenhouse emissions behind electricity generation. Therefore, it is critical to find better solutions to feed our growing population without degrading the planet. Underutilized pulses, including mung bean, pigeon pea, lentil, lupin, or fava bean, have tremendous potential as complementary protein sources to those conventional animal- based proteins or the more widely used soy and gluten proteins. However, the utilization of these pulse proteins is scarce due to unclear information on their extraction, fractionation and techno- functionality relationship. This talk will address the significance of pulse proteins in the alternative protein space as well as the challenges and opportunity in formulating pulse proteins from different varieties. Compositions of a range of pulse crops will be introduced, while an overarching description of pulse protein techno-functionality, including, solubility, gelation, emulsification, foaming and rheological properties etc., will be presented and discussed. Overall, this talk aims to provide an in-depth understanding of the interrelationships between the composition, structure, and key techno-functional properties of pulse proteins, which is considered a core pillar for developing high-performance pulse proteins to deliver a sustainable food future.

Dr. Gamonpilas completed his PhD from Department of Mechanical Engineering, Imperial College London in 2005. He then joined the National Metal and Materials Technology Center (MTEC), Thailand, where he has been since. He was a visiting scientist at The Benjamin Levich Institute for Physico-Chemical Hydrodynamics, City College of New York between 2014-2016. Currently, he is a principal researcher and team leader of the Food Materials Research lab. He also holds an adjunct faculty at the Department of Food Agriculture and Bioresources in the Asian Institute of Technology (AIT), Thailand. His research interests include food biopolymers, food structuring design, food oral processing and food digestion. He is on the Editorial Boards of Applied Food Research, Journal of Texture Studies, and Frontiers in Soft Matter (Food and Soft Materials section). He has received several awards including the WMRIF Young Materials Scientist Workshop award, and the national research award from the National Research Council of Thailand.

INVITED SPEAKER: SP1_INV01

EXPLORING THE HIGH-ENERGY UNIVERSE THROUGH MULTIMESSENGER ASTRONOMY

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Abstract:
The universe hosts incredibly energetic particles, produced by extreme astrophysical phenomena. Many potential sources of these particles are hidden deep within the cosmos, where they are challenging to observe with high-energy photons due to their limited penetration power and the dense environments in which these phenomena occur.
Multimessenger astronomy, which combines observations from different cosmic messengers—such as photons (electromagnetic waves), gravitational waves, and neutrinos—has emerged as a powerful approach to exploring these elusive phenomena. High-energy neutrinos, in particular, can escape from dense regions that photons cannot penetrate, traveling across cosmological distances unaffected. These neutrinos carry unique information from the inner workings of astrophysical engines, offering the potential to uncover hidden sources that remain invisible to traditional photon-based observations.
The coincident detection of high-energy neutrinos is thus becoming a critical component of multimessenger astronomy. The IceCube Neutrino Observatory, a cubic-kilometer-scale detector located at the South Pole, has been at the forefront of this field, making groundbreaking discoveries by observing neutrinos in the TeV to PeV range. This talk will provide an overview of recent progress in high-energy multimessenger astronomy and explore future perspectives with the next-generation neutrino telescope, IceCube-Gen2.

Professor Aya Ishihara is a highly esteemed physicist from Chiba, Japan, specializing in the search for high-energy particle-emitting objects in space through the detection of neutrinos. As a full professor and chair of the speakers' committee, she is a key figure in the IceCube Neutrino Observatory, where her work focuses not only on identifying these elusive neutrino sources but also on developing the cutting-edge detectors necessary for these discoveries.
Her research is at the forefront of multimessenger astronomy, a field that combines information from different types of cosmic messengers—such as neutrinos, gravitational waves, and electromagnetic radiation—to provide a more complete understanding of the universe.
At the 50th International Congress on Science, Technology, and Technology-based Innovation (STT50) at Chiang Mai, Prof. Ishihara will present on the topic "Exploring the High-Energy Universe Through Multimessenger Astronomy." Her talk will offer invaluable insights into how neutrino measurements from IceCube are driving new discoveries in the high-energy universe, furthering our understanding of cosmic phenomena through the lens of multimessenger astronomy.

INVITED SPEAKER: SP1_INV02

IMPLICATIONS OF POSITRON FRACTION MEASURUREMENTS ON LOCAL COSMIC-RAY SOURCES

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Abstract:
Galactic Cosmic rays (GCR) are high-energy particles, mostly protons, which have been accelerated by various astrophysical objects within the Milky Way Galaxy. A small fraction (~1%) of local GCR components are electrons (e^-) and positrons (e^+). GCR e^- and e^+ detected within the Solar System must be produced relatively nearby (within ~1 kpc compared to the Milky Way's diameter of ~30 kpc) because they lose energy rapidly as they propagate through the interstellar electromagnetic fields. According to various measurements, the e^+ fraction (flux of $[e^+]$/flux of $[e^+ + e^-]$) is approximately 0.05 – 0.1 between 1 – 10 GeV. Such small fraction of e^+ indicates that, below ~10 GeV, e^- are mainly from primary sources while e^+ are predominantly secondary products of GCR interactions with interstellar gas. This model of GCR e^- and e^+ production suggests that the e^+ fraction should decrease with energy above ~10 GeV, but many space-based observations unanimously indicate the opposite. In this talk, I will discuss the implications of the increasing e^+ fraction at high energy (>10 GeV) suggesting the presence of nearby primary sources of e^+, the current candidates of which are pulsars and dark matter.

Assistant Professor Dr. Warit Mitthumsiri received his bachelor's degree in physics from Columbia University, USA, in 2007 and his Ph.D. in physics from Stanford University, USA, in 2013. He is currently working at the Department of Physics, Faculty of Science, Mahidol University, Thailand. His research topics are related to cosmic rays and astrophysical gamma rays.

INVITED SPEAKER: SP1_INV03

MULTI-SENSOR ANALYLIS OF EQUATORIAL PLASMA BUBBLES (epb) DURING THE SOLAR MAXIMUM OF THE 25th SOLAR CYCLE IN ASEAN REGION

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Abstract:

Equatorial plasma bubbles (EPB) refer to the depletion region originating at the bottomside of the ionosphere. The phenomenon typically appears from post-sunset to pre-sunrise periods. They typically occur at the magnetic equator then expand to higher latitude region and tend to move from the west to east direction, in addition, the scale size ranges from a few kilometers to hundreds of kilometers. Hence, the utilization of variety of sensors and cooperation among countries in ASEAN are crucial to enhance deep understanding and the extent of the EPBs. The EPBs are known to degrade the signal quality in HF, VHF and UHF bands, particularly, the GNSS navigation and positioning. In this work, we analyze the ionospheric irregularities in Thailand and nearby countries in ASEAN using diverse types of sensors, particularly, ground-based equipment such as GNSS receivers, ionosonde and VHF radar. The ionospheric responses to both quiet time and storm time events will be analyzed. The results during quiet time (no global-level solar storms) show that as the solar activity increases, the high probability of EPBs are seen. However, following the solar storms (global level disturbance), the irregularities may or may not respond severely as expected. When the effects are clearly seen, the positive or negative storms can be observed, in addition, the effects on precise positioning are investigated. Figure shows

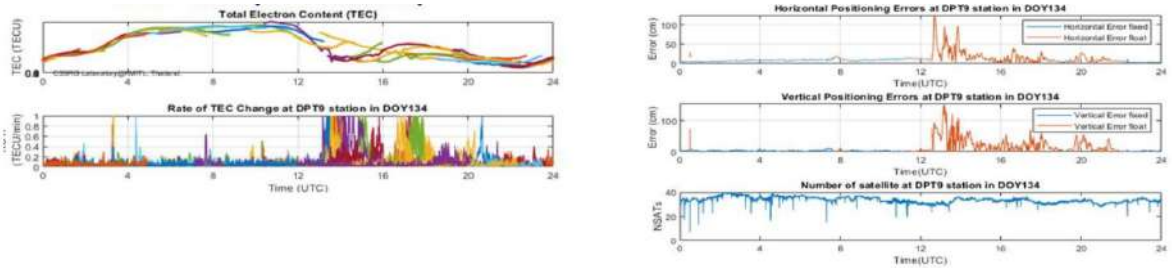

Figure. The total electron content (TEC) and rate of TEC change index (ROTI) on May 14th, 2024 (Left) and the real-time kinematics (RTK) positioning errors (right)

Pornchai Supnithi is currently a full professor at King Mongkut's Institute of Technology Ladkrabang, Thailand. His laboratory maintains ionospheric monitoring stations in Thailand (ionosonde, VHF radar, beacon receivers, GNSS receivers) and Thai GNSS and Space Weather Information Website. He has published over eighty international journals. His interests are in ionospheric study, communication theory and engineering education. He is on the executive committee, country-level committee, and steering committee of various international organizations such as IAGA (IUGG), IRI (NASA), AOSWA, ISWI.

INVITED SPEAKER: SP1_INV04

ADVANCEMENTS IN SPACE SAFETY AND SECURITY RESEARCH AT GISTDA: OBJECTIVES, ACCOMPLISHMENTS AND SYSTEM INNOVATION

Sittiporn Channumsin,[1,*] Purin Tanirat,[1] Suwat Sreesawet,[1] Suwat Sreesawet,[1] Setthanun Thongsuwan,[1] Keerati Puttasuwa,[1] Phasawee Saingyen,[1] Tanatsan Khantha,[1] Rungnapa Kaewthongrach,[1] Acharaporn Bumrungkit,[1] Wanida Panup,[1] Jaruwan Sutthana[1]
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Abstract:
The exploration and utilization of space have become indispensable across various domains, including communication, navigation, Earth observation, scientific research, and national security. However, the proliferation of space objects poses a growing threat to active satellites, while solar activity impacts critical systems such as satellites, radio navigation (GPS and GNSS), communication networks, and power grids, along with the potential hazard of asteroid impacts on Earth. Addressing these challenges falls under the domain of space safety and security, a global concern that requires international collaboration and coordinated efforts.
This abstract provides insight into Thailand's strategic approach towards space safety and security, as outlined in its national roadmap within the Earth Space System Frontier Research. The Geo-Informatics and Space Technology Development Agency (GISTDA) plays a pivotal role in this initiative, focusing on research development, operational frameworks, facilities, and goals, with notable achievements in advancing space technology capabilities.
Moreover, this presentation explores GISTDA's proactive engagement in international cooperation and partnerships aimed at enhancing space safety and security research and mitigation strategies. By fostering collaboration with other nations, GISTDA aims to facilitate the exchange of critical data, expertise, and best practices. Such partnerships are essential for effectively managing the risks associated with space activities and ensuring the sustainable use of space for future generations.

Mr. Sittiporn Channumsin graduated with a bachelor's degree in Electronics Engineering in 2002 and received a scholarship from the Ministry of Science and Technology to pursue advanced studies in aerospace engineering. He earned a master's degree in Space Technology and Planetary Exploration from the University of Surrey in 2011, followed by a doctoral degree in Aerospace Engineering from the University of Glasgow in 2016. After completing his studies, he returned to work for the Geo-Informatics and Space Technology Development Agency (GISTDA). In 2018, he assumed the roles of Senior Researcher and Head of the Astrodynamics Research Laboratory (AstroLab), as well as Manager of the Earth Space System (ESS) frontier research at GISTDA. In 2022, he was appointed Director of the Space Technology Research Center, and in 2023, he became Assistant Director of the Space Technology Development Office. Additionally, Mr. Channumsin leads projects focused on the development of space safety and security technology. He represents Thailand at international conferences held by the United Nations and other international space organizations, promoting research collaboration and technological innovation for Thailand.

INVITED SPEAKER: SP2_INV01

SURFACE MODIFICATION OF DENTAL IMPLANTS

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Abstract:
Dental implants have been widely used in dentistry. The surface characteristics of dental implants (titanium and zirconia) play important role in the osseointegration of the implant. Therefore, proper surface modification is essential for titanium and zirconia dental implants, which are usually characterized as biologically inert surfaces. In the lecture, I will first introduce the background and some current status of dental implants. Then, I will focus on surface modification of titanium and zirconia dental implants. Depending on the cross-sectional morphology, surface modifications will be categorized into three types, including (1) concave (meso/nano/submicron/micron-scale porous topography on rough surfaces), (2) convex (multifunctional biomolecule immobilization on rough surfaces), and (3) smooth surfaces (ion implantation on smooth surfaces). In general, surface modifications, including physical, mechanical, chemical/electrochemical and/or biological methods can be used to improve osseointegration of dental implants, with considerations being the use of simple, rapid, cost-effective and/or environmentally friendly processes.

Prof. Her-Hsiung Huang received his B.Sc. and M.Sc. degrees from the Department of Mechanical Engineering at National Central University, Taiwan, and completed his Ph.D. in the Department of Materials Science and Engineering at National Cheng Kung University, Taiwan. Currently, he is the Lifetime Distinguished Professor in the Department of Dentistry at National Yang Ming Chiao Tung University, Taiwan. He was funded by the National Science and Technology Council of Taiwan as a visiting scholar at Chulalongkorn University (Faculty of Dentistry), Thailand, and the University of Tübingen (Faculty of Medicine) and University of Erlangen-Nürnberg (Faculty of Materials Science), Germany. His research areas include the corrosion resistance, mechanical properties, biological response and surface modification of biomaterials for dental and orthopedic applications. He is particularly interested in studying the interactions between biomaterials and bone tissue.

INVITED SPEAKER: SP3_INV01

THE COMMUNICATION BETWEEN MARINE DIATOM CELLS AND THEIR TRANSPORTERS IN RESPONSE TO GLOBAL WARMING THROUGH THE ABSORPTION AND TRANSFORMATION OF KEY BIOGENIC ELEMENTS

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Abstract:
Diatom bloom is characterized by a rapid increase of population density. Perception of population density and physiological responses can significantly influence their survival strategies, subsequently impacting bloom fate. The population density itself can serve as a signal, which is perceived through chemical signals or chlorophyll fluorescence signals triggered by high cell density, and their intracellular signaling mechanisms remain to be elucidated. We focused on the model diatom, *Phaeodactylum tricornutum*, and designed an orthogonal experiment involving varying cell densities and light conditions, to stimulate the release of chemical signals and light-induced chlorophyll fluorescence signals. Based on molecular genetics, cellular physiology, computational structural biology, and *in situ* oceanic data, we propose a potential intracellular signaling mechanism related to cell density in marine diatoms using Ca^{2+}: upon sensing population density signals mediated by chemical cues, the membrane-bound *PtSLC24A* facilitates the efflux of Ca^{2+} to maintain specific intracellular calcium levels, allowing the transduction of intracellular density signals, subsequently regulating physiological responses, including cell apoptosis, ultimately affecting algal blooms fate. On the other hand, the abundance of PtCPF1 [a member of the cryptochrome-photolyase family (CPF)] transcripts in marine diatoms were shown to increase with rising temperature based on Tara Oceans datasets. Moreover, the expression of PtCPF1 in the model diatom *Phaeodactylum tricornutum* under high temperature (26°C) was much higher than that under optimum temperature (20°C). Deletion of PtCPF1 in *P. tricornutum* disrupted the expression of genes encoding two phytotransferrins (ISIP2A and ISIP1) and two Na+/P co-transporters (PHATRDRAFT_47667 and PHATRDRAFT_40433) under 26°C. This further impacted the uptake of Fe and P, and eventually caused the arrest of cell division. Gene expression, Fe and P uptake, and cell division were restored by rescue with the native PtCPF1 gene. Furthermore, PtCPF1 interacted with two putative transcription factors (BolA and TF IIA) that potentially regulate the expression of genes encoding phytotransferrins and Na+/P co-transporters. To the best of the authors' knowledge, this is the first study to reveal PtCPF1 as an essential regulator in the acclimation of marine diatoms to high temperature through the coordination of Fe and P uptake.

Professor Dr. Guangce Wang was born in Anhui, China in 1964, and he received Ph.D in marine biology from Institute of Oceanology, Chinese Academy of Sciences (IOCAS), in 1996. Prof. Wang is the academic leader of "Physiology and Development Regulation of algae" in IOCAS, as well as editorial board members of some scientific journals including Global Change Biology (IF:11), which is an internationally leading journal. He is the ex-President of the Chinese Phycology Society, and his research interests include synthetic biology of marine algae, response processes and molecular mechanisms of marine algae to marine environmental factors, marine biological resources and applications.

INVITED SPEAKER: SP3_INV02

MICROBIOMES BENEFIT GROWTH AND STRESS TOLERANCE OF PLANTS

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Abstract:
Plant associated microbes benefit plants by enhancement of growth, health, and environmental stress tolerance. Individual and co-cultured microbes are proved to positively improve abiotic tolerance of crops by reducing stress ethylene via conversion of ACC, a precursor of ethylene, to alpha ketoglutarate and ammonia through ACC deaminase. Analysis of gene expression and transcriptome profiles have revealed the molecular interaction of such beneficial microbes towards plants under stress conditions. Moreover, microbiomes of plants grown under natural and stress conditions were investigated using metagenomic amplicon sequencing. The core microbiomes and potentially beneficial microbes and their functions under natural and stress conditions will aid in selecting potential microbial consortia for further improvement of plant traits. Extensive understanding of the mutual association will sustainably enable application of these microbes as environmentally friendly added value bio-agents for green agriculture to combat climate change.

Keywords: plant- microbe interaction; actinomycetes; ACC- deaminase; abiotic stress; metagenomics

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Professor Arinthip Thamchaipenet graduated BSc and MSc in Microbiology at Chulalongkorn University, Thailand. She was awarded the Royal Thai Government Scholarship to study PhD in Molecular Genetics at University of Glasgow, UK. She is currently a professor in Genetics at Department of Genetics, Faculty of Science, Kasetsart University, Thailand. Her expertise is on biology and genetics of actinomycetes towards plant growth, stress tolerance, biocontrol, and novel drug discovery. At present, she is a President of Genetics Society of Thailand, an Associate Dean of Research and International Affairs, Faculty of Science, Kasetsart University, a Thai PI of SATREPS project on duckweed holobionts supported by JICA, and has recently been selected to be a member of the International Committee of Systematics of Prokaryotes (ICSP) as a representative from Thailand.

INVITED SPEAKER: SP3_INV03

EXPLOITATION OF YEAST BIODIVERSITY TOWARDS BIOTECHNOLOGICAL APPLICATIONS

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Abstract:
Investigations of yeast biodiversity in natural habitats by using culture-dependent method have been carried out by yeast research team of the Department of Microbiology, Kasetsart University in collaboration with yeast researchers in other universities and institutes. Investigations of yeast biodiversity have been performed in various habitats and ecosystems e.g. soils, sediments, waters, leaves, flowers, fruits, tree barks, etc. in terrestrial, mangrove and peat swamp forests; orchards; rice, sugarcane, and corns fields. The results of these investigations are not only provided the knowledge of yeast biodiversity together with discovery and description of many novel yeast taxa, but also a number of yeast cultures. The yeast cultures have been utilized by our yeast research team in various biotechnological researches including screening and production of biofuels (bioethanol and biodiesel), food and feed ingredients (beta-glucan and carotenoids pigments), plant growth promoter (indole-3-acetic acid, IAA), and biocontrol agents for plant and postharvest diseases. Until present, some yeast cultures have been selected for the production of some products and determined for their appropriate production media and processes that can be further scaled up to pilot or industrial scales. Additionary, some yeast cultures have been selected to be used as biocontrol agents and tested in greenhouse. Example of yeast cultures for the production of some useful products are *Rhodosporidiobolus fluvialis* DMKU-RK253 and *R. fluvialis* DMKU-SP314 for production of lipid as feedstock of biodiesel production; *R. fluvialis* DMKU-CP293 for IAA production; and *Limtongozyma siamensis* DMKU-WBL1-3 for lipase production. Yeast cultures that capable of using as biocontrol agents e.g. *Papiliotrema aspenensis* DMKU-SP67 for controlling of anthracnose disease in postharvest mango fruit; *Torulaspora indica* DMKU-RP31 and *T. indica* DMKU-RP35 for controlling of rice sheath blight disease, rice seedling rot disease, and fruit rot and anthracnose of postharvest mango; and *Wickerhamomyces anomalus* DMKU-CE52 and *W. anomalus* DMKU-RE13 for controlling of rice sheath blight disease. In the presentation detail of some of these researches will be discussed.

Professor Dr. Savitree Limtong received the B.Sc. (Microbiology) and M.Sc. (Microbiology) from Kasetsart University in 1974 and 1976, respectively. She received Doctor of Engineering degree in Fermentation Technology from Osaka University, Japan in 1987. She started her career as a lecturer at the Department of Microbiology, Faculty of Science, Kasetsart University in 1977 and has been worked there until present. In addition, she has been a fellow in Natural Science (Microbiology) of the Academy of Science, Royal Society of Thailand since 2018. Her field of specialization are yeast molecular taxonomy, biodiversity and biotechnology. Her research interests are description of novel yeast taxa, diversity of yeasts in natural and man-make habitats, bioethanol production at high temperature by thermotolerant yeasts, lipid production by oleaginous yeasts, production of useful products by yeasts, and using yeast as biocontrol agents.

INVITED SPEAKER: SP3_INV04

DIVERSITY OF BENEFICIAL MICROORGANISMS IN AGRICULTURAL SCIENCE FOR SUSTAINABILITY

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Abstract:
Southern Thailand is situated in tropical and subtropical regions, which contributes to its high diversity indices. This region is rich in biodiversity of microorganisms, which act as decomposers, plant pathogens, and beneficial microorganisms. The soil and vermicompost serve as excellent reservoirs for beneficial microorganisms. High-throughput sequencing technology provides insight into fungal community structure and biodiversity in soil and vermicompost samples collected from southern Thailand. Ascomycota is found as a relatively dominant phylum in soil samples and vermicompost. Among the Ascomycota, *Trichoderma* is a dominant genus widely used in agriculture as a biological control agent due to its capacity for i) antibiosis, ii) competition, iii) inducing defense responses in plants against fungal pathogens, and iv) parasitism. Furthermore, *Trichoderma* species produce indole compounds like indole-3-acetic acid (IAA) to enhance plant growth. The most effective *Trichoderma* are selected to develop an appropriate oil-in-water emulsion formulation for use in agricultural fields. Research on the diversity of microorganisms contributes to: i) academic purposes by increasing publications and citations, ii) utilization in agricultural fields to reduce excessive use of synthetic fungicides, and iii) support for social enterprises. These studies provide essential knowledge about beneficial microorganisms and their application, driving the concept " from research to fields" and promoting sustainable agriculture to achieve sustainable development goals.

Associate Professor Dr. Anurag Sunpapao was born in Phrae, Thailand in 1982. He received the bachelor's degree in Agricultural Biotechnology, Faculty of Agriculture, Kasetsart University, Thailand in 2008. He received the M.Sc. and Ph.D. in Applied Life Sciences, in 2008 and 2011, respectively from Osaka Prefecture University, Japan. From 2011 to present, he worked at Plant Pathology Laboratory, Agricultural Innovation and Management Division, Faculty of Natural Resources, Prince of Songkla University, Thailand. His research interests in emerging plant diseases, biological control of plant diseases and development of bio-fungicides.

INVITED SPEAKER: SP4_INV01

CLIMATE CHANGE AND HYDROMETEOROLOGICAL EXTREMES: DROUGHT RISK ASSESSMENT IN NORTHEAST OF THAILAND

Mukand Babel,[1,*] Lapanploy Chawrua,[1,2] Dibesh Khadka[1]
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Abstract:
Northeast Thailand is one of the country's important agricultural regions, yet it is frequently grappled by droughts affecting crop. This research employs a comprehensive framework for assessing the drought risk in the Mun River basin, including hazard, exposure, and vulnerability factors. Local adaptation measures adopted by farmers are an integral part of the risk assessment framework. Factors are normalized to five equally spaced categories and are aggregated using weights obtained from AHP through a survey among 50 local experts. Further, an extensive survey was conducted among 122 farmers in two hotspot districts with high hazards but contrasting vulnerability to investigate role of adaptation practices. The results show that people living in areas with high hazard levels and physical vulnerability also tend to have a higher adaptive capacity to manage water scarcity. Overall, 22% of the area in the basin is under high to very high drought risk. Among two hotspots, Dan Khun Thot district farmers have diversified crops and practiced various adaptive measures to build their resilience against drought and have low vulnerability and risk. In contrast, adaptation measures are implemented to a far lesser extent in the Phlapphla Chai district and have high vulnerability and risk. The education level of farmers is found to be directly linked with the implementation of local adaptation measures. The disparity in the adaptive measures adopted in two districts highlights the significance of agricultural water management interventions. Access to climate information regarding droughts, building farm ponds, and crop management practices are the preferred adaptation measures taken by the farmers. The study recommends districts in each province identified as having high risk are prioritized and supported by the local government to improve farm-level water management practices and drought resilience. It is imperative as looming climate change will further exacerbate future droughts.

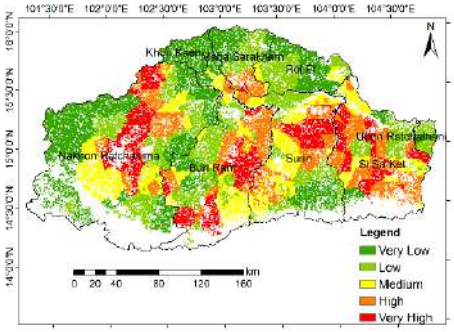

Figure. Drought risk map of the Mun River basin categorized into five classes

Prof. Mukand S. Babel is a Distinguished Professor of Water Engineering and Management (WEM) and Director of the Centre for Water and Climate Adaptation (CWCA) at the Asian Institute of Technology (AIT), Thailand. He is also Adjunct Professor, at UNU-FLORES, Germany, Honorary Professor at the University of Exeter, UK and the Indian Institute of Technology Guwahati, India, and Visiting Professor at the Indian Institute of Technology Roorkee, India. He received a doctoral degree in the Water Resources Engineering from the Asian Institute of Technology, Thailand in 1993. His professional experience in teaching, research, and consultancy spans over 40 years in Asia in fields of hydrologic and water resources modelling, integrated water resources management, climate change impact and adaptation, and flood and drought analysis, forecasting and management. He has co-authored more than 205 journal articles in high impact factor international journals with a current h-index of 47. He has led over 90 projects, many of which translate scientific research to practice. Prof. Babel is recognition among the top 2% of influential scientists globally in environmental engineering, as per Stanford University's 2023 rankings and featured among the world's top 1000 influential climate scientists in the Reuters Hot List published in April 2021.

INVITED SPEAKER: SP4_INV02

GLOBAL WARMING, CLIMATE CHANGE AND ITS EFFECTS ON ENVIRONEMENT: AIR POLLUTION

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Abstract:

Change in environmental aspect contains in four parts, Natural Resources, Pollution, technology/ human use value and Socio- economic. The change was started from the technology/human use value which was over carrying capacity. It brings waste and pollution after overuse of natural resources utilization. Waste and Pollution will cause health and Socio-economic problems. The change increased scale and effected on human after we produce and increase Greenhouse gas to the atmosphere. "Global Warming" caused temperature around the world which effected world circulation. The Global circulation., Great conveyor belt causes by a combination of thermohaline currents and wind-driven currents on the surface. Cold, salty water is dense and sinks to the bottom of the ocean while warm water is less dense and remains on the surface (US.EPA, 2024). Global warming heat up global air and ocean temperatures. Warmer water is less dense, and thus harder to sink. At the same time, Greenland's ice sheet is melting due to warming air and ocean temperatures, and the melted ice is adding fresh water into the North Atlantic. This change reduces the water's saltiness, making it less dense and harder to sink (NASA, 2024).

That will slow down great conveyor belt and change circulation of cool and warm ocean current. As we know, El Nino and La Nina cause by sea surface temperature Changing, Pacific and Indian ocean. The El Nino bring the dry and drought which is opposite to La Nina. El Nino will relate to biomass burning in dry period and will cause transboundary pollution such as particulate matter (Nanyang Technological University, 2024). Bangkok was affected by transboundary particulate matter by end of winter season. However, Temperature Inversion during winter season effected PM2.5 Concentration as same as transboundary pattern. Both of them, (Transboundary and temperature inversion patterns) caused by usual temperature and wind pattern which were associated by global warming.

KU Tower, 117m tall tower detects the patters of PM2.5 by using micrometeorological parameters such as temperature gradient, concentration gradient to identify the pattern. Furthermore, source apportionment technique was used to confirm source of PM2.5 which was difference in each pattern.

Associate Professor Surat Bualert graduated from Kasetsart University and University of Hertfordshire. He started his career at Faculty of Science, Chulalongkorn university in 1993. After 15 years at Chulalongkorn University, He moved back to College of Environment, Kasetasrt University in 2009. In 2015, he was appointed as a Dean of Environment Faculty. He served as a dean for two terms (8 years). His duty is related to the environment especially on atmospheric Science and air pollution. He is a leader of Atmospheric Science Research Group (ASRG). He applies micrometeorology concept to air pollution by using KU Tower as a main equipment to understand natural phenomena.

INVITED SPEAKER: SP5_INV01

PRIVACY VIOLATION FROM BASIC ATTACKS TO JOINT ATTACKS

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Abstract:
Data are continuously collected and grown, therefore the privacy protection mechanisms designed for static data might not be able to cope with this situation effectively. In this talk, I will first present the possible privacy violations, attacks, which could occur, including a basic attack type, and some advanced type of violation, including the Joint Attack. After the attacks are formulated, then the characteristics of the privacy attacks are extracted in order to find approaches to preserve the privacy efficiently. Lastly, the preliminary experiment results will be presented.

Associate Professor Juggapong Natwichai received the bachelor's degree in Computer Engineering from Department of Computer Engineering, Faculty of Engineering, Chiang Mai University, Thailand in 1999. He received the Ph.D, in Computer Science, in 2007 from the University of Queensland, Brisbane, Queensland, Australia. From 2018 to present, he is a Data Science Consortium chairman, Faculty of Engineering, Chiang Mai University, Thailand. From 2022 to present, he is a director of Information Technology Service Center, Chiang Mai University, Thailand. His research interests in data privacy, information systems, database systems.

INVITED SPEAKER: SP5_INV02

BALANCING ACCURACY AND ETHICS: DATA CLEANSING AND PRIVACY PRESERVATION IN LARGE LANGUAGE MODEL TRAINING

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Abstract:
Data cleansing and privacy are important steps in the preparation of datasets for training Large Language Models (LLMs). As LLMs continue to revolutionize various domains—ranging from customer service automation to educational support—ensuring the integrity and privacy of the data used in training becomes increasingly vital. Proper data cleansing not only improves model accuracy but also safeguards sensitive information, thus building trust in AI systems.
This talk will delve into the essential practices of data cleansing and privacy preservation in the context of LLM training. We will discuss the importance of removing noisy, irrelevant, or harmful data, as well as strategies for anonymizing personal information. The session will also cover the impact of data privacy regulations on model development and the need for continuous monitoring and auditing of data pipelines to ensure compliance. By exploring real-world scenarios and practical examples, we aim to provide a comprehensive guide for developers and researchers on how to balance model performance with ethical considerations. Additionally, we introduce the concept of a Privacy Arena, a simulated environment designed to evaluate and enhance the privacy robustness of LLMs during their development cycle.

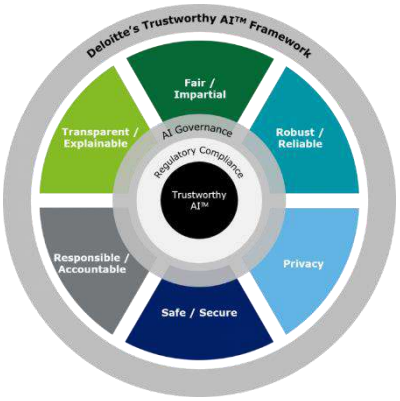

Figure. The Trustworthy AI framework

Dr. Sarawoot Kongyoung (Ph.D. Computing Science, University of Glasgow) is a researcher at the National Electronics and Computer Technology Center (NECTEC) with over 20 years of experience in Artificial Intelligence. He is an expert in Natural Language Processing (NLP), Conversational AI, and Information Retrieval (IR), leveraging these fields to unlock the power of data and language.

INVITED SPEAKER: SP5_INV03

PUBLISHING NUMBER OF WALKS AND KATZ CENTRALITY UNDER LOCAL DIFFERENTIAL PRIVACY

Louis Betzer,[1] Vorapong Suppakitpaisarn,[2,*] Quentin Hillebrand[2]
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[2] The University of Tokyo, Tokyo, Japan
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Abstract:
In this talk, we introduce an algorithm designed to publish the count of walks and Katz centrality while ensuring local differential privacy (LDP). This algorithm is supported by an extensive theoretical analysis. LDP is a widely adopted privacy framework, used by companies such as Google and Apple, to protect user information. Under this framework, users obfuscate their data before sending it to a central server. Our challenge is to derive accurate and meaningful statistical results from this obfuscated data.
Recently, many researchers have focused on publishing graph and social network statistics under local differential privacy (LDP). However, previous studies in this area have mainly concentrated on counting subgraphs with a maximum of five nodes. The primary challenge in these works is managing the exponentially increasing noise that accompanies LDP as the size of the subgraph increases.
We address the challenge of managing large noise in LDP by introducing a novel algorithm for publishing the count of walks originating from each node in a graph. This capability, in turn, allows us to publish the Katz centrality of all nodes. Our algorithm utilizes multiple communication rounds and employs a clipping technique. Through comprehensive theoretical and empirical evaluations, we demonstrate that our algorithm achieves relatively low bias and variance, significantly outperforming both the randomized response method and non-clipping algorithms. Furthermore, our approach to estimating Katz centrality successfully identifies up to 90% of the nodes with the highest centrality values.

Associate Professor Vorapong Suppakitpaisarn was born in Uttaradit, Thailand in 1986. He received the bachelor' s degree in Engineering from Department of Computer Engineering, Faculty of Engineering, Chulalongkorn University, Thailand in 2007. He received the Master degree and Doctoral degree in Information Science and Technology, in 2009 and 2012, respectively from The University of Tokyo, Japan. From 2015 to present, he worked at Department of Computer Science, Graduate School of Information Science and Technology, The University of Tokyo, Japan. His research interests are in combinatorial optimization and algorithms for information security and privacy.

INVITED SPEAKER: SP5_INV04

FEDERATED LEARNING AND FULL-LOOP MEDICAL AI EXPERIENCES AT CHULA

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[2] Center of Excellence in Computational Molecular Biology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand
[3] Department of Computer Engineering, Faculty of Engineering, Chulalongkorn University, Bangkok, Thailand
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Abstract:
The need for large-scale, high-quality annotated data for developing medical AI solutions, together with the sensitive nature of patient information, necessitated the development of two approaches: federated learning and full-loop AI workflow. Federated learning is an AI training approach that effectively preserve the privacy of the data by iteratively distributing the model to individual data owners for training and then aggregating only the changes in model weights, not the data, to update a global model. Full-loop AI workflow is based on the idea that large-scale, high-quality annotated data can be obtained with minimal burden to the domain experts (clinicians in the case of medical data) when the annotation process is fully integrated into the day-to-day workflow and if preliminary AI models are deployed to assist the process. In a full-loop AI workflow, the role of AI models is to make predictions that assist decision making by human users while the role of the human users is to annotate AI's errors. Annotated feedback will then be used to update the AI models. In contrast to a typical AI development where domain experts have to double the amount of work time to revisit past data, with a well-designed full-loop workflow, domain experts may even spend less time in day-to-day duty and are able to annotate data at the same time. In this talk, I would like to introduce these two approaches – particularly our involvement in a global federated AI development for COVID-19 prognosis – and highlight full-loop medical AI initiatives at my institute.

Dr. Sira Sriswasdi represented Thailand in the 2001-2003 International Mathematical Olympiads and received a DPST scholarship to study in the United States. He received a B.S. in mathematics from Massachusetts Institute of Technology in 2008 and a Ph.D. in genomics and computational biology from the University of Pennsylvania in 2013. He worked as a postdoctoral researcher at the University of Tokyo from 2013-2017 under a Japan Society for the Promotion of Science fellowship. In 2017, together with friends, he initiated the Computational Molecular Biology Group at Chulalongkorn University to combine computational thinking and molecular biology knowledge to tackle broad research problems. His research interests include the evolution of microbial genomes, molecular processes of cancer and cell development, and machine learning methodology. In 2021, he co-founded the Center for AI in Medicine to provide training and computing support to the community.

INVITED SPEAKER: SP5_INV05

NEW RELATIONSHIP OF SEA SURFACE VARIABILITY ON THAILAND RAINFALL

Krittaporn Buathong,[1] Panasun Manorot,[1] Thaned Rojsiraphisal[1,2,*]
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[2] Advanced Research Center for Computational Simulation, Chiang Mai University, Thailand
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Abstract:
Long term prediction of Thailand rainfall currently relies on the El Niño-Southern Oscillation (ENSO) which is obtained from sea surface temperature in the equatorial Pacific Ocean. In this study, we investigate oceanic and atmospheric components using the empirical orthogonal function (EOF) techniques to extract features from these factors. Our analysis found that various significant characteristics from each variable. We also examine correlations between Thailand's rainfall and the temporal fluctuations of the identified variables. Preliminary results reveal that some of new temporal variations have higher associations with the rainfall than ENSO and rainfall. We then extract information in the regions within dominated sea surface variations and propose a new oceanic index. Finally, we evaluate the accuracy of multiple models' short-term rainfall predictions for Thailand using a range of inputs, such as ENSO and our suggested oceanic index.

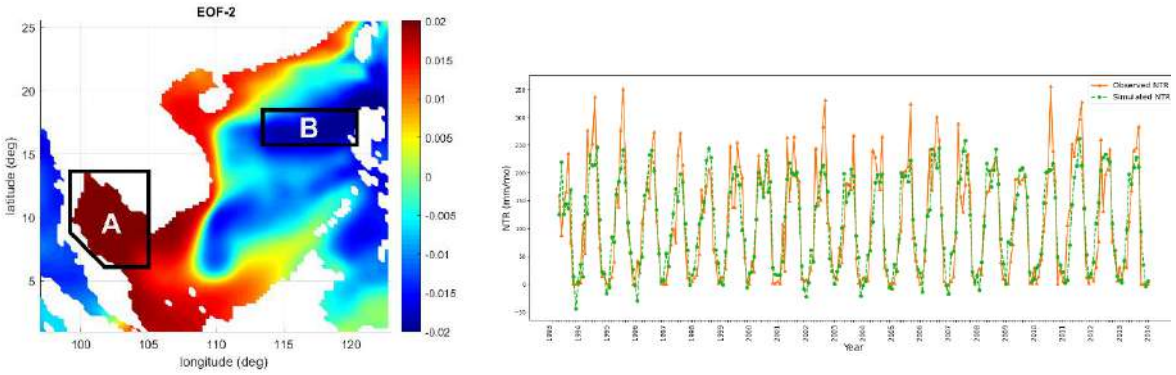

Figure. (left) Spatial domain for extracting sea surface information; (right) Comparing training result with observed rainfall.

Thaned Rojsiraphisal received the Ph.D. degree from the University of Colorado, Boulder, USA, in 2007. He is currently an Associate Professor at Chiang Mai University, Chiang Mai, Thailand. His research interests include control stability analysis, mathematical model, oceanic and atmospheric modeling, and data analysis.

INVITED SPEAKER: SP6_INV01

TOWARDS SCALABLE QUANTUM HARDWARE: INNOVATIONS IN ELECTRONIC CONTROL AND QUANTUM PROCESSORS

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Abstract:
This presentation explores our advancements in superconducting quantum processors, focusing on scalability, resilience, and hybrid approaches. Key topics include the development of the fast control system, which enables precise microwave generation and detection for superconducting qubits with scalable and cost-effective solutions. The presentation highlights advanced fabrication methodologies, achieving high qubit fidelity through innovative design and noise mitigation techniques. Additionally, the integration of atomic systems with superconducting qubits is discussed, offering promising solutions for quantum memory and communication. Future directions aim at further improving qubit control and hybrid system performance, driving the progress of quantum computing technology.

Prof. Rainer Dumke studied Physics at the Leibniz University in Hanover / Germany and received his Dr. rer. nat. (PhD) in 2003. The title of the theses was Atom Optic and Quantum Information Processing with Micro Structured Optical Elements. During his PhD he worked for half a year at the National Institute for Standard and Technologies (NIST, Gaithersburg USA) on ultra cold Rydberg atoms. After finishing his PhD in Hanover, he received a prestige Fellowship from the Alexander von Humboldt foundation. In 2003 he went again to NIST (Gaithersburg, USA) to continue research in the same group in the field of ultra cold molecules and quantum degenerate gases. After two years in September 2005 Rainer Dumke started a new research position at the Max Planck Research Group in Erlangen, Germany. Here he focused on the realization of an optical atomic clock based on an ultra-cold trapped single Indium ion. In September 2006 he came to Singapore and worked in the new established School of Physical and Mathematical Sciences in the Division of Physics and Applied Physics at the Nanyang Technological University. During his career his achievements included: Analysis of wave packets in an optical lattice. Investigating the formation of Rydberg atoms in ultra-cold plasma. First generation and application of an optical microstructure for a guided atom interferometer. First demonstration of the application of neutral atoms trapped with micro-optical systems for quantum information processing. Studying the coherence properties of guided-atom interferometers. Sub-natural-linewidth quantum interference features: Atom-Molecule Coherence. All optical generation and photo-associative probing of sodium Bose-Einstein condensates. Development towards an optical frequency standard in deep UV. His achievements are well documented in numerous publications.

INVITED SPEAKER: SP6_INV02

QUANTUM TECHNOLOGY FOR ENERGY STORAGE AND ELECTRICITY GRID OPTIMIZATION

Worawat Meevasana[1,2,*]
[1] School of Physics, Institute of Science, Suranaree University of Technology (Thailand)
[2] Quantum Technology Research Initiative Consortium, QTRic (Thailand)
*e-mail: worawat@g.sut.ac.th

Abstract:
This talk is divided into two parts. First part will start with the fundamental studies of strange quantum effect of electrons in two dimensions, called negative electronic compressibility (NEC). This NEC concept, where the chemical potential counterintuitively becomes lower upon doping electrons, leads to application of enhancing capacity of electrical energy storage and later the founding of university startup called EQ Tech Energy. In the second part, we will continue with briefing about quantum technology research in Thailand and forming of QTRic, Thailand. Some examples of research will be explained, especially the application of quantum-inspired algorithm for electricity grid optimization.

Assoc. Prof. Worawat Meevasana received his Ph.D. in Physics from Stanford University. He has been a faculty member at the School of Physics, Suranaree University of Technology, since 2010, and served as the Dean of the Institute of Science from 2017 to 2021. He has received numerous awards, including the Excellent Research Award and the Excellent Researcher Award from the National Research Council of Thailand in 2016 and 2020, respectively. His research interests focus on exploring the quantum states of advanced materials, utilizing synchrotron radiation techniques, and quantum technologies in general.

INVITED SPEAKER: SP6_INV03

PHOTONICS UPDATES IN THAILAND

Pruet Kalasuwan[1,2,*]
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[2] Quantum Technology Research Initiative Consortium, QTRic (Thailand)
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Abstract:
Quantum physics was discovered by notable physicists at the beginning of the 20th century. It unveils the veracity of nature on a minuscule level and in a manner that contradicts common intuition. Despite presenting itself as the opposite of the common notion, it has been empirically demonstrated to exist in nature over the course of the century. By comprehending the properties of the electromagnetic spectrum and atomic structures, significant advancements in science and technology can be achieved. Furthermore, the practical utilization of quantum physics in fields such as NMR, laser science, and microelectronics offers numerous advantages. This emerging paradigm holds immense potential and is supported by substantial evidence. However, many quantum experts considered this evolution to be the first instance of quantum evolution, based on quantum technology. It encompasses the period from the early 1900s to just before the late 1900s. The fusion of quantum technology and information science in the late 20th century is anticipated to usher in a new era of technology. In this new era, we are witnessing a remarkable shift in influence, marked by the emergence of more advanced sensors, highly secure communication, and incredibly powerful computers.
In this presentation, I will focus on the application of this technology in communication, its underlying principle, the progress made globally, and how our Thai quantum team is keeping up with this worldwide trend.

Pruet Kalasuwan is the leader of the Nano and Quantum Photonics Group at Prince of Songkla University in Thailand. He also directs the national quantum communication team inside the Quantum Technology Research Initiative Consortium (QTRic) in Thailand. He obtained his Bachelor of Science from Prince of Songkla University in 2004, his Master of Science from Durham University in 2008, and his Doctorate from the Quantum Information Processing Group at the University of Bristol in 2012. His current research interests include quantum optics and its implementation in quantum communication and quantum computing.

INVITED SPEAKER: SP6_INV04

HOW OPTICAL CLOCKS WILL TRANSFORM THAILAND STANDARD TIME?

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Abstract:
Precise timekeeping is the key role for science, industry, and technology. Optical clocks, especially those using Ytterbium ions, represent a major improvement in accuracy and stability. Ytterbium ion optical clocks use specific properties of the highly forbidden transition to achieve extremely precise time measurements, with an accuracy that is 1000 times better than current standards. This precision can significantly improve Thailand's national timekeeping system, aligning it with coordinated universal time (UTC) and supporting advanced research.
We will explain how Ytterbium ion optical clocks can be integrated into Thailand's timekeeping system and distributed using three key synchronization methods. First, the Network Time Protocol (NTP) is widely used for general purposes and provides millisecond-level accuracy over the internet. It is suitable for less critical. Second, the Precision Time Protocol (PTP) offers microsecond-level accuracy and is crucial for fields like telecommunications and finance. This method will ensure higher precision where it is needed. Finally, the White Rabbit Protocol extends PTP to achieve nanosecond-level accuracy, which is necessary for high-precision scientific and industrial applications. This protocol will be used for the most demanding timekeeping needs. By applying these synchronization methods, Thailand can improve its timing infrastructure, making it more precise and reliable. This talk will explain how Ytterbium ion optical clocks, combined with these synchronization techniques, will transform Thailand Standard Time and benefit various sectors in the future. The ultimate goal is a unified time for Thailand.

Dr. Phoonthong is an expert in atomic physics with a focus on laser spectroscopy, atomic clocks, and ion trapping. He completed his Ph.D. in Physics at University College London, specializing in state-insensitive traps for Caesium atoms. In 2016, he was selected as the Thai representative to attend the 66th Lindau Nobel Laureate Meeting. Dr. Phoonthong has a strong research background, including fellowships, and has contributed significantly to advancements in optical atomic clocks and electronics control.
Current Position: Senior Professional Metrologist and Ytterbium Ion Optical Project Member at the National Institute of Metrology, Thailand (NIMT).

INVITED SPEAKER: SP7_INV01

SUSTAINABLE CONCRETE CRACK REPAIR USING MICP: NOVEL OBSERVATION TECHNIQUES AND pH MODIFICATION ENHANCEMENT

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Abstract:
Concrete is prone to cracking due to its low tensile strength, and traditional repair methods often rely on Portland cement. However, Microbial Induced Calcium Carbonate Precipitation (MICP) offers a sustainable alternative by utilizing non-pathogenic bacteria to precipitate calcium carbonate, thereby filling cracks. This combined study introduces two novel advancements in MICP-based crack repair. The first innovation involves using non-alkali tolerant bacteria, which are typically less viable in concrete's high alkalinity environment. By applying a buffer solution to the crack surface before bacterial injection, the study demonstrates improved bacterial survival and effective crack filling within 21-28 days, with consistent microstructural characteristics between laboratory samples and repaired cracks. The second innovation presents a new observation technique for evaluating MICP crack-filling behavior internally, rather than just at the surface level. Using specially prepared mortar specimens with varying crack depths, the study meticulously monitors the MICP process over 28 days. It reveals that calcium carbonate precipitation is initially uniform across the crack surface but becomes more concentrated at greater depths, with optimal sedimentation occurring at approximately 28 millimeters. This research highlights the potential of pH modification to enhance bacterial viability in MICP and introduces a novel approach for in-depth assessment of crack repair effectiveness, paving the way for more effective and sustainable concrete repair methods.

Professor Piti Sukontasukkul was born in Bangkok, Thailand, in 1967. He received his Bachelor's degree in Civil Engineering from the Faculty of Engineering at King Mongkut's Institute of Technology Ladkrabang (KMITL), Thailand, in 1990. He went on to earn a Master of Engineering (M.Eng.) degree from the Asian Institute of Technology (AIT) in 1994, and a Ph.D. in Civil Engineering from the University of British Columbia, Canada, in 2001. Since 2001, Professor Sukontasukkul has been a faculty member in the Department of Civil Engineering at King Mongkut's University of Technology North Bangkok (KMUTNB). His research interests include cement and concrete technology, fiber-reinforced concrete, the application of phase change materials in concrete, geopolymer development, impact loading resistance, and microbial-induced calcium carbonate precipitation (MICP).

INVITED SPEAKER: SP7_INV02

RECENT DEVELOPMENT in BIO- BASED- GEOPOLYMER FOR THE SUSTAINABLE CONSTRUCTION INDUSTRY

Darunee Wattanasiriwech,[1] Chalermphan Naratha,[1] Suthee Wattanasiriwech[1,*]
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Abstract:
The use of bio-based-geopolymer composites in the sustainable construction industry has gained significant attention due to their potential to reduce environmental impact and promote sustainability. These materials offer several advantages, including lower carbon footprint, renewable sourcing, and improved durability. Beyond their environmental benefits, bio-based materials offer a key advantage for healthy indoor air quality due to their high hygroscopicity, which helps maintain a comfortable balance of temperature and humidity. This is crucial as poor indoor air quality, given the significant time we spend indoors, poses a major health risk. The growing issue of noise pollution causes a significant threat to public health, contributing to hypertension and cardiovascular diseases. This study investigated fly ash geopolymer composites with rice husk, targeting indoor building materials. The composites showed the noise reduction coefficient of 0.60, MBV of 1.23 g/m².%RH, compressive strength range of 0.83-0.33 MPa and the thermal conductivity of 0.230-0.195 W/m·K. The results suggest that geopolymer-rice husk composites could be used for non-load bearing applications with significant advantages in terms of acoustics, moisture control, and thermal performance.

Figure. FA geopolymer-rice husk composites

Associated Professor Darunee Wattanasiriwech was born in Pathumthani, Thailand. She received a bachelor's degree in Science from the Department of Chemistry, Faculty of Science, Kasetsart University, Thailand in 1993. She received a master degree and PhD in Engineering Ceramics in respectively 1994 and 1998, from University of Leeds, UK. From 1993 to the present, she has worked at the School of Science, Mae Fah Luang University in the Materials Innovation for Sustainability Progamme. Presently her works focus on alkaline-activated materials, especially with the incorporation of biomass.

INVITED SPEAKER: SP8_INV01

ESTABLISHING A FOREST RESTORATION RESEARCH UNIT IN INDONESIA

Dian Latifah,[1,*] Kate Hardwick,[2] William Miliken,[2] Andes Hamuraby Rozak,[1] Laksono Dwi Putranto,[3] Yayan Wahyu Candra Kusuma,[1] Indriani Ekasari,[1] Aulia Hasan Widjaya,[1] Hendra Helmanto,[1] Rahmat Hidayat,[4] Ade Yuswandi[1]

[1] Research Center for Applied Botany – National Research and Innovation Agency (BRIN), Indonesia

[2] Royal Botanic Gardens Kew, UK

[3] The Environment Agency of Kuningan Regency Government

[4] Mount Ciremai National Park

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Abstract:

This project, in Indonesia, has resulted in at least 100 seed collections of native Indonesian tree and shrub species, as well as seedlings to be planted in the restoration site. The seed collections are stored in a National Seed Bank under the National Research and Innovation Agency of The Republic of Indonesia (BRIN). As part of the project, researchers in Indonesia will identify framework tree species, suitable for use in forest ecosystem restoration. Furthermore, a PhD student will examine the role of seed conservation and habitat restoration in lowering the extinction risk for endemic tree species and will carry out related ethnobotanical studies. Two Masters students will examine the drought tolerance of the selected species, planted in the restoration site, as well as seed germination and storage behaviour. We have three treatments: i) control, ii) watering and non-watering with four replicates of each treatment. We will compare: (1) the establishment and growth performance of 25 different native species, (2) the effect of the three watering treatments on seedling survival and growth, and (3) the effect of mulch on seedling survival during the dry season.

Establishing a seed hub or mini seed bank, to support restoration projects in Kuningan and the Majalengka Regencies, as the areas surrounding the Mt Ciremai, is essential. BRIN, in collaboration with Royal Botanic Gardens Kew and Kuningan Botanic Gardens, will initiate a seed hub in Kuningan Botanic Gardens. Local Government, Mt Ciremai NP Authority and Local community needs will also be engaged for the success and sustainability of the restoration projects in the future. The floral richness of Mt Ciremai. as seed sources for restoration, will be explored and studied, as well as presented in a field guide book.

Doctor Dian Latifah was born in Cirebon – West Java, Indonesia in 1974. She received a Bachelor degree in Agriculture from the Department of Agronomy, Faculty of Agriculture, IPB University, Indonesia in 1997. She received a Masters of Applied Sciences and a Doctor of Philosophy in Tropical Plant Sciences, in 2004 and 2012, respectively from School of Marine and Tropical Biology, James Cook University, Australia. From 1999 to present, she has worked as a researcher at the Research Center for Applied Botany, Research Organization for Life Sciences and the Environment, National Research and Innovation Agency of The Republic of Indonesia. Her research interests include seed biology for applications in seed banking and ecosystem restoration.

INVITED SPEAKER: SP8_INV02

DEVELOPMENT AND COLONISATION OF WILDLIFE CORRIDOR HABITAT - ASPECTS OF STRUCTURAL AND FUNCTIONAL CONNECTIVITY 25 YEARS AFTER RESTORATION

Nigel Tucker,[1,*]
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Abstract:
Restoring habitat connectivity can potentially ameliorate forest fragmentation and climate change by improving landscape permeability, and by allowing potential range shifts in response to climate change. In 2021-22, monitoring of structural and functional outcomes in a 25year old restored corridor reveals recovery patterns indicative of structural and functional connectivity.
Vegetation survey showed stem size class distribution, plot level means of stem basal areas, and the number of stems was similar in corridor and reference forest. Mean biomass was significantly higher in reference forest (P<0.05) with similar differences in species richness and composition (P<0.05). Microbat community composition in the corridor and adjacent reference forest is almost identical, and differs from species in adjacent pasture. Constructed log piles placed throughout the corridor were colonised by skinks, water dragons and amphibia. Ground mammal fauna now includes the full suite of local rainforest animals; species of grassland/disturbed habitats are no longer present. 40 birds were recorded in the corridor, 25 are rainforest-dependent, including five endemics - a threefold increase in species richness over 20 years. A comparison of soil seed banks in the corridor, reference forest and adjacent pasture shows below-ground diversity in corridor and reference forest soils is also very similar.
Whilst plant species richness and composition lags behind reference forest values, many reptiles, mammals and birds, including threatened and endemic species, have colonised this corridor. This diverse assemblage of colonising wildlife must have entered the corridor from the forests to which it is now connected; in this way the corridor is providing both connectivity and habitat.

Nigel Tucker was born and raised on the Atherton Tablelands of far north Queensland. He earned a Diploma of Applied Science at the University of Queensland and a Masters Degree in Tropical Ecology at James Cook University. In 1984, Tucker began his career in restoration ecology at the CSIRO Tropical Forest Research Centre in Atherton before joining the Qld Parks and Wildlife Service as Manager of the Centre for Tropical Restoration. Over two decades, he worked on the science and practice of rainforest restoration before establishing Biotropica Australia, a private consulting firm, in 2002. Mr. Tucker is a founding board member of the journal Ecological Management and Restoration and the Australasian Chapter of the Society for Ecological Restoration. His current research interests include landscape connectivity, seed dispersal, and the evolution of Australian flora.

INVITED SPEAKER: SP8_INV03

FROM TINY SEEDS TO GLOBAL RESTORATION

Kate Hardwick[1,*]
Royal Botanic Gardens Kew, UK
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Abstract:
Multiple tree-planting pledges have been made to meet international 'net zero' targets for carbon emissions, but the world's capacity to deliver large-scale, high quality forest restoration is currently limited by inadequate supply of seed of native species. Lack of seeds, seedlings and saplings of target species from appropriate sources in the required amounts often limits delivery on the ground. This problem is particularly acute in the tropics, where many tree species produce seeds that are sensitive to desiccation, and therefore difficult to store. Seeds for reforestation currently tend to be provided by forestry genebanks, but commercial forestry tends to favour high performing trees with narrow genetic diversity, whereas long-term forest restoration, requires trees with a wide range of traits and broad genetic diversity, to ensure long-term resilience to environmental change.
The world's conservation seedbanks for wild species, such as the National Biobank of Thailand and the Millennium Seed Bank in the UK, have the knowledge and technology to deliver the 'right' kind of seeds for forest restoration, but they are currently limited by the small scale of their operations, and are often located in cities, far from restoration sites. Urgent action is required to expand conservation seed banks through developing a global network of 'restoration seed hubs', located close to the point of need, and equipped to source, store and distribute seeds of genetically diverse, native species in the quantities needed for landscape forest restoration. We will describe the Millennium Seed Bank's efforts to deliver such a network, drawing on examples from Thailand, Malaysia, Australia, Madagascar and Kenya.

Dr Kate Hardwick is a conservation scientist specialising in the ecology, conservation and sustainable use of seeds of wild plant species. She has worked at the Royal Botanic Gardens Kew for over 20 years, including more than 10 years with the Millennium Seed Bank Partnership, where she currently manages the Ecosystem Restoration portfolio. The MSBP aims to secure the safe storage of seed from the world's bankable plant species, whilst promoting *in situ* plant conservation, sustainable utilisation of plant resources, habitat restoration and the improvement of livelihoods. Kate's research interests have focussed on the use of seeds in ecological restoration, particularly in tropical forests and temperate grasslands. Kate holds a PhD in forest ecology from the University of Wales and spent five years in Thailand doing fieldwork for her PhD and working in forest conservation.

INVITED SPEAKER: SP8_INV04

USING VERY HIGH RESOLUTION REMOTE SENSING DATA TO MONITOR FOREST STRUCTURE AND COMPOSITION

Maxime Réjou-Méchain[1,2,*]
[1] AMAP, Univ. Montpellier, IRD, CNRS, CIRAD, INRAE, Montpellier, France
[2] Forest Restoration Research Unit, Department of Biology, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand
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Abstract:
Several ongoing international initiatives aim to either reduce emissions from deforestation and forest degradation or promote forest restoration as an effective climate change mitigation strategy. A major challenge in both cases is monitoring forest structure and composition over space and time at scales compatible with forest management. Current satellite data often saturate quickly with forest structure information, limiting their utility in dense tropical forests. However, new perspectives are emerging through the use of manned or unmanned aerial vehicles, the development of advanced sensors, and recent advancements in deep learning approaches. In this talk, I will demonstrate the potential of combining airborne laser scanning data with multi- or hyperspectral data to characterize forest structure and composition using state-of-the-art methods. I will also highlight some significant current challenges associated with these approaches and discuss potential solutions to overcome them.

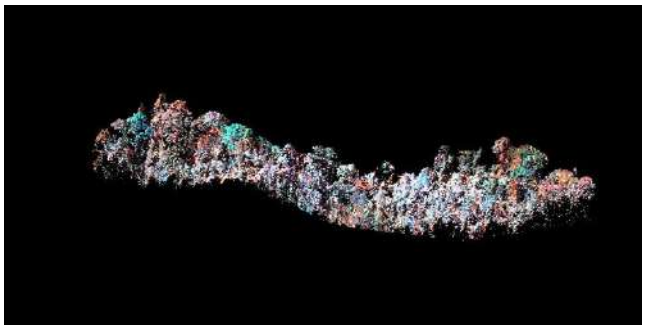

Figure. A point cloud derived from an airborne laser scanning colorized with a drone multispectral acquisition in Khao Yai National Park. This fiogure illustrates that the combination of these two approaches provide information on both forest structure and composition.

Dr. Maxime Réjou-Méchain, born in France, is a permanent researcher from the French National Research Institute for Sustainable Development currently hosted in Chiang Mai University in the Forest Restoration Research Unit, Department of Biology, Faculty of Science. He received a phD from the University of Montpellier, France, in 2009. As a forest ecologist, his works combine field, remote sensing and statistical models to understand the spatiotemporal organization of the composition and structure of tropical forests.

INVITED SPEAKER: SP9_INV01

GENERATIVE AI FOR EVERYONE

Sanparith Marukatat[1,*]
[1] Image Processing and Understanding Team, AI Research Group, National Electronics and Computer Technology Center (NECTEC), National Science and Technology Development Agency (NSTDA)
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Abstract:
Generative AI has emerged as a transformative technology, revolutionizing the way we create and consume content. Once confined to research labs and tech giants, these powerful models are now becoming accessible to a broader audience, democratizing creativity like never before. In this talk, we will explore the potential of generative AI to empower individuals, regardless of their background or expertise.
We will delve into the fascinating world of text generation, image synthesis, and audio manipulation, showcasing real-world examples and use cases that demonstrate the versatility and user-friendliness of modern generative AI tools. From assisting writers and artists to enabling personalized content creation, these technologies are breaking down barriers and opening up new avenues for self-expression.
Moreover, we will discuss the ethical considerations surrounding generative AI, addressing concerns about bias, privacy, and the responsible use of these technologies.

Sanparith Marukatat earned his doctoral degree in 2004 from the University of Paris 6 also known as Pierre and Marie Curie University, now part of the Sorbonne University Association; France. Currently, he serves as the head of the Image Processing and Understanding team at the National Electronics and Computer Technology Center (NECTEC). Dr. Marukatat's research interests encompass machine learning, pattern recognition utilizing statistical methodologies, and deep learning. Additionally, he holds the position of Academic Chair of the AI Association of Thailand (AIAT), where he oversees the curriculum development for the Super AI Engineer project.

INVITED SPEAKER: SP9_INV02

ADVANCEMENTS IN THAI LLM DEVELOPMENT: CHALLENGES, AND THE FUTURE DIRECTION FOR THAI LLMS

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Abstract:
Large Language Models (LLMs) are rapidly emerging as transformative AI technologies with wide-ranging applications. These models are utilized in various downstream tasks such as online customer service, document summarization, data analysis, content creation, and serving as teaching assistants in understaffed schools. While global LLMs have seen remarkable progress, Thai-specific models face unique challenges due to the language's complex structure and cultural nuances.
This talk aims to present the advancements in Thai LLM development, focusing on sharing knowledge and gathering feedback on their creation, testing, and performance evaluation across different downstream tasks. Developing LLMs for the Thai language provides a culturally tuned understanding of the Thai language and culture, the importance of localized support for continuous improvement, data security measures ensuring safety within Thailand, and cost-effectiveness that makes this technology accessible to all. In addition, we propose the Chatbot Arena, a competitive environment for conversational AI, to test and provide suggestions for improving Thai LLMs.

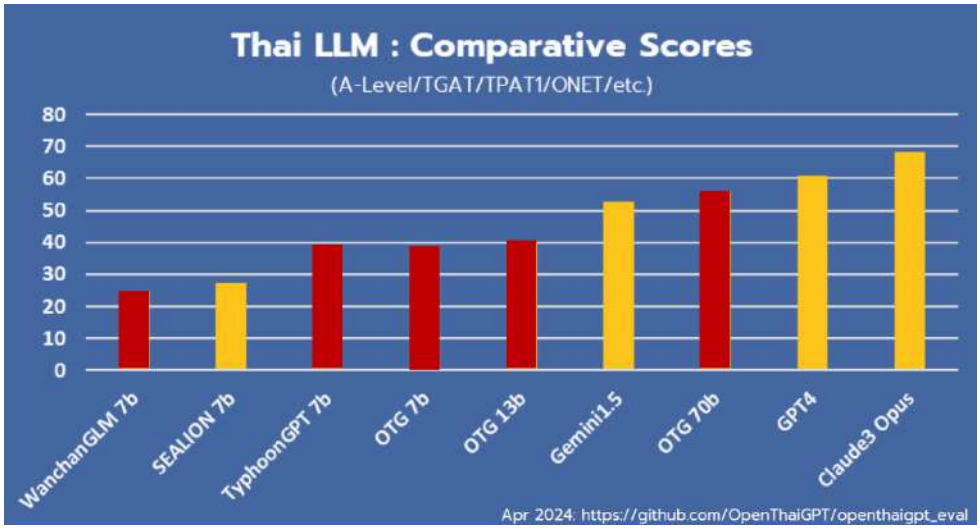

Figure. Thai LLM: Comparative Performance Scores (A-Level/TGAT/TPAT1/ONET)

Dr. Sarawoot Kongyoung (Ph.D. Computing Science, University of Glasgow) is a researcher at the National Electronics and Computer Technology Center (NECTEC) with over 20 years of experience in Artificial Intelligence. He is an expert in Natural Language Processing (NLP), Conversational AI, and Information Retrieval (IR), leveraging these fields to unlock the power of data and language.

INVITED SPEAKER: SP9_INV03

GENERATIVE AI IN SPEECH FOR DENOISING, TTS, AND ANTI-SPOOFING APPLICATIONS

Ekapol Chuangsuwanich[1,*]

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Abstract:

Generative AI has shown promising results in many applications such as image generation, NLP, and speech processing. In this talk we will discuss various ways Generative AI have been used in speech processing especially in the domain of denoising and speech generation. In the first part of the talk, we will discuss how one can design a specialized diffusion process to speed up inference time in the speech denoising task. Utilizing the Brownian bridge process in the diffusion modeling, we show that our diffusion model can perform competitively despite employing only one diffusion step. In the latter part of the talk, we will touch upon the advancements of text-to-speech models and the need to build anti-spoofing models in order to prevent bad actors from technology misuses.

Ekapol Chuangsuwanich received his B.S. and M.S. degrees in electrical and computer engineering from Carnegie Mellon University, in 2008 and 2009, respectively, and the Ph.D. degree from MIT, in 2016. He is currently a Faculty Member of the Department of Computer Engineering with Chulalongkorn University, leading the Spoken Language Systems lab. His research interests include speech processing, NLP, assistive technology, and health applications. He has been involved in the building of many Thai language technology resources today, such as Thai common voice, Thai-dialect corpus, and the WangchanX LLM project.

INVITED SPEAKER: SP10_INV01

MY ENTREPRENEURIAL JOURNEY: FROM GREENING THE SILICON VALLEY TO GREENING THE WORLD

Edward Sihua Yang[1,*]
[1] Serial entrepreneur and angel investor from Taiwan
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Abstract:
How a Dream to Green the World Drove an Engineering Student to Become a Serial Entrepreneur and Angel Investor Making a Positive Impact on the World.

Mr. Edward Sihua Yang was born in Ottawa, Canada in 1994. His career spans from launching two successful startups during college years, developing the world's first long range vehicle, to transforming mobility for all. I am a proud alumnus of the University of California, Berkeley, with a degree in Chemical and Biomolecular Engineering, passion for the health of mankind and our environment, and experience in North America and the Asia Pacific.

INVITED SPEAKER: SP10_INV02

WASTE CIRCULATION: INNOVATION TO COMERCIALLIZATION

Jirawut Junkasem[1,*]
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Abstract:
Since 2009, after graduated PH.D. from petroleum and petrochemical college, Chulalongkorn university, I have been started to be a researcher at PTT Public Company Limited. At that time, I was doing research on polymer material which mainly focused on polymer compounding and polymer processing. Project's target was mainly on value added to polymer products in PTT Group such as improving polypropylene properties for bumper application, formulation of a purging compound for commercialization, exploration of a new application for bioplastics (polylactic acid and polybutylene succinate), and others. After 13 years' experience, I become a senior researcher and I am still working on polymer material. Presently, I am interested in the waste management, recycled material, upcycling material, and circular economy. Right now, I focus on how to convert waste to new material. The 1st waste is "coffee chaff" which is an organic waste occurred during a roasting process. Coffee chaff was compounded and made into composite pellets, then they were shaped into material or end product which is ready to be commercialized.

- A bioplastic composition comprising biomass as a component and a production process Patent number: 10961385
- Biomass-containing plastic composition and preparation process thereof WO2021021033A1 WIPO (PCT)

TBA

INVITED SPEAKER: SP10_INV03

FROM UNIVERSITY RESEARCH TO STARUP'S JOURNEY FOR IMUNEUP: WORLD'S FIRST BIOTECH INNOVATION FOR IMMUNE-BOOSTING INGREDIENTS TARGETING THE FUTURE FOOD MARKET

Vayuree sukrungreungsanti[1,*]
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http://www.imuneup.com

Abstract:
BIST Inno Reform is a biotechnology startup founded by a team of experts from various fields. The company has been granted production rights based on the research from Maejo University. Initially, they expanded production capacity from research level (1 liter) to commercial level (1,000 liters) by the supporting with Thai's government and invested by food industrial company in Thailand that enabling industrial-scale production. The company has collaborated with the Center of Excellence in Agricultural Innovation for Entrepreneurs (Agri Inno) and the Faculty of Medical Science at the University of Phayao for Clinical Trial. The results of these tests have been published in the Nature journal network, confirming the product's effectiveness. During the lasty 1 year of journey, we have been selecting as one of the top 10 FoodTech Ventures representing Thailand to showcase its potential at "Thailand's Taste of Tomorrow in London. Additionally, BIST Inno Reform was selected to exhibit and present in the Future Food zone at ThaiFex Anuga 2024 and was awarded for the Finalist of Top 10 Product of 2024. Moreover, the company also had the opportunity to present its product at the "DeepTech Ventures Pitching" event during the "STARTUP x INNOVATION THAILAND EXPO 2024" (SITE 2024), part of the National Science and Technology Fair at the Queen Sirikit National Convention Center.

Cutting-Edge Technology
BIST Inno Reform is the first company in the world to produce a CELL-based immune-boosting ingredient named Imuneup. This product is designed to produce medicinal mushrooms with immune-boosting properties, prevention of NCDs, memory enhancement, and health promotion. CIP-system cultivation ensures the desired quality and effectiveness of the product. The founding team possesses comprehensive expertise in food industry, pharmacology, and modern marketing.

INVITED SPEAKER: SP10_INV04

ENGAGEMENT MANAGEMENT

Pitiwat Wattanachai[1,*]
[1] Director of Science and Technology Park, Chiang Mai University, Thailand.
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Abstract:
Approaches to Cross the Valley of Challenge Science and Technology Park, Chiang Mai University (STeP) is working as a bridge for university-industry linkage (UIL), linking university with industry, private sector, government agency, public sector, and local community. To utilize the university resources (research results, researchers, and research tools, and create value in economic and social development, we develop three key operational approaches:

Figure. SCIENCE PARK AND VALLEY OF CHALLENGE

1) Inside-out Approach: Enhancing University research, IP, and promoting commercialization.
2) Outside-in Approach: Conducting research and development in responding to the requirements of the private sector.
3) Tech Startup Approach:Fostering tech startup business from tech and research-based business.

Inside-out Approach Driving Research Into Commercialization, STeP operates as a licensing coordinator for Chiang Mai University, the owner of the technology and research, allows the applicant (Licensee) the right to use the technology to the extent and under the terms agreed upon. To improve trade and economic competitiveness within domestic and international.

Outside-in Approach Collaborative Research In Responding to The Requirement of The Private Sector. We are the match-maker, matching SMEs and private companies' requirements with experts in the university. With research results, we can contribute to the needs of corporate expansion and development.

Startup Approach Startup From Research to Support University Students, Researchers, SMEs and Entrepreneur. From 2012 to 2023, a total of 378 startups have been established by STeP. The companies can be divided into 6 clusters, which are Food & Bio Tech, Business Service Platform, Health & Bio Tech, Lifestyle – Travel & Property Tech, AI-Robotic-IOT & Ed Tech, and Industrial & Energy Tech.

Dr. Pitiwat holds a Doctor of Engineering degree in International Development Engineering from the Tokyo Institute of Technology, Japan. He has worked with the industry in technology development and innovation management for more than 10 years, playing a key role in establishing the Chiang Mai University of Science and Technology Park (STeP). He has worked closely with all involved inside and outside the organization, and is currently the director. he has main responsibility for constructing innovation infrastructures, all physical building, pilot plant and system to support ecosystem of science, technology and innovation of Thailand. Moreover, he is the secretary of STeP's Advisory Boards, he is also in charge for strategic development and implementation; management of STeP/RSP North. In addition, he is. Researchers and civil engineers and lecturers at the Department of Civil Engineering, Faculty of Engineering, Chiang Mai University.

INVITED SPEAKER: SP11_INV01

SMALL-MOLECULE REFINEMENT WITH OLEX2

Horst Puschmann,[1,2,*] Oleg Dolovmanov[1]
[1] OlexSys Ltd, Chemistry Department, Durham, UK
[2] Durham University, Chemistry Department, Durham, UK
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Abstract:
This workshop will provide an in-depth exploration of the latest capabilities of Olex2, a powerful software for crystallographic structure analysis. Participants will gain practical experience in Olex2's fundamental operations, starting with basic molecular structures and progressing to advanced techniques for handling complex disordered and twinned structures.
Common challenges encountered during structure determination will be addressed, focusing on early identification and resolution of issues that could hinder successful publication in peer-reviewed journals.
In the latter part of the workshop, we will introduce new refinement techniques that extend beyond standard independent atom refinement. Special attention will be given to Quantum Crystallographic methods, showcasing how they can leverage diffraction data for more accurate structure determination.
I will also introduce the QCrBox, a collaborative project between the Universities of Southampton and Durham. The project aims to provide a robust platform for crystallographic computing in general and quantum crystallographic operations inparticular can be executed in a fully managed, easily accessible environment.
This interactive, full-day workshop is designed for novice and experienced crystallographers as well as interested chemists. It will feature a mix of instructional lectures and hands-on sessions, allowing participants to apply the discussed concepts directly to real-world data.

Please be prepared when attending this workshop. Bring a laptop with the latest version of Olex2 installed (www.olex2.org). Also, remember to bring a computer mouse!

Professor Horst Puschmann earned his BA in Chemistry from Oxford University, UK, followed by a PhD from Victoria University of Wellington, New Zealand. Upon returning to the UK, his work transitioned from a user of X-ray crystallography to a key developer of the widely used Olex2 software, which has greatly enhanced the accessibility of crystallography for chemists. His research spans a range of crystallographic method development, supported by international collaborations. Recently, his focus has extended to quantum crystallography, mainly through his involvement in the QCrBox project.

INVITED SPEAKER: SP11_INV02

ACETYLENEDICARBOXYLATE AS LINKER IN THE ENGINEERING OF METAL- ORGANIC FRAMEWORKS: CHALLENGES AND POTENTIAL

Christoph Janiak,[1,*] Tobie Matemb Ma Ntep,[1] Dustin Jordan[1]

[1] Institute for Inorganic and Structural Chemistry, Heinrich Heine University Düsseldorf, D-40204 Düsseldorf, Germany

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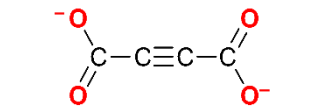
Abstract:

Despite its simplicity, acetylenedicarboxylate (ADC) has for a long time been somewhat overlooked in the engineering of metal-organic frameworks (MOFs), arguably due to the thermal liability of acetylenedicarboxylic acid, but most certainly due to limited information available about this linker in the literature.



acetylenedicarboxylate, ADC

We will present here the structures and properties of experimentally assessed porous ADC-based MOFs, as well as the discovery of the synthesis of porous halogen-functionalized fumarate-based MOFs from the *in situ* hydrohalogenation of acetylenedicarboxylic acid (Figure). We hope that this presentation may attract researchers to find out that the ADC linker is worth to be explored further in the context of MOFs.

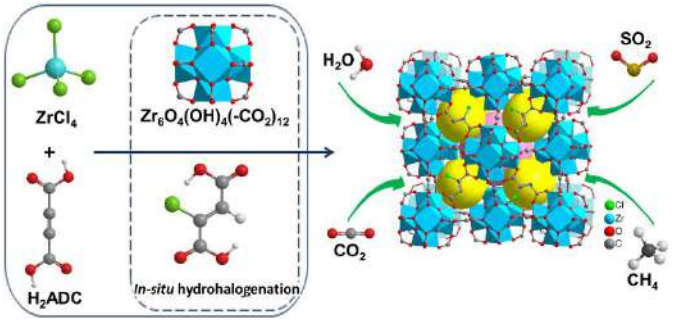


Figure. The low thermally stable acetylenedicarboxylic acid (H_2ADC) is tamed as a linker in the smallest UiO-type MOF and through in-situ transformation to chlorofumarate – thereby providing an easy access to this functional but hitherto very expensive chlorofumarate linker.

Halo-functionalized derivatives of zirconium fumarate (MOF-801) are developed by reacting zirconium halides (ZrX_4; X = Cl, Br, I) in water with acetylenedicarboxylic acid. The latter quantitatively undergoes an unusual in-situ linker transformation to halofumarate via trans addition of HX to the -C≡C- triple-bond.

Christoph Janiak studied Chemistry at the Technical Univ. Berlin (TUB) and the Univ. Oklahoma. He obtained his PhD at TUB in 1987, followed by postdoctoral stays at Cornell Univ. and at BASF, Ludwigshafen in the polyolefin division. From 1991-1995 he carried out his Habilitation at TUB. He got tenure at Univ. of Freiburg in 1998 as Associate Professor for Inorganic and Analytical chemistry. In 2010 he moved to the Univ. of Düsseldorf as Full Professor (Chair) for Nanoporous and Nanoscaled Materials. His research interests include the properties and utilizations of metal-organic frameworks, covalent triazine frameworks and metal nanoparticles. Christoph Janiak has co-authored over 720 research papers, book contributions and patents with an h-index of 96 (Google Scholar).

INVITED SPEAKER: SP11_INV03

STUDY OF PROTEIN STRUCTURES USING X-RAY CRYSTALLOGRAPHY AND CRYO-ELECTRON MICROSCOPY (CRYO-EM)

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[2] Graduate University for Advance Studies (SOKENDAI), Japan
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Abstract:
The study of protein structures is essential to understand their biomolecular functions and mechanisms. For nearly seventy years, X-ray crystallography has been the leading tool for biological structure analyses. However, recent technical improvements have triggered a resolution revolution in the single particle cryo-electron microscopy (cryo-EM) method. These two methods are different in many aspects such as sample preparation and structure determination. Nevertheless, they both possess the power to solve macromolecular structures at atomic resolutions.
Firstly, I will talk about the crystal structure analysis of *Cannabis sativa* olivetolic acid cyclase (OAC) and tetraketide synthase (TKS) using X-ray crystallography. The engineering and structural analyses of these two enzymes led to the production of enzymatic products with potential antibacterial properties. Then, I will discuss about the study of biomolecular structures using cryo-EM. Cryo-EM is a technique which has received much attention in recent years, and can be used for structure determination of isolated biomolecular complexes across a wide molecular mass range. I will provide an overview of cryo-EM methodology and introduce some of the studies performed in my laboratory using cryo-EM.

Lee Yuan-E received her Ph.D. from University of Toyama under the supervision of Professor Hiroyuki Morita, where she studied X-ray crystal structure analysis on proteins involved in the the biosynthesis of natural products, and the engineering of these secondary metabolite enzymes to make new compounds.
Currently, she is a member of Professor Kazuyoshi Murata's laboratory, where she started to work with Cryo-EM. Her current research interest focuses on the structural analysis of membrane proteins using the Cryo-EM to uncover the relationship between their structures and functions.

INVITED SPEAKER: SP12_INV01

PRESENT STATUS AND FUTURE PERSPECTIVE ON RADON/THORON STUDIES

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Abstract:
As radon isotopes (Rn-222 and Rn-220) are present anywhere in the environment, human beings are exposed to these radionuclides. Radon, particularly Rn-222 (called radon) has been well studied so far and consequently it is subject to be regulated for protection. Although Rn-220 (called thoron) is also present together with radon, on the other hand, it has not yet been sufficiently studied due to difficulties in measurements and methodologies on dose assessment. In this presentation, the following topics are introduced:

1) International standardization on radon/thoron/progeny
2) Characterization of radon, thoron and their progeny in the environment
3) Dose assessment
4) Implication of radon risk assessment
5) Issues and future perspective

In the first topic, an overview of measurement techniques is shown referring to associated international standards of ISO/ IEC. Secondly, radon isotopes are characterized in the environment based on the difference in physical properties of two isotopes. In the third section, dose assessment is explained in the UNSCEAR manner. As thoron exposures have been ignored for a long time, this presentation implies how thoron risk assessment needs to be addressed. Finally, I would like to clarify technical issues still remains and to suggest how we address to radon research.

Dr Shinji Tokonami is a director at Hirosaki University Institute of Radiation Emergency Medicine in the Department of Radiation Measurements and Physical Dosimetry as a full professor, where he specializes in radiation measurements and dose assessment. In 1995 Dr. Tokonami earned his Ph.D. in engineering from Waseda University. Throughout his career he has been involved with radiation research at Waseda University, the National Institute of Radiological Sciences, and Hirosaki University. In addition, he is a member of several International Organizations for Standards' committees regarding radon and radiation measurements. He also developed multiple measurement techniques and equipment related to his field. In particular, he established a passive measurement technique for detecting radon-222 & radon-220. This discriminative measurement technique for radon isotopes was published as ISO 16641. As his extensive expertise, he has an international patent in US (US11688525, 2023), Europe (EP3608920, 2021) as well as in Japan (JP7095894, 2022): Radioactive Fine Particle Manufacturing System, and Radioactive Fine Particle Manufacturing Method.

INVITED SPEAKER: SP12_INV02

IDENTIFICATION OF METABOLIC BIOMARKERS FOR LUNG CANCER SCREENING IN HIGH NATURAL BACKGROUND RADIATION AREAS

Narongchai Autsavapromporn,[1,*] Aphidet Duangya,[1] Pitchayaponne Klunklin,[1] Imjai Chitapanarux,[1] Chutima Kranrod,[2] Atchara Paemanee,[3] Shinji Tokonami[2]

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Abstract:

Radon is the second most risk factor of lung cancer after smoking. However, there is still no biomarker available for the detection of lung cancer from indoor radon exposure. The study aimed to identify novel biomarkers for lung cancer risk in high radon areas using metabolomics. A passive radon-thoron discriminative monitor (RADUET) using a solid-state track detector (CR-39) was used to evaluate the indoor radon throughout in Mae Cheam district (Chiang Mai province) in 99 dwellings for a period of 6 months. The estimated values of indoor radon concentration varied from 18.5–119 Bq/m^3 with an average value of 40.8 ± 22.6 Bq/m^3. According to indoor radon measurements, serum samples from 15 lung cancer patients and 30 matched healthy controls (low- and high radon group) were analyzed. A total of 139 differential metabolites were identified in accordance with the criteria of VIP ≥ 1 and a P value of ≤ 0.05. Consequently, the receiver operating characteristic curves indicates that 36 of these metabolites have the potential to be biomarker of lung cancer risk. Among these, the fold change of 14 metabolites were considered significantly different in high radon group compared to low radon group. This study provides new insight into metabolic biomarkers to screen population with high risk of lung cancer in high residential radon area.

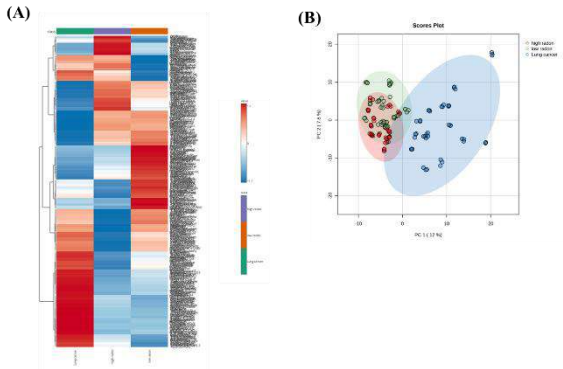

Figure. (A) Heat maps shows the key metabolites and (B) Projection to latent structures discriminant analysis (PLS-DA) of the metabolites in lung cancer, low radon and high radon groups.

Dr. Autsavapromporn received his Ph.D. degree in Radiobiology from the University of Sherbrooke, Canada in 2011. He completed his training as a Postdoctoral fellow under the Japan Society for the Promotion of Science Fellowship at the National Institute of Radiological Sciences (NIRS), Japan in 2013. He was honored by the International Nuclear Science and Technology Conference in 2019 with the prize "Nuclear Scientist Award". Currently, he is an Associate Professor of Therapeutic Radiology and Oncology at the Faculty of Medicine, Chiang Mai University, Thailand. His research interests mainly focus on the radiobiological effects of particle therapy, bystander effect radioecology and cancer research.

INVITED SPEAKER: SP12_INV03

NOVEL PASSIVE RADIOACTIVE RADON GAS MEASUREMENT TECHNIQUE USING MODIFIED GAFCHROMIC FILM

Worawat Poltabtim,[1,*] Chutima Kranrod,[2] Yasutaka Omori,[2] Saowarak Musikawan,[2] Masahiro Hosoda,[2] Narongchai Autsavapromporn,[3] Shinji Tokonami[2]

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Abstract:

A new passive radon measurement technique using Gafchromic XRQA2 film was developed. The film was modified by removing a polyester layer to increase its sensitivity to alpha particles, primarily emitted by radon and its decay products. The response of the modified film to alpha particles was studied, showing that as alpha activity increased over time, the film's darkness also increased. The film exhibited minimal alpha energy dependence, with less than a 2% difference in response. For radon measurement, a pair of modified Gafchromic XRQA2 film (mo-XRQA2) on top and normal Gafchromic XRQA2 film (no-XRQA2) at the bottom, called "alpha-XRQA2" and used as detector medium, were placed inside RADUET containers as shown in Figure. Calibration functions demonstrated that the net optical density (netOD) of the film was directly proportional to the accumulated radon concentration during exposure. The detectable radon concentrations for a three-month period ranged from approximately 390 Bq m^{-3} to 15,000 Bq m^{-3}. Additionally, the impact of UV and humidity on the film's performance was examined. UV light had no effect, and humidity below 80%RH caused only minor variations, with less than a 10% standard deviation in detection response. These findings suggest that the modified Gafchromic XRQA2 film, used with the RADUET container, provides a simple and effective method for measuring radon, particularly in high-radon areas such as underground mines and caves.

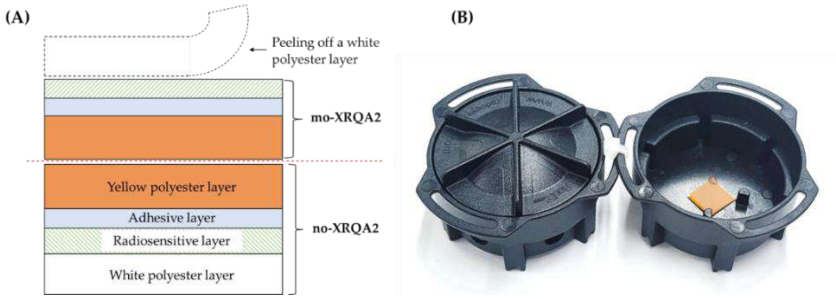

Figure. (A) The alpha-XRQA2 schematic design, and (B) the alpha-XRQA2 setting up inside the RADUET containers.

Dr. Worawat Poltabtim has successfully his Ph.D. in Radiological Health Sciences from Hirosaki University, Japan in 2024. He received his bachelor's degree in Nuclear Science from Kasetsart University, Thailand and the master's degree in Nuclear Engineering from Tsinghua University, China. From May 2024 to present, he worked as a lecture at Department of Radiologic Technology, Chiang Mai University, Thailand. His research interests in radiation detection and protection, radiation in environment, and advanced materials for radiation applications.

INVITED SPEAKER: SP12_INV04

TECHNICAL STATUS AND CHALLENGS OF ENVIRONMENTAL RADIATION MONITORING BASED ON UNCREWED AERIAL VEHICLES

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Abstract:

The environmental radiation monitoring is generally conducted during the normal operation around nuclear facilities as well as the emergency response against to radiation accidents. According to lessons learned from an accident at the Fukushima Daiichi nuclear power plants (FDNPP), it is advisable to utilize comprehensive environmental radiation monitoring platforms for the emergency preparedness. The comprehensive environmental radiation monitoring means using diverse survey platforms, such as tripod, backpack, carborne and airborne system, and underwater unit in the event of normal surveillance and accident responses, including early, intermediate, and recovery phase. The environmental radiation monitoring is usually focused on the normal operation of nuclear facilities based on the anomaly detection, accuracy of monitoring results, monitoring around facilities, and monitoring in time series. In the case of the emergency response, the concept of environmental radiation monitoring should be expanded to strengthen abilities of public protection actions, the rapidity of monitoring results, monitoring in expected areas of radiological dispersion, and spatial monitoring around accident areas. In this study, airborne survey using a uncrewed aerial vehicle(UAV) was conducted for the purpose of quick monitoring of deposited radionuclides in the wide area. Diverse gamma-ray spectrometers were mounted to a UAV for determining radioactive cesium deposition in the contaminated area around the FDNPP. In addition, different flight parameters, which mean flight speeds, height, and route, were applied for the performance in assessing the ambient dose rate induced from deposited radionuclides. Finally, the performance of environmental radiation monitoring based on a UAV was verified by comparing the results of ground-based gamma-ray spectrometry around the survey area.

Figure. Environmental radiation monitoring using a UAV

Dr. Young-yong Ji has been working as nuclear scientist at Korea Atomic Energy Research Institute (KAERI) since 2004. He is now a principal researcher in the field of environmental radiation monitoring and in charge of a director of Environmental Safety Technology Research Division of KAREI. He has conducted several research projects about the comprehensive environmental radiation survey using a backpack, carbon, airborne and underwater survey system. He is focused on the survey technology and algorithm to assess the deposited radionuclides in the ground using diverse survey platforms. He has many experiences of field measurements at the contaminated sites around Fukushima Daiichi nuclear power plants to validate his method and algorithm developed.

INVITED SPEAKER: SP12_INV05

EVALUATION OF DETECTORS FOR ANOMALY DATA INTERPRETATION IN THE ENVIRONMENTAL RADIATION MONITORING

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Abstract:
Gamma dose rate monitors are the most widely used tool for continuous monitoring of environmental radiation and radioactivity variation. Radiation detectors used for environmental radiation monitoring include gas-filled detectors such as ion chambers and geiger muller counters, various types of semiconductor detectors, and scintillation detectors. Gas-filled detectors can detect anomalies based on time series background data, but their lack of resolution makes it impossible to interpret anomalies and identify their causes. They are often supplemented by adding a weather sensor to identify rainfall or snowfall, which is a typical case of anomaly data, but it is not a fundamentally proper measure because of widely extensive cause of anomaly data.
Therefore, detectors with energy resolution are suitable for continuous monitoring of environmental radiation, but high-resolution semiconductor detectors are not suitable for environmental applications in terms of detection efficiency and economics. Scintillation detectors with adequate energy resolution have been accordingly applied as an alternative. Also, among the detectors with energy resolution, it is necessary to select a detector that is less affected by various environmental changes such as temperature and humidity for continuous monitoring of environmental radiation. Some ASEAN countries, Korea, and China have already applied NaI(Tl) detectors for their continuous environmental radiation monitoring activities.
This paper evaluates the performance and utilization of various scintillation detectors that are being considered for field application, and proposes a suitable scintillation detector according to the specific purpose and application.

Mr. Taehyung (Terry) LIM is a managing director of SI Detection incorporated. He has been working for building IERNet, Korea's nationwide radiation monitoring network since 2003 and now involved in wide variety of relevant programs worldwide. His work ranges from the development of radiation detectors to the tailored research programs as a total solution provider.

INVITED SPEAKER: SP13_INV01

LIPID- BASED BIOREFINERY RESEARCH ALIGNED WITH THAI STRATEGIC INDUSTRY ALLIANCES

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Abstract:

Thailand is the 7th world ranked for biodiesel producer (includes renewable diesel which also known as Hydrotreated Vegetable Oil, HVO or green diesel); however, these industries and supply chains are expected to be challenged by the disruptive of EV soon. Research on lipid-based biorefinery aims to support biodiesel producers to alleviate the threat of EVs and reduce carbon emissions over the next two decades of this transition period. Real waste feedstock obtained from cooperative Thai industry are successfully implemented for biodiesel and green diesel production. In addition, developing novel valorization routes to produce useful compounds from e.g. fatty acid methyl ester (biodiesel), green diesel and the by-product, glycerol have been demonstrated. Process and energy intensification techniques were applied in order to overcome the process limitation.

Dr. Worapon Kiatkittipong is an Associate Professor in the Department of Chemical Engineering, Silpakorn University, Thailand. He received a B.Eng. degree from Kasetsart University, as well as M.Eng and D.Eng. degrees from Chulalongkorn University, supported by The Royal Golden Jubilee Ph.D. Program funded by The Thailand Research Fund and supervised by Prof. Suttichai Assabumrungrat. He was a Ph.D. Exchange student at Nagoya University, Japan (2003-2004), a guest researcher at Pacific Northwest National Laboratory (PNNL), USA, and a visiting professor at Kumamoto University, Japan (2024). His research focuses on the implications of biofuel and biochemical production integrated with biorefinery and the concept of process intensification. He has published more than 180 ISI/SCOPUS-indexed documents, receiving a total of 3500+ citations and an H index of 34 (Scopus, July 2024). He has been a Guest Editor for many journals and proceedings such as *Biomass and Bioenergy*, *Energies*, and *Processes*. He previously served as the Vice Dean for Research and Academic Services at the Faculty of Engineering and Industrial Technology, Silpakorn University (2019–2022). He is currently serving as the Associate Editor of *Science Engineering* and *Health Studies.*

INVITED SPEAKER: SP13_INV02

EFFECTS OF SURFACE MODIFICATION METHOD ON THE PREPARATION OF ACIDIC MESOPOROUS SILICA NANOCOMPOSITES FOR GREEN SYNTHESIS OF ESTER PRODUCTS

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Abstract:

Esterification of carboxylic acids with alcohols using acid catalysts, yielding water as a by-product, is a recognized category of liquid-phase reactions of commercial significance, owing to the relevance of organic ester compounds in the fuel, food, cosmetic, and pharmaceutical sectors. The organosulfonic acid–functionalized natural rubber/wormhole-like mesostructured silica (NR/WMS–SO_3H) nanocomposites, prepared by an *in-situ* sol–gel technique, possess synergistic advantages in which the silicate framework provides a high mesoporosity, high surface area, and thermal stability, while the rubber phase affords hydrophobicity for using as a potential acid catalyst in esterification. The NR/WMS–SO_3H nanocomposite functionalized by a direct co-condensation approach and exhibited a superior catalytic performance to the conventional organosulfonic acid wormhole-like mesoporous silica (WMS–SO_3H) in the esterification of medium-to-long chain fatty acids with ethanol. However, the presence of NR added in the synthesis mixture of nanocomposites may hamper the amount and distribution of sulfonic acid moieties loaded onto the silica surface. Consequently, it would affect the accessibility of catalytically active sites to the substrate molecules. In this research, to understand the effect of rubber phase on the distribution and activity of acid-functional groups in the nanocomposite catalysts, the NR/WMS–SO_3Hs with different types of organosulfonic acid groups will be prepared via various surface modification methods, followed by characterization for their physicochemical properties. The catalytic activity and stability of NR/WMS–SO_3Hs will be investigated for green synthesis of ester products.

Assistant Professor Dr. Sakdinun Nuntang was born in Phayao, Thailand, in 1982. He received his Bachelor of Science degree in Chemical Engineering from Chulalongkorn University in 2005. He received his Master's and Doctorate degrees in Chemical Technology in 2007 and 2014, respectively, from Chulalongkorn University, Thailand. Since 2016 and continuing to the present, he has been working at the Industrial Chemistry Innovation Program, Faculty of Science, Maejo University, Chiang Mai, Thailand. His research interests include the development of porous composite materials for adsorption and catalysis in the chemical industry.

INVITED SPEAKER: SP13_INV03

THAILAND'S CCS TECHNOLOGY ROADMAP: SUCCESSIVE TECHNOLOGIES IN SUPPORT OF NATIONAL TARGETS ON CARBON NEUTRALITY AND NET-ZERO EMISSIONS

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Abstract:

Thailand has pledged to achieve carbon neutrality by 2050 and net-zero emissions by 2065, guided by its nationally determined contribution (NDC) and Long-term Low Greenhouse Gas Emission Development Strategy (LT-LEDS). A key measure in the LT-LEDS is carbon capture and storage (CCS) technology. Despite its importance, Thailand lacks an action plan for large-scale CCS implementation, leaving private sectors uncertain about their roles.

To address this, the 'CCS technology roadmap' has been established, identifying the technologies to be deployed over time to meet targets. In 2023, Thailand's science, research, and innovation system, with significant input from private industries, developed the country's first CCS technology roadmap.

The roadmap sets CO_2 storage targets for the next three decades: 1-10 Mtpa by 2023, 10-50 Mtpa by 2040, and 50-150 Mtpa by 2050. In the first decade (by 2030), the focus is on existing or soon-to-be-retrofitted technologies due to industrial familiarity and financial feasibility. CO_2 capture using membranes in the natural gas processing industry is prioritized, along with necessary pipeline and high-pressure compression infrastructure, supported by well-characterized reservoirs. At least one pilot project is expected to be operational, with further surveys for additional storage resources and source-sink matching. The second decade (by 2040) will focus on developing CCS hubs and large-scale pilot or demonstration plants. This phase will involve more investigation into 'dedicated' saline formations and well-defined measurement, monitoring, and verification (MMV) technologies. The goal is to reduce full-chain CCS costs and establish a Thailand CCS hub for various industries, including cement plants, alongside the oil and gas sector. By the third decade (by 2050), with mature full-chain CCS technologies, the emphasis will be on scaling up. With reduced CCS costs and widespread implementation, storage capacity is anticipated to exceed 50 Mtpa, potentially reaching up to 100 Mtpa. The roadmap also outlines the necessary enablers and drivers to support these targets.

Dr. Suparit Tangparitkul is an Associate Professor in the Department of Mining and Petroleum Engineering at Chiang Mai University, Thailand. He was awarded the White Elephant Scholarship, securing his lectureship, and obtained his master's degree from the University of Adelaide, Australia, in 2016, followed by a PhD from University of Leeds, UK, in 2019. He leads the Chiang Mai Research Center for Carbon Capture and Storage (Chiang Mai CCS), focusing on carbon capture and storage. His research centers on immiscible fluid flow for petroleum recovery and carbon dioxide geological storage, contributing to the UN's Sustainable Development Goals 7 (Affordable and Clean Energy) and 13 (Climate Action). He actively collaborates with industrial stakeholders to advance these initiatives.

INVITED SPEAKER: SP14_INV01

SCIENTIFIC LITERACY IN AI DRIVEN SOCIETY: PCST ASIAN SOCIETY

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Abstract:
Artificial intelligence (AI) has emerged as a defining force in contemporary society, with products branded as "AI-enabled" frequently attracting greater market interest. From a historical perspective, the initial application of AI can be traced back to World War II by mathematician Alan Turing. Over time, AI progressed through advancements in IT and was notably popularized in the film *Her*, which explores themes of human attachment to AI, narrating the story of a man who falls in love with an OS named Samantha, hinting at a future where human-machine relationships could rival interpersonal connections. In 2016, AI once again captured global attention with the match between AlphaGo, developed by Google, and Korean Go champion Lee Sedol. Despite Sedol's confidence, the series concluded with AlphaGo's victory, signifying AI's rapidly evolving potential. By 2022, ChatGPT made interactive AI accessible on a global scale, and in October 2024, Geoffrey Hinton, regarded as a pioneering figure in AI, was awarded the Nobel Prize in Physics.

In an AI driven society, there arise critical questions such as how humanity should adapt, and what competencies are essential for this new reality. Today, we, individuals play multifaceted roles as consumers of vast interdisciplinary knowledge, beneficiaries of products from global manufacturing and agriculture, and participants in policies shaped by governance. Concurrently, we contribute to knowledge production, cultivate interpersonal relationships, and engage in novel human-machine interactions, notably through dialogue with AI. This interconnected ecosystem suggests that informed consumption can sustain ethical production, and balanced production can reinforce rational consumption, thereby fostering a virtuous cycle within society.

Global challenges—ranging from climate change and energy transitions to water scarcity, food security, and emergent diseases—are closely related to science and technology. Moreover, the interplay of production and consumption in daily life is deeply entwined with scientific understanding. Consequently, science communication is ever more important and scientific literacy is increasingly recognized as essential. Science communication helps people to make decisions in both informed and balanced ways especially in addressing these challenges. PCST, the biggest global network in science communication has put lots of energy and efforts to enhance global scientific literacy over the past four decades. It is a vital platform to connect science and society by bridging scientists and the public. It is also a living archive to collect experience and practices for develop effective science communication strategies.

This lecture aims to diagnose the present era from a historical scientific perspective, explaining why science communication and scientific literacy are critical in the AI era. It will also argue for the necessity of a PCST Asian Society, particularly highlighting the active role Thailand should play in raising scientific literacy across this region.

President of the PCST Global Network and Professor Sook-kyoung CHO was born in Seoul, Korea in 1964. She received the bachelor's degree in physics education from Seoul National University, Korea and master's degree in history and philosophy of science from King's College of London, UK. She received a Ph.D. in History and Philosophy of Science in 2001 at SNU. Since 2021, she is teaching and research on Energy and Public at KENTECH, after serving 20 years in Government related organizations such as KOFAC, PACST and GNSM, Korea. Her interest is in promoting PCST activities both in Global and Regional.

INVITED SPEAKER: SP14_INV02

ENGAGING SCIENTISTS IN SCIENCE, HEALTH, AGRICULTURE, RISK AND ENVIRONMENT (SHARE) COMMUNICATION

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Abstract:
Science communication is a process of conveying scientific information to non-expert audience, ranging from general public to policymakers, in a way that is informative, engaging and understandable. The process involves translating complex scientific concepts into common language that resonate to diverse audiences, and promote the importance of science in decision-making. Effective scientific information should be incorporated and adjusted with targeted recipients: the characteristic and culture of society, who the audience and how to attract and engage with them, their existing knowledge and their informative expectation. It is critical, especially in the domain of health, agriculture, risk, and environmental issues, where public understanding directly influences policy, behaviour, and societal outcomes.
Despite the increasing recognition of science communication's importance, it faces a commonly challenge to communicate scientific outputs from science communities to journalists, investors, politicians, youths and general public. The nature of science itself is not easy to be digested, and should see as an inter-disciplinary factor rather than solely single discipline. From scientists' perspective, they often face significant challenges in communicating their research domains, as they must work with multifaceted subject matter and collaborate with diverse inter-disciplinary sciences. Another major issue is the complexity of scientific language and technical jargon, which can make distance to non-expert audience.
Training scientists in communication skills is an essential approach, such as: convey their research through public talks, media interviews and social media platforms. Those can enhance their ability to engage with diverse audiences. The scientific studies should be more accessible to lay people, to have greater understanding and engagement in science.
To convey effective communication approach, various tools can be adopted, such as: use social media platforms to convey the messages as people nowadays tend to be attached for various reasons, popularize science literature, and initiate citizen science initiatives to foster greater public participation actively in scientific process. Despite communicating science, social media platform is an influential tool when addressing dis- and mis-information with actively correct falsehoods and offer evidence-based information, especially in high-risk areas. This can be incorporated with popularizing science literature and citizen sciences.
The Association of Academies and Societies of Sciences in Asia (AASSA) considers to engage scientists actively in science communication, by establishing a special committee in Science, Health, Agriculture, Risk and Environment (SHARE) Communication. Many activities have been accommodated by the AASSA members since it has been officially established in 2016. The communication requires a combination of effective training, simple, accessible and appropriate language, public participation, and combatting of mis- and dis-information actively. By addressing the obstacles of science communication, scientists can bridge the gap between knowledge and public resilience, lead to more informed decision-making, and contribute to addressing some of global challenge issues in the fields of health, agriculture, risk, and environment.

Finarya is a senior lecturer at the Faculty of Engineering University of Indonesia, for building technology and sustainable architecture. Her expertise is Sustainable Architecture Science & Technology, gained PhD in Applied Acoustics from University of Salford, UK. Since 2019 she has been joining the Indonesian Academy of Sciences (AIPI) as Head of International Relation & Funding, which in 2022 she was the Secretary of Science20 in G20 Indonesia Presidency 2022, and as a delegate team for S20 2023 (Coimbatore, India) and 2024 (Rio de Janeiro, Brazil). Since 2021 Finarya has been selected as Chairperson in SHARE Communication Committee (Science, Health, Agriculture, Risk and Environment) within AASSA (Association of Academies & Societies of Sciences in Asia). It focuses on: open access, science literacy, addressing inaccurate and mislead information. Prior in AIPI, she worked at the National R&D and Ministry of Research & Technology as leaders in science centre, in policy on disseminating & communicating S&T to public, industry and stakeholders, then as Principal Engineer.

INVITED SPEAKER: SP14_INV03

CURRENT TREND IN DESIGNING SCIENCE COMMUNICATION CURRICULA

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Abstract:

Science Europe advocates science and the scientific community to help build the European Research Area and shape the global scientific agenda. “Science Communication” is one of the nine priorities of Science Europe, and treats science communication as an essential element in strengthening the “role and contribution of science in tackling societal challenges”. Under this concern, Science Europe defines Science communication as “the practice of informing, raising awareness of science-related topics, and also getting involved with audiences that include, at least in part, people from outside the science community.” (ScienceEurope, 2024) It is a rather practical definition.

As a purely interdisciplinary curriculum, science communication has in the past provided two views of science and communication respectively. Scientists used to take the “deficit model” to convey correct science knowledge, but did not consider the audience’s social content and needs. Journalists used to take science as news to frame and build an agenda for attracting more eyes, and totally ignored the complexity of science.

There are more than one hundred science communication courses worldwide (Asia Research news, 2024). More than half of the courses take place in Europe, and 80% of the courses are Master programs provided by journalist training programs, departments or faculties of communication. Less than 20% of the more than one hundred courses provide Bachelor programs of science or science-related departments or faculties (Asia Research news, 2024).

Graduate curricula are used to train students’ thought, skills of research and methodology; undergraduate curricula involve more practical, internship and career-oriented courses. The Department of Science Communication, NPTU provides basic science courses (calculus, physics, earth science, chemistry and biology) and the basic communication course in the first year. In the second year, it cultivates students’ ability to interpret and apply science content via courses in the fields of Individual education, Inquiry-based teaching, New Technology, Science popularization and Communicate matches various public needs. Students start on many varied practical courses in the third year, including the fields of Practice of teaching, Organization of activities/events/exhibitions, Film production, Content writing and Graduation projects. The department also helps students to match with a suitable institution as an intern for one semester during their 3rd or 4th year. (Department of Science Communication, 2024)

To provide a balanced curriculum incorporating both science and communication, the specialties of the teachers of the Department of Science Communication are science education (2 professors, 1 associate professor and 1 assistant professor), communication (1 professor/performance artist and 1 associate professor) and science communication (1 professor/scientist and 2 assistant professors). Teachers discuss science communication from their own specialties with students and provide the opportunity to practice science communication in various ways, such as exhibitions, newspaper and journal articles, performances, and other activities and events. To integrate all that students have learned during the university period, the department provides a “Certificate of Project Manager of Science Communication”. This certification includes 5 categories, “Planning & execution of scientific popularized activities/events”, ”Planning & docent of scientific exhibitions”, “Design & installation of scientific teaching aids & exhibition materials”, “Scientific popularized writing & publication” and “Creation & production of scientific popularized media”. Students are allowed to apply for the certification after taking the credits of the related courses, the course “Careers in Science communication”, and have interned for 640 hours in a related science communication institution.

The students graduates of the Department of Science Communication mainly work in science education centers, science and technology museums, scientific aids companies, primary schools, and in setting up the activity execute studios. It shows the department has to enhance the courses of scientific popularized writing and new media in the near future. In addition, there is a need to develop a sound market and industrial chain to help cultivate scientific communication talents.

Reference

ScienceEurope, 2024, Science Communication, https://scienceeurope.org/our-priorities/science-communication/ (access time: 05/07/2024).
Asia Research news, 2024, Science Communication Resources, https://www.asiaresearchnews.com/content/science-communication-resources (access time: 09/11/2024).
Department of Science Communication, 2024, Department of Science Communication, National Pingtung University, https://dsc.nptu.edu.tw/index.php?Lang=en (access time: 08/11/2024).

Professor Liu, Lan Yu was born in 1969. She received a Bachelor’s degree (BSc) from the Department of Entomology, Chung Hsing University, Taichung, Taiwan. She received a Master’s degree (MSc) from the Department of Museology, Tainan National University of the Arts, Tainan, Taiwan and a Doctoral degree (PhD) from the Department of Entomology, Chung Hsing University, Taichung, Taiwan. She has been working for the Department of Science Communication, National Pingtung University since 2015, and currently is the Head of Department. She also has some experience in science museums or education center management and science popularization.

INVITED SPEAKER: SP14_INV04

ENHANCING SCIENCE COMMUNICATION THROUGH AESTHETIC AND COMMUNICATION ARTS APPROACHES

Paonrach Yodnane[1,*]

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Abstract:

Science communication is a critical element in the dissemination of scientific knowledge to the public. Communication studies can play a significant role in advancing and enhancing communication in this field by applying theories and principles from various aesthetic media forms, such as film, television programs, radio, music, and animation, to explain scientific phenomena. This approach helps make complex scientific content more accessible and understandable to the general public. Education in the field of science communication enables scientists to realize that scientific communication can take many forms, ranging from personal media like speech and performance to traditional media, modern media, and digital media. Such knowledge can be developed into skills that allow scientists to choose appropriate techniques based on the content and the target audience.

The training and development of science communicators can take place through both formal and informal education. In formal education, specialized curricula can be offered through credit-based courses with assessments, leading to certification or degrees to validate qualifications. or Dual degree program, combined undergraduate program in science and a master's in communication studies could shorten the duration of study. In informal education, professional training programs can enhance skills and introduce new techniques, such as short-term workshops or hands-on internships, with certification awarded upon completion to acknowledge the knowledge gained and work experience.

In terms of developing a curriculum for science communication from the perspective of communication studies, the creation of a new academic program is a viable option, though it depends on the application of communication studies within the context of science communication. The curriculum must address societal needs and accommodate the changes brought about by advances in communication technology in the contemporary era.

Paonrach Yodnane, Ph.D. She is an assistant professor in the Speech Communication and Performing Arts Department at the Faculty of Communication Arts, Chulalongkorn University. After her 20 years of experience and expertise in the fields of Theatre and Performing Arts, for instance, Dancer MC and actress in Thai TV Programs. She has turned into Academic Path because of her interest in Transformative Learning Theory for Theatre and Contemplative Communication by using Intrapersonal Communication approach.

INVITED SPEAKER: SP14_INV05

BRIDGING THE GAP BETWEEN SCIENCE AND THE PUBLIC

Peerapon Anutarasoat[1,*]
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Abstract:
While science plays an indispensable role in daily life, much like the oxygen we breathe, the reality of societal circumstances reflects that many people still lack scientific understanding, even on fundamental issues. It is undeniable that mass media, particularly news outlets, serve as both a "medium" and a "factor" critical to "conveying" and "delivering" accurate scientific understanding to the public. However, if media operate under limitations, they can inadvertently "hand over" or "throw out" misunderstandings or sow the seeds of pseudoscience, allowing them to spread throughout society.
In this presentation, the speaker will examine scenarios in Thailand that highlight the relationship between "news media" and "scientific narratives." The discussion will be structured around the 5M, 5C, and 5S frameworks, leading to practical recommendations for bringing "science" and the "public" closer together.

After a decade as a journalist at Thai News Agency, MCOT, Peerapon Anutarasoat launched Thailand's first fact-checking TV program, "ชัวร์ก่อนแชร์" ("Sure Before You Share") in 2015. Originally part of the company's evening news program, it has since evolved into a comprehensive fact-checking platform spanning multiple channels and content formats, driven by the mission to "Create and Innovate Integrated Digital Media for Societal Literacy." Peerapon currently leads the Sure and Share Center team at MCOT, overseeing data monitoring, fact-finding, and content creation while spearheading initiatives to promote literacy education and sustainable societal impact. He has also introduced a fresh approach to conveying digital literacy by utilizing the concept of "Digital Hygiene," detailed in his latest book, "แคล้วคลาดขาดมิจ - How to Sanitize Your Digital Life."

INVITED SPEAKER: SP14_INV06

CULTIVATING SCIENCE COMMUNICATORS: A CURRICULUM DEVELOPMENT EXPERIENCE AT FACULTY OF SCIENCE, MAHIDOL UNIVERSITY, THAILAND

Sasivimon Chomchalow Swangpol,[1,*] Unchera Viboonjun[1]
[1] Department of Plant Science, Faculty of Science, Mahidol University, Bangkok, Thailand
*e-mail: Sasivimon.swa@mahidol.edu

Abstract:
This presentation will explain the development and implementation of a science communication curriculum at Mahidol University's Faculty of Science. Since its inception in 2019, this course has empowered undergraduate science students to effectively communicate complex scientific concepts to diverse audiences. The curriculum is designed to equip students with essential skills such as: critical thinking and data literacy in science, effective communication, and ethical consideration. The course incorporates a variety of teaching methods, including lectures, hands-on activities, and project-based learning. Students engage in practical exercises such as writing science news articles, creating short videos, and pitching scientific and technology ideas to the public. By mastering these skills, students will be well-prepared to tackle future scientific challenges and become effective communicators of scientific knowledge.

Figure 1. Dr. Buncha Thanaboonsombut, NSTDA, Thailand, award-winning science communicators, in one of the classes.

Figure 2. Mr. Kahlil Puttal, renown TV producer shared tricks in mass media business to the class.

Assistant Professor Dr. Sasivimon Chomchalow Swangpol was born in Bangkok, Thailand. She received her B.Sc. (Botany, 1988) and Ph.D. (Biological Sciences, 2007) from Department of Botany, Chulalongkorn University, Thailand. She obtained her M.S. (Horticulture) in 1991 from the University of Florida, USA. Since 1995, Dr. Swangpol has been an instructor at the Department of Plant Science, Faculty of Science, Mahidol University. She was appointed to two Faculty's administrative positions; first (2009-2011) as the Assistant Dean for Public Relations and recently (2020-2023) as the Deputy Dean for Physical Systems and Environment, overseeing corporate communications. Her research interests are in systematics and evolution of wild bananas and archeobotany and ethnobotany in Thailand. Courses she coordinates and teaches, among others, are Plant Ecology and Evolution, Advanced Plant Taxonomy, Ethnobotany, Scientific Illustrations and Science Communication.

INVITED SPEAKER: SP16_INV01-INV07

SESSION 1: NATURE-BASED SOLUTIONS FOR CLIMATE MITIGATION AND DRIVING NbS IN THAILAND AND INTERNATIONALLY

Peter Macreadie,[1] Pakkasem Tongchai,[2] Wongkot Wongsapai[3]
[1] RMIT University, Australia
[2] International Union for Conservation of Nature
[3] Chiang Mai University, Thailand

SESSION 2: HIGH PERFORMANCE RESEARCHERS IN CARBON VERIFIERS THROUGH NATURE BASED SOLUTION FOR CARBON NET ZERO

Kobsak Wanthongchai,[1] Tassanee Jiaphasuanan,[2] Kanyanat Kaewutai[3]
[1] Kasetsart University, Thailand
[2] Ubon Ratchathani University, Thailand
[3] Prince of Songkla University, Thailand

SESSION 3: NbS ALUMNI FOR DRIVING NbS IN THAILAND

NbS Alumni

ORAL PRESENTATION SESSIONS

INFORMATION FOR ORAL PRESENTATION

Oral presentations are required to be made by PowerPoint, which should be controlled by the speaker. Embed font in PowerPoint or the use of PDF file is recommended for those who use special fonts or characters.

The normal oral presentation will be 12 to 15 min plus 3 to 5 min questions in English. There will be warning signals for the end of your presentation. Please strictly follow the schedule.

All speakers are required to load and check the files before the presentation.

A PC-compatible computer and a LCD projector will be provided.

POSTER PRESENTATION SESSIONS

INFORMATION FOR POSTER PRESENTATION

The poster must be in English. The content of the poster should cover title, objectives, methodology, results, discussions and conclusions. The poster board size should not exceed 90 cm width x 120 cm height.

Accessories (like adhesive tape) for setting up the poster will be provided by the organizer.

Poster attachment should be attached on November 25th, 2024 at 17:30 -18:30 or November 26th, 2024 at 8:00 -11:00 according to presentation code which will be notified both in the congress website and at the congress site.

Poster presenters are expected to appear in front of their posters during their scheduled sessions.

PRESENTATION AWARDS

PRESENTATION AWARDS

We are pleased to announce that there are awards for best poster and oral presentations in the STT50.

- Best Poster Awards will be given to the most outstanding poster presentation presented by a participant who has submitted an abstract or proceeding under poster presentation category of sessions and symposiums as a presenter. The winners will be selected from the presentation and Q&A of poster session by the committee of each academic session.
- Best Oral Presentation Awards: The winners will be selected by the committee in each session.
- Best Poster and Best Presentation Awards will be announced in Awarding Ceremony Session.
- The awards will only be given to students.

SESSION A - PHYSICS / APPLIED PHYSICS

ID	Presenter	Title
A_001_P	Sorrawit Sangngern	ENHANCING QUANTUM COMMUNICATION EFFICIENCY THROUGH WAVE PROPERTIES
A_002_P	Thawichai Traiporm	INFLUENCE OF THE GENERATION PARAMETERS ON DBD PLASMA FOR PATHOGENIC AND AIRBORNE DUST ELIMINATION
A_003_P	Supararoek Yarin	PHASE CHARACTERIZATION OF AMORPHOUS TIN OXIDES MICRO/NANOPARTICLES BY RAMAN SPECTROSCOPY
A_004_P	Suksan Suwanarat	HIGH-PERFORMANCE MID-INFRARED SUPERCONTINUUM GENERATION USING ALL-ANOMALOUS-DISPERSION $AsSe_5$-As_2S_5 CHALCOGENIDE HYBRID MICROSTRUCTURED OPTICAL FIBERS
A_005_P	Wiwat Chumai	COMPUTATIONAL SIMULATION TO INSIGHTS OF A BALL BOUNCING DYNAMICS RELATIVELY ON A PULSED-VIBRATED SURFACE UPON IMPACTION UNDER PRESENCE OF AIR-RESISTANCE
A_006_P	Nitikorn Jaingarm	HIGH ORDER CUMULANT RATIOS OF NET-PROTON NUMBLE IN Au+Au COLLISION AT 7.7 AND 11.5 GeV BY USING UrQMD MODEL
A_007_P	Anucha Watcharapasorn	SUPERCONDUCTING AND VORTEX DYNAMICS IN YBCO|BNT|YBCO JOSEPHSON JUNCTIONS
A_008_P	Pranee Disrattakit	ELECTRICAL RESISTIVITY TEACHING USING GRAPHITE PENCIL LINE EXPERIMENT TO ENHANCE SCIENCE COMPETENCIES
A_009_P	Sumet Sakulsermsuk	EFFICIENT OIL/WATER SEPARATION ON STAINLESS STEEL MESH COATED BY SPRAYING NANOPARTICLES
A_010_P	Ratchadaporn Puntharod	SIMPLE HYDROTHERMAL-MICROWAVE METHOD TO SYNTHESIZE MANGANESE PYROPHOSPHATE AND ELECTROCHEMICAL PERFORMANCE

SESSION B - BIOLOGICAL SCIENCES

ID	Presenter	Title
B_001_P	Atchara Sripanya	THE STUDY OF FATTY ACID REDUCTASE REACTION
B_002_P	Kattika Kaarj	PREDICTION MODEL FOR CLASSIFYING BACTERIAL SPECIES CONTAMINATION IN MEAT
B_003_P	Mongkol Phaengphech	THE EFFECT OF HIGH TEMPERATURE STRESS TO PHOTOSYNTHETIC EFFICACY OF LICHENS AT DOI SUTHEP-PUI NATIONAL PARK
B_004_P	Wirulphat Sriola	EFFECT OF *Centella asiatica* EXTRACT ON DELAYING ASSOCIATIVE MEMORY DEFICITS FROM AGING IN *Caenorhabditis elegans*
B_005_P	Utid Suriya	POTENTIAL OF ASPP 049, A NATURAL DIARYLHEPTANOID DERIVATIVE ENHANCING THE PORCINE MUSCLE SATELLITE CELL PROLIFERATION: IMPLICATIONS FOR CULTURED MEAT PRODUCTION
B_006_P	Kitiphong Khongphinitbunjong	LARGE-SCALE PRODUCTION, PURIFICATION AND BIOACTIVITY ASSAY OF ADENOSINE FROM *Cordyceps miliataris*
B_007_P	Supattara Phokaeo	DIVERSITY OF CRUSTOSE LICHEN GENUS PYRENULA (*Pyrenulaceae, Ascomycetes*) ON BOTH FROM DOI INTHANON NATIONAL PARK AND DOI SUTHEP-PUI NATIONAL PARK IN CHAING MAI PROVINCEG MAI PROVINCE
B_008_P	Pabhada Asawakarn	ANTIBACTERIAL ACTIVITIES OF SEVEN HERBAL EXTRACTS AGAINST *Staphylococcus aureus, Pseudomonas aeruginosa* AND *Escherichia coli.*
B_009_P	Phimpisa Phraphuchamnong	SPECIES DIVERSITY AND DISTRIBUTION OF THE LICHEN GENERA, HAEMATOMMA, LECANORA AND MALMIDEA IN DOI SUTHEP-PUI NATIONAL PARK, CHIANG MAI PROVINCE, THAILAND.
B_010_P	weeranoot chaiysing	EVALUATION OF ANTIOXIDANT AND ANTIBACTERIAL ACTIVITIES OF ESSENTIAL OILS FORM FRESH FRUIT of *Zanthoxylum rhetsa* (Roxb.) DC. IN NORTHERN THAILAND
B_011_P	Netnapa Chana	EVALUATION OF RAMBUTAN PEEL, NONI LEAF, BETEL LEAF, AND MACAO TEA EXTRACTS AS POTENTIAL ALZHEIMER'S DISEASE THERAPEUTICS: INHIBITORY EFFECTS ON ACETYLCHOLINESTERASE AND BUTYRYLCHOLINESTERASE ENZYMES
B_012_P	Peung Keanseng	ASSESSING THE SAFETY OF DRINKING WATER IN URBAN SLUM VS. RURAL CAMBODIA: *Escherichia coli* DETECTION USING H2S TEST KITS
B_013_P	Charal Khiewdee	MOLECULAR RECOGNITION OF REGULATED INTRAMEMBRANE PROTEOLYSIS (RIP) IN CELLULAR CHOLESTEROL SENSING PATHWAY

ID	Presenter	Title
B_014_P	Sreylin Leng	DETERMINATION OF EXTRACTED DNA FROM HUMAN BLOOD CELLS USING QIAAMP® DNA BLOOD MINI KIT
B_015_P	Chanokporn Muangchinda	BIOAUGMENTATION OF A CONSTRUCTED CONSORTIUM IN SOIL FOR DEGRADATION OF LOW-DENSITY POLYETHYLENE (LDPE)
B_016_P	Thirasak Bunsuk	ALTERATION OF O-GlcNAcylation AFFECTS CHEMOTHERAPY DRUG RESPONSES IN COLORECTAL CANCER CELL LINES
B_017_P	Rachan Pangnuchar	MODIFIED PACKAGING PLASMIDS FOR INTEGRASE-DEFICIENT LENTIVIRAL TRANSFECTION
B_018_P	Wipawan Kiaosanthie	PLANT DIVERSITY AND ETHNIC TRADITIONAL KNOWLEDGE OF PLANT USE AT DOI MAE SALONG, CHIANG RAI PROVINCE
B_019_P	yurachat meksuwan	EFFECTS OF PH ON GROWTH AND ANATOMICAL CHARACTERS OF TAPE SEAGRASS (*Enhalus acoroides (L.f.) Royle*)
B_020_P	Suwapat Sathupak	GENETIC FOOTPRINTS OF TAI YUAN MIGRANTS FROM LAN NA TO SUVARNABHUMI
B_021_P	Kantika Sensed	EFFECT OF PIPER RIBESIOIDES WALL. STEM EXTRACT ON INHIBITION OF CHOLANGIOCARCINOMA CELLS LINE IN VITRO
B_022_P	Kyaw Hein	PREPARATION OF PROTEIN HYDROLYSATES FROM *Schizophyllum commune* AND ITS BIOACTIVITIES
B_023_P	Dedi Kurniawan	THE IMPACT OF KUNINGAN BOTANICAL GARDEN MANAGEMENT ON SOCIO-ECONOMIC COMMUNITIES
B_024_P	Phornnuchcha Anurak	IDENTIFICATION OF LICHENS USING ARTIFICIAL INTELLIGENCE
B_025_P	Pacharaporn Suklai	BIOENGINEERED CORTICAL NEURONAL NETWORK - A STEM-CELL DERIVED NEURONAL ARRAY WITH DEFINED CIRCUITRY ARCHITECTURE TO RECREATE THE HUMAN CORTEX IN VITRO
B_026_P	Pakjira Rattanabunturng	THE ASSOCIATION OF CIRCADIAN RHYTHM AND DRUG SENSITIVITY IN PANCREATIC CANCER CELLS
B_027_P	Kanokphorn Sangkharak	ENGINEERING OF β-OXIDATION PATHWAY TO INCREASE POLYHYDROXYALKANOATE (PHA) PRODUCTION IN BACILLUS THERMOAMYLOVORANS
B_028_P	Sariya Asawakarn	THE EFFECT OF MONOSODIUM GLUTAMTE AND THE COMBINATION OF SODIUM TETRABORATE AND POTASSIUM NITRATE ON HUMAN LUNG CARCINOMA EPITHELIAL CELL VIABILITY
B_029_P	Sirilak Chumkiew	EVALUATION OF ANTI-CANCER PROPERTIES OF CRUDE EXTRACTS FROM THE PILUS OF THAI-ISOLATED BAMBOO MUSHROOM (*DICTYOPHORA SPP.*) ON THE HEPATOBLASTOMA CELL LINE (HEPG2)

ID	Presenter	Title
B_030_P	Cherlynn van Beem	CYTOTOXIC AND ANTIPROLIFERATIVE EFFECTS OF *Annona muricata* L. EXTRACTS ON HUMAN PROMYELOCYTIC LEUKEMIA (HL-60) AND HORMONE-DEPENDENT BREAST CARCINOMA (MCF-7) CELLS
B_031_P	Suthinee Onuam	SARATOPIA: A BOARD GAME FOR LEARNING ABOUT FOREST SUCCESSION AND SPECIES DIVERSITY IN SARABURI PROVINCE
B_032_P	Ratchata Chokwiwatkul	CHITIN-BASED BIOSTIMULANT EFFECT ON RICE PRODUCTIVITY, STARCH PROPERTIES PROTEIN CONTENT AND ANTIOXIDANT ACTIVITIES OF 'RD43' RICE CULTIVAR
B_033_P	Natsaran Saichana	IDENTIFICATION OF *Coffea arabica* L. VARIETIES USING START CODON TARGETED (SCoT) MARKERS
B_034_P	Indriani Ekasari	KUNINGAN BOTANICAL GARDEN AS AN EX-SITU CONSERVATION RESOURCE AND MINI SEED BANK FOR MOUNT CIREMAI VEGETATION, INDONESIA
B_035_P	Sakaoduoen Bunsangiam	CO-OCCURRENCE OF DI-(2-ETHYLHEXYL) PHTHALATE AND MICROPLASTICS IN AGRICULTURAL SOIL AND THEIR IMPACT ON BACTERIAL COMMUNITY AND DEGRADATION EFFICIENCY
B_036_P	Sinlapachat Pungpa	THE LAND COVER CHANGE AND ITS MODEL IN THE BANLAEM MANGROVE, NAKHON SI THAMMARAT, THAILAND
B_037_P	Piyamas Petcharoen	DETECTION OF TOUCH DNA ON SHOELACES
B_038_P	Theera Thurakit	OPTIMIZING BIOMASS AND LUTEIN PRODUCTION IN *Acutodesmus obliquus*: EFFECTS OF GROWTH MEDIA, CULTIVATION METHODS, AND ENVIRONMENTAL STRESSORS
B_039_P	Pattraporn Pukklay	DETERMINATION OF CAPE OF THAI PROPOLIS AND ITS PROOXIDANT AND ANTIOXIDANT ACTIVITIES
B_040_P	Dhammawit Haemanwichian	MATERNAL GENETIC HISTORY OF LOLOISH SPEAKING HILL-TRIBES IN NORTHERN THAILAND
B_041_P	Kanokkan Boonruang	QUERCETIN STIMULATES THE EXPRESSION OF DUAL SPECIFICITY PHOSPHATASE 5 THROUGH THE MODULATION OF SERUM RESPONSE FACTOR
B_042_P	Thanyaporn Tangjaroenchai	EFFCIENCY OF MEDIA ON GROWTH MYCELIUM OF *Phlebopus sp. IN VITRO*
B_043_P	Chantaka Wongdontri	IDENTIFYING THE TARGET-DIRECTED miRNA DEGRADATION AND THE POTENTIAL OF DECAYED miRNAs DURING WSSV INFECTION IN *P. vannamei*
B_044_P	Khwankhao Sinhaseni	ELEPHANT REHABILITATION BY NATIVE TREE SPECIES IN KUI BURI NATIONAL PARK

SESSION C - CHEMISTRY

ID	Presenter	Title
C_001_P	Banyai Sakuldejphaisarn	DETERMINATION OF IRON, MANGANESE, AND ZINC IN INCENSE SAMPLES BY FLAME-ATOMIC ABSORPTION SPECTROMETRY
C_002_P	Pijika Mool-Am-Kha	HYBRID ELECTROCATALYTIC NANOCOMPOSITE BASED ON BIOMASS-NANOCELLULOSE/CARBON BLACK/GOLD NANOPARTICLES FOR A PORTABLE ELECTROCHEMICAL SENSOR TOWARD DETERMINATION OF CHROMIUM(VI) IN CONSTRUCTION PRODUCT
C_003_P	Jakrin Lohanawakul	TRIPHENYL TETRAZOLIUM SALT-MEDIATED COLORIMETRIC DETECTION OF TRIAMCINOLONE ACETONIDE AND BETAMETHASONE 17-VALERATE
C_004_P	Tuangrat Senmad	DEVELOPMENT OF A SAMPLE PREPARATION METHOD FOR ANALYZING BISPHENOL A AND DERIVATIVES BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY WITH DIODE ARRAY DETECTION
C_005_P	Nanthicha Chodchoy	ULTRASENSITIVE FLUORESCENCE PROBE BASED ON MOLECULARLY IMPRINTED POLYMER COMPOSITED WITH CARBON DOTS FOR THE DETERMINATION OF ANTIBIOTIC
C_006_P	Tharinee Sridara	A PORTABLE SENSOR FOR SIMULTANEOUS DETERMINATION OF CADMIUM AND LEAD BASED ON BIOMASS-DERIVED CARBON COMPOSITES MODIFIED BISMUTH ELECTRODE
C_007_P	Yurino Yamasaki	EFFECT OF VANADIUM ADDITION ON TIN OXIDE GAS SENSOR FOR IMPROVED ACETONE DETECTION
C_008_P	Yuto Ohata	MECHANISTIC INVESTIGATION OF THE ACETONE DETECTION WITH Pt- ZnO SENSOR USING DRIFT SPECTROSCOPY
C_009_P	Sumonmarn Chaneam	MINIATURIZED COLORIMETER BASED ON A PAIR OF LED DEVICES: APPLICATION TO SEQUENTIAL INJECTION ANALYSIS OF COPPER ION WITH A NATURAL REAGENT
C_010_P	Voraluck Soasuab	A COLORIMETRIC DETECTION FOR MERCURY (II) BASED ON AMINOPHENYLBORONIC ACID FUNCTIONALIZED GOLD NANOPARTICLES.
C_011_P	Bophit Khamjanwong	DISPERSIVE LIQUID-LIQUID MICROEXTRACTION BASED ON SOLIDIFICATION OF FLOATING ORGANIC DROP FOR DETERMINATION OF LEAD(II) IN ENVIRONMENTAL SAMPLES BY FLAME ATOMIC ABSORPTION SPECTROMETRY
C_012_P	Watchara Kaewsuwan	ALTERNATIVE METHOD FOR SIMULTANIOUS DETECTION OF CURCUMIN AND ALPHA-MANGOSTIN WITH VARIABLE WAVELENGTH DETECTOR

ID	Presenter	Title
C_013_P	Natthida Keawsanit	DEVELOPMENT OF EXTRACTION FOR PARABENS USING MAGNETIC SORBENT BASED ON GRAPHENE OXIDE/C18/ALGINATE
C_014_P	Preenapa Saengaroon	ELECTROMEMBRANE EXTRACTION WITH FLAT SHEET MEMBRANE FOR DETERMINATION OF CHROMIUM(VI)
C_015_P	Supada Khonyoung	EVALUATION OF XANTHINE OXIDASE INHIBITORY ACTIVITY BY ELECTROCHEMICAL SENSOR BASED ON CARBON BLACK AND GRAPHENE OXIDE MODIFIED SCREEN-PRINTED CARBON ELECTRODE
C_016_P	Rawisara Rakwongthai	DEVELOPMENT OF CHITOSAN MOLECULARLY IMPRINTED POLYMER AS ADSORBENT FOR SELECTIVE EXTRACTION OF QUERCETIN
C_017_P	Phetlada Kunthadee	SIMPLE OXALATE-SELECTIVE NAKED-EYE AND SPECTROPHOTOMETRIC DETERMINATION BASED-ON ALUMINIUM-INDICATOR COMPLEX
C_018_P	Kanchana Watla-iad	SELECTING *Camellia sinensis* UTILIZING CHEMICAL PROFILE DATA
C_019_P	Jantima Upan	DEVELOPMENT OF A NOVEL ELECTROCHEMICAL IMMUNOSENSOR FOR DETECTION OF TILAPIA LAKE VIRUS
C_020_P	Linheng Pek	QUANTIFICATION OF SODIUM DITHIONITE IN BEAN SPROUTS FROM MARKETS LOCATED IN PHNOM PENH, CAMBODIA
C_021_P	Orawan Kritsunankul	REMOVAL OF REACTIVE NAVY-BLUE DYE IN SYNTHETIC SAMPLE USING A SIMPLE LABORATORY-SCALE ELECTROCOAGULATION SYSTEM
C_022_P	Watcharamon Jaichuen	EXTRACTION AND PRECONCENTRATION OF SYNTHETIC PHENOLIC ANTIOXIDANTS FROM WATER BASED ON ALGINATE ADSORBENT
C_023_P	Monpichar Srisa-Art	PAPER-BASED ANALYTICAL DEVICE FOR MONITORING MINOR MARKERS OF KIDNEY STONES
C_024_P	Jaroon Jakmunee	FLEXIBLE GOLD MICRONEEDLE LIKE NANO DENDRITES MODIFIED ELECTRODE AS SENSITIVE AND SELECTIVE DETECTION OF NITRITE IN FOOD SAMPLES
C_025_P	Wimonsiri Pongsawadan	DEVELOPMENT OF A COLORIMETRIC DETECTION FOR ARSENIC(III) BASED ON AN AGGREGATION OF GOLD NANOPARTICLES
C_026_P	Sirirat Phaisansuthichol	DETERMINATION OF GALLIC ACID AND RUTIN IN ZINGIBERACEAE USING HPLC
C_027_P	Phraepan Konsom	SINGLE CRYSTAL STRUCTURE AND PHOTOPHYSICAL PROPERTY OF $[Eu(bdc\text{-}SO_3)(DMF)(H_2O)_4]\cdot DMF\cdot H_2O$
C_028_P	Kona Sumi	LIGHT ENERGY STORAGE USING $CsPbBr_3$ NANOCRYSTALS COUPPLED WITH POLYOXOMETALATES FOR PHOTOCAPACITOR DEVICES
C_029_P	Shotaro Kubo	EVALUATION OF EtOH GAS DETECTION CHARACTORISTICS OF SnO_2 AND Pt-SnO_2

ID	Presenter	Title
C_030_P	Nattiya Khongkuea	HYDROGEN SULFIDE ADSORPTION IN BIOGAS BY WASTE FROM PALM OIL PROCESSING
C_031_P	Manikandan Palaniappan	FORMATION OF COBALT (II) COMPLEX N_4S_2 COORDINATES WITH SCHIFF BASE TYPE LIGAND AND ITS IMPREGNATED MCM 41 MATERIALS AS THE CATALYSTS FOR DEGRADATION OF METHYLENE BLUE DYE
C_032_P	Fuko Shiga	SELECTIVE COUPLING OF $CsPbBr_3$ QUANTUM DOTS AND CdS NANORODS BY CLICK REACTION
C_033_P	Emmanuel Idoko	ALKYLATED 4'-AMINOCHALCONE AS NEW α-GLUCOSIDASE INHIBITORS
C_034_P	Daorueang Auppachai	CHEMICAL MODIFICATION OF DIHYDROISOSTEVIOL
C_035_P	Can Pham	SYNTHESIS OF N-ALLYLANILINES VIA ALLYLIC AMINATION OF ALCOHOLS CATALYZED BY PHYTIC ACID
C_036_P	Wachiraya Pinthongnoi	SYNTHESIS AND BIOPHYSICAL PROPERTIES OF ZWITTERIONIC PYRROLIDINYL PEPTIDE NUCLEIC ACID
C_037_P	Lalita Radtanajiravong	AN EFFICIENT PHOSPHORUS-BASED ORGANOCATALYTIC SYSTEM FOR AMINATION REACTIONS OF ALCOHOLS
C_038_P	Weerin Wutthijarernkij	THE DEVELOPMENT OF ANTI-BREAST CANCER DRUGS BY USING POLYPHENOLS FROM BERGAMOTS WITH CELLULOSE NANOCRYSTAL FROM DURIAN PEELS FOR DRUG DELIVERY SYSTEMS
C_039_P	Natsumi Ota	OXIDATIVE COUPLING OF 2-NAPHTHOL USING IRON-COPPER COMPOSITE OXIDES AS SOLID CATALYST
C_040_P	Thanakorn Sitthasakul	SYNTHESIS OF BENZO[A]PHENAZINE DERIVATIVES AND THEIR SENSOR APPLICATIONS
C_041_P	Fayaz Ahmad	EXPLORING THE alpha-GLUCOSIDASE INHIBITORY ACTIVITY OF N-9 ALKYL HARMINE DERIVATIVES
C_042_P	Rojrit Rojanathanes	MINOXIDIL LOADED NANOPARTICLES
C_043_P	Phitchudaphorn Chulaphon	PHYTOCHEMICAL CONSTITUENTS FROM THE STEMS OF TILIACORA TRIANDRA
C_044_P	Kavisara Srithadindang	DEVELOPMENT OF NOVEL FLUORESCENT CHEMOSENSORS BASED ON THIAZOLINYL QUINOLINE DERIVATIVES FOR METAL ION DETECTION.
C_045_P	Patipat Kamdenlek	In silico SCREENING OF MOLECULAR INTERACTIONS OF PHYCOCYANIN FROM Spirulina platensis IN AN INHIBITING OF ANTI-INFLAMMATORY PATHWAYS
C_046_P	Huzaifa Ahmad	SYNTHESIS AND CHARACTERIZATION OF GREEN TEA-BASED DARK-COLORED MATERIALS
C_047_P	Ananya Panchuchird	FACILE EXTRACTION AND ANTIBACTERIAL EVALUATION OF ALKALOIDS FROM THAI RED VEIN KRATOM (*Mitragyna speciosa* Korth) FOR POTENTIAL COSMETIC AND MEDICINAL APPLICATIONS
C_048_P	Uthumporn Kankeaw	THE EXTRACTION OF THE BUDS AND CORE OF HAUYMON PINEAPPLE AND INCREASING THE STABILITY WITH ENCAPSULATION TECHNIQUE

ID	Presenter	Title
C_049_P	Mayuramas Wilai	DETERMINATION OF ANTIOXIDANT ACTIVITY AND DEVELOPMENT OF FACIAL SERUM FORMULA CONTAINING THE *Chrysanthemum indicum* L. AND *Chrysanthemum morifolium* Ramat. LOWERS FROM THAILAND
C_050_P	Wanpen Naklua	SYNTHESIS OF MOINUPIRAVIR IMPRINTED POLYMER
C_051_P	Bussabongkot Hoipetch	FABRICATION AND CHARACTERIZATIONS OF SILK FIBROIN/CALCIUM PHOSPHATE HYDROGEL FOR DENTAL FILLING MATERIAL
C_052_P	Ratwalee Liangmongkolkran	PREPARATION OF YELLOW LAKE FROM Gardenia FRUIT EXTRACT
C_053_P	Poomipat Tamdee	THE EFFECT OF AN AQUEOUS-ORGANIC MEDIUM ON PAPAIN-SUBSTRATE BINDING AND PAPAIN ACTIVITY: MOLECULAR DYNAMICS SIMULATIONS STUDY
C_054_P	Panita Kongsune	KINETICS AND ISOTHERM OF CRYSTAL VIOLET ADSORPTION USING ACTIVATED CARBON FROM COFFEE GROUNDS
C_055_P	Jitnapa Sirirak	APPLICATION OF SIAM RUBY QUEEN CORN EXTRACT AS INDICATOR IN BIODEGRADABLE ACID BASE INDICATOR FILM
C_056_P	Sarocha Lapate	DEVOLOPMENT OF NATURAL INDICATOR FILM BASED ON GELATIN INCORPORATED WITH ORCHID EXTRACT
C_057_P	Wigrom Yogboworn	MOLECULAR DYNAMICS ANALYSIS OF CORE PROTEIN ALLOSTERIC MODULATORS: INSIGHTS INTO HBCAG AND HBEAG INTERACTIONS FOR HEPATITIS B INHIBITION
C_058_P	Serin Jung	ENHANCED SELECTIVE PHOTOCATALYTIC OXIDATION OF 5-HYDROXYMETHYLFURFURAL TO 2,5-FURANDICARBOXYLIC ACID USING A TEMPO-FREE BiVO4/C ELECTRODE
C_059_P	Nuttapon Yodsin	THE IMPACT OF NITROGEN DOPING ON Pt CLUSTER-DECORATED CARBON NANOCONES FOR CO_2 HYDROGENATION TO FORMIC ACID: A DFT STUDY
C_060_P	Rachanon Thiratrakulchai	DESIGNED A SERIES OF NEW COMPOUNDS OF ACETANILINDE DERIVATIVES WITH INHIBITION OF TOPOISOMERASE I AND II OF BREAST CANCER CELL

SESSION D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI

ID	Presenter	Title
D_001_P	Peempol Chokchaipermpoonphol	COMPARATIVE PERFORMANCE OF TRADITIONAL AND VISION TRANSFORMER MODELS IN MONONUCLEAR CELL CLASSIFICATION
D_002_P	Nita Jongkraijak	QUANTUM-ENHANCED DEEP LEARNING FOR PREDICTING PCSK9/NARC-1 INHIBITOR BIOACTIVITY: A NOVEL APPROACH TOWARDS CORONARY ARTERY DISEASE THERAPY
D_003_P	Supanut Chaidee	THE GEOMETRIC ALGORITHM FOR IDENTIFYING THE CORNERS OF CONVEX BODIES COMPOSED BY CIRCULAR ARCS
D_004_P	Panunya Sungkaew	PREDICTING CHRONIC INSOMNIA USING LSTM TECHNIQUE OF MACHINE LEARNING
D_005_P	Punyapat Pumma	THE DEVELOPMENT OF FAILED PRINT DETECTION SYSTEM IN 3D PRINTER
D_006_P	Thunphitcha Koikim	GEODESICS ON THE RANDERS CYLINDER OF REVOLUTION OF NON-CONSTANT NAVIGATION DATA ALONG MERIDIAN
D_007_P	khonkaraponpan rodpangwan	PREDICTING BOAT MOVEMENT IN WINDY CONDITIONS THROUGH VECTOR FIELD ANALYSIS
D_008_P	Kanokwan Saeoueng	THE CENTER COLORING OF CORONA PRODUCT OF CYCLES AND PATHS
D_009_P	Ploypailin Komtui	CARIES DETECTION IN PRIMARY TEETH USING A DEEP LEARNING-BASED CONVOLUTIONAL NEURAL NETWORK
D_010_P	Nawarat Jitaksorn	ODD GRACEFUL LABELING OF VERTEX DUPLICATION IN PATH GRAPHS
D_011_P	Perawit Boonsomchua	GENERALIZATION EQUILIBRIUM MASS POINT DISTRIBUTION IN STRUCTURALLY FRACTAL CONFIGURATIONS
D_012_P	Nattapat Ueapitak	DEVELOPMENT OF AN INTELLIGENT TEMPERATURE CONTROL SYSTEM BASED ON POPULATION DENSITY IN THE AREA
D_013_P	Kavisara Jivarut	SIMULATION OF CONSTELLATION DEPLOYMENT USING PARAMETRIC REGRESSION IN CELESTIAL HEMISPHERE
D_014_P	Porpach Phumsuwan	SOME PROPERTIES OF GEODESICS ON MINIMAL SURFACES
D_015_P	Virakarn Boonfahpratan	MACHINE LEARNING FOR IDENTIFICATION OF DNA METHYLATION BIOMARKERS FOR EARLY-STAGE LUNG CANCER DETECTION AND SUBTYPES CLASSIFICATION
D_016_P	Tipok Saemram	DEVELOPMENT OF A WEB APPLICATION FOR ASSESSING INJURY RISK IN RUNNING USING POSTURE AND MOTION ANALYSIS

SESSION E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY

ID	Presenter	Title
E_001_P	Kyung Suh Kim	SYNTHESIS OF g-C_3N_4-BASED PHOTOCATALYST WITH ENHANCED PHOTO CATALYTIC PERFORMANCE AND THEIR APPLICATION TO PHOTOELECTROCHEMICAL WATER SPLITTIING
E_002_P	Eun-Young Choi	COMPARATIVE ANALYSIS OF SULFUR DIOXIDE ADSORPTION USING PROMINENT MOFS AND MOF/ZEOLITE COMPOSITES FOR ACID RAIN MITIGATION
E_003_P	Thitiphan Chimsook	PHYSICAL AND CHEMICAL PROPERTIES OF POTASSIUM SOAP LUBRICANTS SYNTHESIZED FROM VEGETABLE OILS OR OLEIC ACID FOR APPLICATION ON CONVEYOR BELT SYSTEMS
E_004_P	Tunsuda Suparanon	THE PREPARATION OF GREEN POLYLACTIDE FOAMS: EFFECT OF ENVIRONMENTALLY FRIENDLY FOAMING AGENTS
E_005_P	Paphada Pathomnatikul	SYNTHESIS OF MAGNETIC-Ag/BIOCHAR COMPOSITE DERIVED FROM CORN HUSK AND THEIR ANTIBACTERIAL ACTIVITY AGAINST Escherichia coli
E_006_P	Geon Hyeong Park	Ag-Cu CATALYSTS FOR THE EFFICIENT ELECTROCHEMICAL CONVERSION OF HMF TO BHMF
E_007_P	Sutthipong Taweelarp	HYDROGEOCHEMICAL CHARACTERIZATION AND SALINITY PROCESSES IN GROUNDWATER OF KHOK SI SUBDISTRICT, KHON KAEN PROVINCE, THAILAND
E_008_P	Suphakchayaporn Tajai	THE EVALUATING ECONOMIC, MEDICINAL, AND ENVIRONMENTAL BENEFITS OF MALABAR SPINACH EXTRACTS
E_009_P	Korawith Pimta	INFLUENCE OF HYDROTHERMAL SYNTHESIS CONDITION ON PHYSICAL CHARACTERIZATION AND ELECTROCHEMICAL PROPERTIES OF BRONZE-PHASE TITANIUM DIOXIDE AS FAST-CHARGING ANODE MATERIALS IN LITHIUM-ION BATTERIES
E_010_P	Saowapa Chotisuwan	PREPARATION OF PATTANI CLAY CERAMSITE CONTANING FLY ASH FROM BIOMASS POWER PLANT AND PORE-FORMING REAGENTS
E_011_P	Sopon Butcha	GREEN SYNTHESIS OF SiO_2/C COMPOSITES DERIVED FROM RICE STRAW AS HIGH-PERFORMANCE ANODES FOR LITHIUM-ION BATTERIES
E_012_P	Preecha Kasikamphaiboon	AMINE-SURFACE-MODIFIED MgO AS AN ADSORBENT FOR CO2 REMOVAL FROM BIOGAS

ID	Presenter	Title
E_013_P	Vimoltip Singtuen	GEOLOGICAL CHARACTERISTICS OF THE KAENG KHUT KHU RAPID AT CHIANG KHAN, LOEI PROVINCE: GEOHERITAGE SIGNIFICANCE IN THE GREATER MEKONG RIVER BASIN
E_014_P	Vimoltip Singtuen	GEOLOGICAL FEATURES INFLUENCING THE DISTRIBUTION OF METALLURGICAL SLAGS IN BAN WANG HAT, SUKHOTHAI PROVINCE: IMPLICATIONS FOR A SIGNIFICANT IRON ORE DEPOSIT
E_015_P	Chalita Masung	FABRICATION AND CHARACTERIZATION OF ALGINATE - GELATIN INTERPENETRATION HYDROGEL IN APPLICATION FOR CARTILAGE TISSUE ENGINEERING
E_016_P	Prima Pipatnarapong	PHYTOEXTRACTION AND PHYTOSTABILIZATION POTENTIAL OF COPPER BY *Neptunia plena* (L.) Benth
E_017_P	Jaturon Kumchompoo	SYNTHESIS AND OPTIMIZATION OF PHASE-PURE $NaCoPO_4$ FOR ENHANCED ELECTROCHEMICAL PERFORMANCE AS A CATHODE MATERIAL IN SODIUM-ION BATTERIES
E_018_P	Sureemas Meksawangwong	A STUDY ON THE POTENTIAL OF GREEN MUSSEL AND COCKLE SHELLS AS SUSTAINABLE ALTERNATIVES FOR RAW MATERIALS IN CERAMIC GLAZE PRODUCTION
E_019_P	Taewoong Lee	RATIONAL DESIGN OF MAGNESIUM SILICATE-BASED NANOCOMPOSITES TO ENHANCE ELECTROCHEMICAL EFFECTS FOR HYBRID CAPACITOR
E_020_P	Thanakorn Lowasri	RECOVERY OF ALUMINIUM FROM LAMINATED PLASTIC USING SINGLE SCREW PYROLYZER
E_021_P	Supandee Maneelok	INVESTIGATION OF OXYGEN EVOLUTION REACTION USING A CODOPED Ir/ Sb-SnO_2 AS ELECTROCATALYTIC ELECTRODES MATERIALS
E_022_P	Marina Mani	MODELS FOR ESTIMATING MONTHLY AVERAGE DAILY GLOBAL SOLAR RADIATION FROM AIR TEMPERATURE: CASE STUDY SONGKHLA PROVINCE THAILAND
E_023_P	Ga Eul Seo	INVESTIGATION OF THE ELECTROCATALYTIC INTERFACE BETWEEN FUNCTIONALIZED $Ti_3C_2T_x$ and Pt NANOPARTICLES FOR ENHANCED HYDROGEN EVOLUTION
E_024_P	Naphattra Pripwai	REMOVAL OF DIESEL OIL FROM WATER USING MAGNETIC BIOCHAR DERIVED FROM LONGAN PEEL AS ADSORBENT
E_025_P	Dibyendu Dutta	TAILORING ANION COMPOSITION IN COPPER-BASED LEAD-FREE HALIDE PEROVSKITES FOR ENHANCED PHOTO ELECTROCATALYTIC PERFORMANCE
E_026_P	Sorawat Siangpipop	AN EARTHQUAKE PRECUSORY SIGN FROM GROUNDWATER LEVEL FLUCTUATION OF A DISTRICT IN CHIANG MAI PROVINCE, THAILAND
E_027_P	Atchawadee Panchakeaw	MAGNETICALLY SEPARABLE ZnO/Fe_3O_4 BINARY PHOTOCATALYST FOR COMPLETE DEGRADATION OF TETRACYCLINE ANTIBIOTIC IN WASTEWATER

ID	Presenter	Title
E_028_P	Anawat Pinisakul	ADSORPTION OF CHROMIUM BY ACID-MODIFIED DRAGON FRUIT PEEL
E_029_P	Natchanan Doungkaew	QUANTIFYING CLUSTERING AND SPATIAL DISTRIBUTION OF FRACTURES IN DOI SUTHEP WATERFALLS: A METHODOLOGICAL APPROACH USING NORMALIZED CORRELATION COUNT
E_030_P	Sophacha Sugkachiradej	POTASSIUM SUPPORTED RICE HUSK SILICA AS LOW-COST SOLID BASIC HETEROGENEOUS CATALYST FOR SYNTHESIS OF DIBENZYLIDENEACETONE
E_031_P	Sathit Kanthata	MECHANICAL PROPERTY PREDITION OF SEDIMENTARY ROCKS FROM ULTRASONIC VELOCETY IN MAE TAENG - MAE NGAT DAM - MAE KUANG DAM WATER TUNNEL AREA
E_032_P	Nattaya Tawichai	PHASE TRANSITION AND MECHANICAL PROPERTIES OF CALCINED FLUE GAS DESULFURIZATION (FGD) WASTE AS A POTENTIAL SUBSTITUTE FOR NATURAL CALCIUM SULFATE SUBHYDRATE
E_033_P	HanSu Kim	SYNERGISTIC EFFECT OF $NICoO_x$ AND FUNCTIONALIZED MXENE FOR HIGH-PERFORMANCE SUPERCAPACITORS
E_034_P	Risa Fukuda	CONVERSION OF GALACTOSE TO 5-HMF IN SUBCRITICAL WATER INTENSIFIED USING MICROWAVE-CARBOCATALYSIS
E_035_P	Pansa Nantawiang	INVESTIGATION OF STRUCTURAL, OPTICAL, ELECTRICAL AND THERMOELECTRIC PROPERTIES OF Bi_2Te_3 DOPED WITH SbCl3 THIN FILMS
E_036_P	Sarawut Prasertsri	DEVELOPMENT OF ECOFRIENDLY LIQUID SPRAYABLE MULCH FILMS BASED ON CASAVA STARCH/NATURAL RUBBER LATEX BLENDS CONTAINING RICE HUSK POWDER
E_037_P	Kanyarat Kwansirikul	EXPERIMENTAL HEAT TREATING OF GREEN TO YELLOW APATITE FROM MADAGASCAR
E_038_P	Kanyarat Kwansirikul	EXPERIMENTAL HEAT TREATING OF AMETHYST FROM BRAZIL
E_039_P	Sattra Nonthing	METALLIC SILVER-DECORATED ON ZnO/Fe_3O_4 PHOTOCATALYST FOR DETOXIFICATION OF ANTIBIOTICS AND DYES IN AQUEOUS SOLOUTION
E_040_P	Kim Young Soo	BOOSTED ELECTROCHEMICAL PERFORMANCE OF HIGH-ENERGY LITHIUM-SULFUR BATTERIES USING SYNTHESIZED MXENE AND CARBON NITRIDE
E_041_P	Emily Kettunen	STUDY OF THE OPTIMAL CONDITIONS FOR ALCOHOL FERMENTATION FROM TROPICAL CARPET GRASS (*Axonopus compressus*)
E_042_P	Buntoon Wiengmoon	THE STUDY OF MISMATCHED STRINGS IN A PV MODULE
E_043_P	Waraporn Cheunsuwan	DYEING IMPROVEMENT AND UV PROTECTION PROPERTIES OF SAPPAN HEARTWOOD DYED COTTON USING CHITOSAN/NANOZINC OXIDE COMPOSITE

ID	Presenter	Title
E_044_P	Burapha Phajuy	METAMORPHOSED CALCAREOUS MUDSTONE INDUCED BY SHALLOW INTRUSIONS IN THE CHUN AREA, PHAYAO PROVINCE
E_045_P	Patcharin Jundee	THE PETROCHEMISTRY OF MAE CHAN IGNEOUS ROCK, EAST MAE CHAN, CHIANG RAI, THAILAND
E_046_P	Ganyaporn Wongwaen	SYNTHESIS OF S-DOPED CARBON DOTS FOR PHOTOCATALYTIC DEGRADATION OF DYE
E_047_P	Wimon Sukplum	AN EXPERIMENT ON THE MECHANICAL PROPERTIES OF THE CIRCULAR HOLE ROCK UNDER ANISOTROPY CONDITIONS
E_048_P	Ampika Rachakom	MATERIALS STUDY OF LOCAL CLAY TILE IN MAE HIA SUBDISTRICT, CHIANG MAI PROVINCE
E_049_P	Boontarika Srithai	ALTERATION STYLE OF PITCHSTONE FROM BAN HUAI DEE LERT, TAMBON HUAI HIN, CHAI BADAN DISTRICT, LOP BURI
E_050_P	Toma Kiyozawa	PRODUCTION OF DEUTERIUM GAS FROM HEAVY WATER BY USING MIXED CONDUCTIVE GRAPHENE OXIDE MEMBRANE REACTOR
E_051_P	Ittipat Lohalaksnadech	THE DEVELOPMENT OF IOT FOR AUTOMATIC CAT FOOD FEEDER USING HYBRID ENERGY
E_052_P	Pranee Junlar	FABRICATIONS OF BROWN CERAMIC PIGMENT USING LEATHER BUFFING DUST FROM TANNERY INDUSTRY
E_053_P	Jakkree Boonlakhorn	ENHANCING TEMPERATURE STABILITY OF DIELECTRIC PERMITTIVITY AND REDUCING LOSS TANGENT IN Ni2+-DOPED CCTO CERAMICS
E_054_P	saad riyajan	ENHANCED PROPERTIES OF MULTISCALE RICE HUSK FIBER SHEET WITH BY USING THE CASSAVA STARCH/NATURAL BLEND
E_055_P	Bhornrat Chaimongkol	ANTIMICROBIAL CERAMIC GLAZE WITH SILVER-CLAY ANTIMICROBIAL AGENT FOR SPA AND ALTERNATIVE MEDICINE EQUIPMENT
E_056_P	Duangkhae Srikun	MICROWAVE-SYNTHESIZED Cu-Zn(BDC)-MOF: AN EFFICIENT CATALYST FOR DYE DEGRADATION
E_057_P	Bannarat Jaroendee	HYDROGEN PRODUCTION FROM CO_2 GASIFICATION OF BIOCHAR USING $CaCO_3$ INCORPORATED WITH CATALYTIC WATER-GAS SHIFT REACTION
E_058_P	Yupa Thasod	THE POTENTIAL OF THE BUATONG WATERFALL - CHET SRI FOUNTAIN NATIONAL PARK, CHIANG MAI, THAILAND FOR GEOTURISM
E_059_P	Suneeporn Pokaew	DEVELOPMENT OF POROUS CORDIERITE-BASED MOLD FOR GLASS SLUMPING PROCESS FROM INDUSTRIAL WASTE
E_060_P	Chidchanok Meechaisue	ELECTROSPUN CELLULOSE ACETATE FIBERS CONTAINING CHALCONE CRUDE EXTRACT
E_061_P	Pornthip Tongying	MAGNETIC Fe_3O_4/Cu_2ZnSnS_4 COMPOSITE: ENHANCED ADSORPTION AND RECYCLABILITY IN DYE REMOVAL APPLICATIONS

ID	Presenter	Title
E_062_P	Pranee Nuinu	EFFECTS OF WHITE CHARCOAL ON PROPERTIES OF NATURAL RUBBER FOAM BEADS FOR ABSORBENT ETHYLENE TO DELAY THE RIPENING HOM THONG BANANA
E_063_P	Amporn Wiengmoon	THE RELATIONSHIP BETWEEN MICROSTRUCTURE AND EROSION-CORROSION BEHAVIOR OF HIGH CHROMIUM CAST IRONS
E_064_P	Sumarno Sumarno	REHABILITATION OF CRITICAL LAND BEFORE

SESSION F - FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE

ID	Presenter	Title
F_001_P	Benjamat Phosing	EFFECTS OF NATURAL FIBER WASTE AND COMMERCIAL FIBER ON THE PROPERTIES OF STARCH-BASED BIOPLASTICS
F_002_P	Plaipol Dedivisitsakul	EVALUATION OF BIOACTIVE PROPERTIES OF RICE LEAF INFUSIONS FROM INDIGENOUS THAI BLACK RICE VARIETIES FOR POTENTIAL DIABETES MANAGEMENT
F_003_P	Montita Kamwisaet	CHEMICAL COMPOSITION AND IN VITRO ANTIOXIDANT PROPERTES OF LOW-GRADE FRESH CACAO FRUIT (*Theobroma cacao* L.)
F_004_P	Suree Nanasombat	ANTIOXIDANT ACTIVITY OF FOOD PLANTS AND APPLICATION IN SOY-BASED PROBIOTIC BEVERAGES
F_005_P	Patchanee Petrat	ANTIOXIDANT ACTIVITIES OF BIOCALCIUM CAPSULES FROM THREADFIN BREAM BONES (*Nemipterus hexodon*): EFFECT OF PACKING CONDITIONS DURING A LONG TERM SRORAGE
F_006_P	Ekawit Threenet	SCREENING OF PROTEOMICS COMPARISION ON FLOWER HONEY PRODUCTS BY USING SDS-PAGE ANALYSIS COMBINED WITH LC-MS
F_007_P	Sappasith Klomklao	PRODUCTION OF BIODIESEL USING OIL AND LIPASE FROM NILE TILAPIA (*Oreochromis niloticus*) VISCERA AS AN ALTERNATIVE SUBSTRATE AND CATALYST
F_008_P	panatda machaui	CHEMICAL COMPOSITION AND PHYSICOCHEMICAL AND SENSORY CHARACTERISTICS OF KOMBUCHA FROM TORCH GINGER
F_009_P	Thawalrat Ratanadachanakin	TOTAL PHENOLIC CONTENT OF NAM PRIK TA-DAENG MADE WITH *Hibiscus sabdariffa* L. AND Piper retrofractum Vahl.
F_010_P	Pimsiri Danphitsanuparn	FORMULATING AND ENHANCING THE PALATABILITY OF BANANA FLOUR-BASED CHEWY HEALTHY SNACK

ID	Presenter	Title
F_011_P	Orn neath	EFFECT OF TEMPERATURE AND STORAGE DURATION ON VITAMIN C CONTENT IN PURSAT ORANGE JUICE (*Citrus sinensis* (L.) Osbeck)
F_012_P	Thanwa Srinoi	DEVELOPMENT OF MEAT SPOILAGE REAL-TIME SENSOR USING ORGANIC FLUORESCENT COMPOUNDS
F_013_P	Werawich Pattarayingsakul	IMPACT OF THE ADDITION OF *Wolffia globosa* ON PHYSIOCHEMICAL PROPERTIES OF EXTRUDE PRODUCT BASED ON CORN GRITS
F_014_P	Kanokphorn Sangkharak	UTILIZTION OF POLYHYDROXYALKANOATE AS GROWTH STIMULATOR AND NITROGEN CONTROL IN AQUACULTURE TANK
F_015_P	Sitthisak Intarasit	ENHANCEMENT OF ANTIOXIDANT DEFENSE SYSTEM IN POSTHARVEST LONGAN FRUIT BY GASEOUS SO_2 AND ClO_2 FUMIGATION: ROLES OF ATP AND MAPK CASCADE
F_016_P	Thanat Panyafong	EFFECT OF FERMENTED SOYBEAN POWDER ON METABOLIC CHANGES IN HIGH FAT DIET-TREATED RATS
F_017_P	Jutamas Trongnit	COMPARATIVE STUDY OF PROPERTIES OF STARCH FOAM WITH BEESWAX AND ALGINATE COATINGS
F_018_P	Anakhaorn Srisaipech	TEA PRODUCTION FROM YOUNG LEAF OF SAN PA TONG RICE VARIETY AND EVALUATON OF THE PHYTOCHEMICAL CONSTITUENTS AND ANTIOXIDATION ACTIVITIES

SP2 - BIOMATERIALS AND MEDICAL DEVICES

ID	Presenter	Title
SP2_001_P	Parkpoom Jarupoom	ENHANCED MECHANICAL, ELECTRICAL, AND IN-VITRO APATITE-FORMING ABILITY OF THE NANO-HYDROXYAPATITE BIOCERAMICS VIA $Bi_{0.50}(Na_{0.80}K_{0.20})_{0.5}TiO_3$ ADDING
SP2_002_P	Thannaphat Jenvoraphot	POLY(L-LACTIDE-CO-GLYCOLIDE)/ POLY(ETHYLENE OXIDE) PERIODONTAL MEMBRANE: SURFACE MORPHOLOGY, HYDROPHILICITY AND MECHANICAL PROPERTIES
SP2_003_P	Montira Sriyai	ADVANCEMENT OF BIODEGRADABLE MONOFILAMENT SUTURE WITH ANTIMICROBIAL COATING BASED ON MEDICAL-GRADE POLY(LACTIDE-CO-CAPROLACTONE) COPOLYMER
SP2_004_P	Tanyaluck Mekpothi	SYNTHESIS AND CHARACTERIZATION OF PCL/TNPP FOR MEDICAL APPLICATIONS: A STUDY OF STRUCTURE, MOLECULAR WEIGHT AND THERMAL PROPERTIES

ID	Presenter	Title
SP2_005_P	Naiyana Phonpituk	ANTIBACTERIAL EFFECTS AND BIOFILM FORMATION INHIBITION OF *Streptococcus mutans* BY *Clerodendrum indicum* ROOT EXTRACT
SP2_006_P	Phakpoom Jeeauy	EVALUAING THE In vitro CYTOTOXICITY AND RESPONSE OF TITANIUM-TANTALUM NITRIDING (TiTaN) THIN FILM USING MACROPHAGES CELLS

SP4 - CHALLENGES AND OPPORTUNITIES IN CLIMATE AND ENVIRONMENTAL CHANGES

ID	Presenter	Title
SP4_001_P	Htet Sint Pine	FROM SANCTUARY TO STRIFE: THE UNINTENDED CLIMATE CONSEQUENCES OF CHRONIC CRISIS-DRIVEN FOREST INHABITANTS
SP4_002_P	Sadanon Jaisaksern	INFLUENCE OF ATMOSPHERIC VENTILATION ON PM2.5 CONCENTRATIONS DURING THE BIOMASS BURNING SEASON IN CHIANG MAI
SP4_003_P	Zuheng Sun	COMPARATIVE STUDY OF AMBIENT NITROGEN DIOXIDE PASSIVE SAMPLING METHODS IN CHIANG MAI USING SPECTROPHOTOMETER AND MICROPLATE READER
SP4_004_P	Soknea Seakleang	MICROPLASTIC POLLUTION - A TREAT TO HUMAN HEALTH: WHAT CAN CAMBODIA DO?
SP4_005_P	Pattira Mokthong	ASSESSING THE ROLE OF BROWN CARBON IN PM2.5 LIGHT ABSORPTION FROM BIOMASS BURNING EMISSIONS IN CHIANG MAI, THAILAND
SP4_006_P	Sasipat Deemak	COMPARATIVE HEALTH RISK ANALYSIS OF VOLATILE ORGANIC COMPOUNDS IN DIFFERENT INDOOR ENVIRONMENTS

SP7 - CEMENT AND CONCRETE: SCIENCE, TECHNOLOGY AND APPLICATIONS TOWARDS GREEN AND SUSTAINABLE FUTURE

ID	Presenter	Title
SP7_001_P	Jaroon Junsomboon	DEVELOPMENT OF DRY PREMIXED CONCRETE FOR MARINE ENVIRONMENT PRODUCTS TO ENHANCE RESISTANCE TO CHLORIDE PENETRATION
SP7_002_P	Chanikarn Kumprom	SYNTHESIS OF GEOPOLYMER COMPOSITE MATERIALS USING CLAY-LIGNITE BOTTOM ASH MIX
SP7_003_P	Sutthima Sriprasertsuk	DEVELOPMENT OF LIGHTWEIGHT AND THERMAL INSULATION MATERIAL BASED ON AGRO-INDUSTRIAL WASTE

SP8 - THE SCIENCE OF RESTORING TROPICAL FOREST ECOSYSTEMS: 30 YEARS OF PROGRESS AND BEYOND

ID	Presenter	Title
SP8_001_P	Rattanamon Aisow	EXAMINING HOW FUNCTIONAL TRAITS OF NINE NATIVE DECIDUOUS TREE SPECIES IMPACT SEEDLING SURVIVAL IN RESTORATION PLOTS
SP8_002_P	Khuanphirom Naruangsri	SEED STORAGE BEHAVIOR OF FOURTEEN INDIGENOUS FOREST TREE SPECIES OF NORTHERN THAILAND
SP8_003_P	Worayut Takaew	MULTI-SPECTRAL UAVS FOR SEASONAL NDVI ASSESSMENT IN FOREST RESTORATION PLOTS
SP8_004_P	Aulia Widjaya	SEEDLING SURVIVORSHIPS OF SELECTED SPECIES USED FOR RESTORATION RESEARCH MAINTAINED IN KUNINGAN BOTANICAL GARDEN NURSERY
SP8_005_P	Indriani Ekasari	CONSERVING SEED OF NATIVE SPECIES OF MOUNT CIREMAI AND SURROUNDING AREAS IN BOGOR SEED BANK, INDONESIA: THE CURRENT STATUS OF SEED COLLECTIONS
SP8_006_P	Chakriya Sansupa	RESPONSE OF SOIL MYCOBIOME IN YOUNG FOREST RESTORATION PLOTS, NORTHERN THAILAND
SP8_007_P	Waiprach Suwannarat	REJUVENATING TREE STRUCTURE IN RELATION TO LiDAR-DETECTED STRUCTURAL COMPLEXITY IN AGING AGRICULTURAL LANDSCAPES

ID	Presenter	Title
SP8_008_P	Thanakorn Lattirasuvan	FOREST STRUCTURE AND CARBON STOCK ASSESSMENT IN REMNANT FOREST AND 8-YEARS-OLD RESTORED FOREST AT BAN BOON CHAEM, NAM LAO SUBDISTRICT, RONG KWANG DISTRICT, PHRAE PROVINCE
SP8_009_P	Clare Callow	THE GLOBAL TREE SEED BANK: UNLOCKED
SP8_010_P	Kunnaree Pakkad	THE EFFECTS OF SEED STORAGE CONDITIONS ON THE GERMINATION PERFORMANCE OF NATIVE TREE SPECIES IN NORTHERN THAILAND
SP8_011_P	Dian Latifah	VEGETATION RAPID ASSESMENT: PREPARATION OF RESTORATION IN MOUNT CIREMAI NATIONAL PARK
SP8_012_P	Dian Latifah	MONTANE FORESTS IN MOUNT CIREMAI ARE BETTER ECOSYSTEM REFERENCE FOR RESTORATION

SP11 - X-RAY CRYSTALLOGRAPHY

ID	Presenter	Title
SP11_001_P	Pacharapon Jearanaiwiwat	UNPRECEDENTED STRUCTURAL CHEMISTRY OF A 3D ERBIUM(III)-ORGANIC FRAMEWORK
SP11_002_P	Chompunuch Bunfrueang	STUDY OF CRYSTAL STRUCTURE AND HIRSHFELD SURFACE ANALYSIS OF DINUCLEAR COPPER(II) COMPLEX CONTAINING 1,10-PHENANTHROLINE AND 2-HYDROXYBENZOATE LIGANDS
SP11_003_P	Chanikarn Kummuang	A NEW ZINC(II) COORDINATION POLYMER CONSTRUCTED FROM 1,4-BIS((1-H-IMIDAZOLE-1YL)METHYL)BENZENE:SYNTHESIS,CHARACTERIZATION, CRYSTAL STRUCTURES AND ANIONIC EXCHANGE PROPERTIES
SP11_004_P	Patticha phakeephol	CRYSTAL STRUCTURE OF A NEW CADMIUM(II) COORDINATION POLYMER CONTAINING BENZIMIDAZOLE AND DICYANOARGENTATE(I)
SP11_005_P	Jannarong Ngoensri	A CHIRAL HYDROGEN-BONDED ORGANIC FRAMEWORK ASSEMBLED FROM LANNOSTANE TRITERPENE NATURAL PRODUCT
SP11_006_P	Parattakorn Boonlert	CATALYIC INVESTIGATION OF CARBON DIOXIDE CHEMICAL FIXIATION IN A COPPER(II)-SQUARATE MOF
SP11_007_P	Kittipong Chainok	ASSEMBLED OF 3D RARE EARTH-BROMOTEREPHTHALATE FRAMEWORKS WITH STP TOPOLOGY
SP11_008_P	Kritmethi Chaiyachokmongkon	MOLECULAR CRYSTALS: METALLOCYCLE VERSUS ORGANOCYCLES
SP11_009_P	Kanthida Kummoon	CRYSTAL STRUCTURE OF 3D RARE-EARTH MOFs CONTAINING OXALATE AND FORMATE MIXED LINKERS

ID	Presenter	Title
SP11_010_P	Laddawan phrukschatkul	CRYSTAL STRUCTURE, AND CO_2 ADSORPTION IN A 3D ErIII/LiI BIMETALLIC COORDINATION POLYMER
SP11_011_P	Kunlanit Chinchan	STRUCTURE FEATURES OF ISOSTRUCTURAL HETEROMETALLIC ANIONIC METAL-ORGANIC FRAMEWORKS
SP11_012_P	Hafawatee Khaosa-ard	STRUCTURAL FEATURES OF LANTHANIDE METAL COORDINATION POLYMER BASED ON CHLORANILIC ACID LIGAND

SP12 - RADIOECOLOGY AND ENVIRONMENTAL RADIOACTIVITY

ID	Presenter	Title
SP12_001_P	Murnee Daoh	RADIOACTIVITY DETERMINATION OF ^{137}Cs ^{226}Ra, AND ^{232}Th IN BEACH SHE-OAK BARK SAMPLES COLLECTED FROM THAILAND'S COASTAL REGIONS
SP12_002_P	Wutthikrai Kulsawat	CARBON ISOTOPIC SIGNATURES TRACING OF ORGANIC MATTER SOURCES IN THE THUNGKHA BAY
SP12_003_P	Komrit Wattanavatee	ACTIVITY CONCENTRATION OF NATURAL RADIONUCLIDES (^{40}K, ^{226}Ra and ^{232}Th) IN BEACH SAND AND ROCK SAMPLES COLLECTED AROUND THE BREAKWATERS LOCATED ALONG COASTAL AREAS, SONGKHLA PROVINCE, SOUTHERN THAILAND
SP12_004_P	Natchakan Nakkaew	DETERMINATION OF LOW-LEVEL STRONTIUM-90 IN ECONOMIC MARINE SPECIES VIA CHERENKOV COUNTING
SP12_005_P	Phatchada Nochit	IMPACT ASSESSMENT OF SEA-LEVEL RISE ON MANGROVE SPECIES USING STABLE CARBON ISOTOPE TECHNIQUE

SP13 - HARNESSING DIGITAL SCIENCE AND ENGINEERING FOR ENVIRONMENTAL SUSTAINABILITY

ID	Presenter	Title
SP13_001_P	Kanchana Phianchana	DEVELOPMENT OF AMINE-MODIFIED NaY ZEOLITES FROM RICE HUSK WASTE FOR EFFICIENT DIRECT AIR CO_2 CAPTURE
SP13_002_P	Paka-on Amornsin	EXPLORING MICROWAVE-ASSISTED ZEOLITE 13X REGENERATION FOR EFFECTIVE DIRECT AIR CO_2 CAPTURE
SP13_003_P	Petpitcha Boonmatoon	ENHANCED CO_2 CAPTURE PERFORMANCE USING METHYL DIETHANOLAMINE-FUNCTIONALIZED SILICA GELS: ASSESSING CO_2 CAPTURE CAPACITY
SP13_004_P	Krittin Korkerd	STATISTICAL STUDY TO OPTIMIZE BIOGAS PRODUCTION FROM WASTEWATER TREATMENT USING ANAEROBIC DIGESTION
SP13_005_P	Varudom Siri	MODELING INDUSTRIAL SCALE BUBBLING FLUIDIZED BED BOILER WITH BIOGAS COMBUSTION INVESTIGATION FOR REDUCE BIOMASS USAGE
SP13_006_P	Phongpapop Kitisomkiat	STUDY OF SOLAR COLLECTOR POTENTIAL IN THAILAND USING COMPUTATIONAL FLUID DYNAMICS APPROACH

SP15 - YOUNG RISING STARS OF SCIENCE 2024 (YRSS) & JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2024 (JYRSS)

YOUNG RISING STARS OF SCIENCE 2024 (YRSS)

ID	Name of Students	Senior Project's Title
Bio-01	Tanapol Anyong	BIOLOGICAL CONTROL OF *Phytophthora* sp. V19 CAUSING BLACK ROT OF *Vanda* USING *Bacillus* spp. AND *Streptomyces* spp.
Bio-02	Krittaporn Thungmuthaswade	*Saccharomyces cerevisiae* STRAIN DEVELOPMENT TO ENHANCE ISOAMYL ALCOHOL PRODUCTION AND APPLY IN FERMENTATION INDUSTRIES
Bio-03	Kanadit Piriyapairoje	CRITICAL ROLES OF N-LINKED GLYCOSYLATION IN LIVER CANCER PROGRESSION
Bio-04	Pattadon Sawetpiyakul	APPLICATION OF A DUAL-COLOR FLUORESCENT ASSAY FOR HIGH-THROUGHPUT SCREENING OF COMPOUNDS TARGETING CHIKUNGUNYA VIRUS
Bio-05	Suphachai Ekkaphonpisit	ISOLATION AND CULTURE OF GREEN ALGAE PRESENT AROUND DEPARTMENT OF BOTANY AT CHULALONGKORN UNIVERSITY
Bio-06	Nichaput Rattanayenjai	EFFECT OF MYCELIAL INOCULUM OF HED PHOH NANG (*Astraeus odoratus*) ON BELOWGROUND ECTOMYCORRHIZAL COMMUNITY IN A DIPTEROCARP FOREST
Bio-07	Teeranart Komonmusik	CLONING AND EXPRESSION GENE ENCODING ISOMALTULOSE SYNTASE ISOLATED FROM *Priestia koreensis* HL12 FOR ISOMALTULOSE PRODUCTION
Bio-08	Thiplada Juntranon Yarinda Chaisuwan	THE MOLECULAR AND PHYSIOLOGICAL CHANGES IN *Cassia fistula* AFTER LONG-DURATION SPACEFLIGHT
Bio-09	Sakawwarin Prommana	INVESTIGATION OF HERBICIDE RESISTANCE IN BARNYARD GRASS (*Echinochloa crus-galli* (L.) P. Beauv) IN THAILAND
Bio-10	Panitta Boonsrirat Suthida Boonthong	OPTIMAL DIETARY GELATIN CONTENT IMPROVED GROWTH AND FEED UTILIZATION, AND MAINTAINED HEALTH STATUS OF HEAD-STARTED LEATHERBACK SEA TURTLES (*Dermochelys coriacea*)
Bio-11	Anantachai Thongmali	INVESTIGATION OF CASPASE-ASSOCIATED CEKK DEATHS IN HUMAN LUNG EPITHELIAL CELLS FOLLOWING INFECTION WITH SARS-CoV-2 VARIANTS
Bio-12	Peerapak Vajanapanich	A DIRECTED EVOLUTION PLATFORM FOR ENGINEERING NEXT-GENERATION PET HYDROLASES
Bio-13	Supannika Phromkhlibnin	THE STUDY ON PHYLOGENETIC POSITION AND SOME SELECTED CHARACTER EVOLUTION OF GENUS Utricularia (Lentibulariaceae) IN THAILAND

ID	Name of Students	Senior Project's Title
Bio-14	Yannawut Obsuwan	NECTAR BAT VISITATION AT BANANA FLOWERS (Musaceae) ALONG AN URBANIZATION GRADIENT FROM PHAYATHAI TO SALAYA
Bio-15	Kittikhun Suksamai	SPECIES AND DISTRIBUTION OF CRAB ZOEA AT MAE KLONG RIVER MOUTH, SAMUT SONGKHRAM PROVINCE
Bio-16	Nichagarn Greetatorn	EFFECTS OF ADJUVANTS ON PHYSICAL AND CHEMICAL PROPERTIES OF KAOLIN AS A COATING SUBSTANCE FOR REDUCING LEAF AND FRUIT SURFACE TEMPERATURE OF CITRUS
Bio-17	Busayarat Klinjantasorn	*Streptomyces* spp. ISOLATED FROM EUCALYPTUS TISSUE WITH PLANT GROWTH PROMOTING PROPERTIES AND THEIR GENOME DATA MINING
Bio-18	Kritsana Khunsriruksa	INVESTIGATING THE ANTI-ORAL CANCER PROPERTIES OF *Cordyceps militaris* EXTRACT
Bio-19	Maneechat Buddachai	THE EFFICACY OF COFFEE PECTIN IN INHIBITING *Streptococcus mutans* BIOFILM FORMATION
Bio-20	Sutarat Nitdanklang	DEVELOPMENT OF A BIOFERTILIZER PROTOTYPE FROM FUNGAL ENDOPHYTES TO ENHANCING CROP PRODUCTIVITY
Bio-21	Waraporn Chaisuwan Nutnaree Borisoot	EVALUATING THE EFFICIENCY OF DIFFERENT EXTRACTION METHODS IN ISOLATING BIOACTIVE POLYSACCHARIDES AND TRITERPENOIDS FROM *Ganoderma lucidum* AND POTENTIAL APPLICATION TO HERBAL PRODUCTS

ID	Name of Students	Senior Project's Title
Chem-01	Pacharaphon Khaopueak	DEVELOPMENT OF CARBON DOTS FROM SUGAR AND THEIR APPLICATIONS
Chem-02	Napatsorn Chadanuntakul	SYNTHESIS OF TEMPERATURE-RESPONSIVE HYDROGEL AS WOUND DRESSING FOR BURN TREATMENT
Chem-03	Kidakarn Ratchakitprakarn	DEVELOPMENT AND CHARACTERIZATIONS OF SELECTIVE CHEMICAL REACTIONS FOR PSEUDOURIDINES IN RNA
Chem-04	Nataphorn Tamphanthusakul	IODINE FORTIFICATION INTO EGGS BY ELECTRICAL ACCELERATOR
Chem-05	Wachiraporn Rattana	COMPUTATIONAL STUDY OF FRUSTRATED LEWIS PAIR-FUNCTIONALIZED UIO-67 CATALYSTS FOR CO_2 HYDROGENATION TO METHANOL
Chem-06	Sirinan Thanma	THE pH EFFECT ON THE STRUCTURES OF NEW COPPER(II) COORDINATION POLYMERS CONTAINING 4,4´-BIPYRIDINE AND 2-HYDROXYBENZOATE LIGANDS AND THEIR DYE ADSORPTION PROPERTIES
Chem-07	Natthawut Sangthong Kanyanat thapkrathok Amonrat Phoidi	ANALYSIS OF ANTIOXIDANTS IN MULBERRY FRUIT USING PLASMA-TREATED ELECTRODES COMPARED TO THE PH-DIFFERENCE METHOD
Chem-08	Phutawan Kittihanaluk	METAL-FREE ENONES AND ENALS IODINATION IN WATER
Chem-09	Amber Hocks	CROSS HALOGENATION OF ANILINE: FRAMEWORK FOR UNSYMMETRICAL OLEDs LATTICE
Chem-10	Natthida Chaisri	CHEMICAL RECYCLING OF PLASTIC WASTES BY CATALYTIC PYROLYSIS PROCESS
Chem-11	Rewat Nakwisai	INVESTIGATION OF CARBON DOTS (CDs)-BASED FLUORESCENCE TURN-OFF AND TURN-ON SENSING FOR DETECTION OF ASPARTAME
Chem-12	Maywadee Chincam	SYNTHESIS AND STUDY OF THE PROPERTIES OF LUMINESCENCE ROAD PAINTS
Chem-13	Nattawadi Raksakun	A STUDY OF ELECTRODEPOSITED METAL NANOMATERIAL ON MOLYBDENUM DISULFIDE/GRAPHENE OXIDE FOR SIMULTANEOUS DETECTION OF ASCORBIC ACID, DOPAMINE, AND SEROTONIN
Chem-14	Tanchanok Wanjai	MULTISCALE SIMULATIONS REVEAL CRITICAL ROLES OF ASP239 IN CATALYSIS OF A GH32 CELL-WALL INVERTASE
Chem-15	Yanisa Panporm Chanita Phetdee	PREPARATION AND DETERMINATION OF ANTICANCER ACTIVITY OF DOXORUBICIN IN NISIN-CONJUGATED LIPOSOME

ID	Name of Students	Senior Project's Title
Com-01	Waris Lakthong	QUESTION SIMILARITY SEARCH APPLICATION
Com-02	Nawat Ngerncham	PARALLEL RANDOM SAMPLING WITHOUT REPLACEMENT
Com-03	Archer North Phillips	PARALLEL SET ALGORITHMS ON (a, b)-TREES
Com-04	Burin Intachuen Tanakaorn Mankhetwit Mhadhanagul Charoenphon	COMPARATIVE STUDY ON MULTI-FLOOR IPS WITH ML TECHNIQUES
Com-05	Jakrkaphong Srituntananont Pavarit Chamchanta Thanawat Kongrak	QUANTUM NEURAL NETWORKS WITH ZZFeatureMaps AND TWOLOCAL: LIBRARY IMPLEMENTATION AND PARAMETER EXPLORATION
Com-06	Phuriwat Angkoondittaphong Napahatai Sittirit Danaidech Ardsamai	MosWing: A NOISE-ROBUST MOSQUITO WINGBEAT DETECTION MODEL
Com-07	Perakorn Nimitkul Phichayut Ngoennim Phuthana Ampunant	SOFTWARE-DEFINED INTRUSION DETECTION SYSTEM FOR FLEXIBLE NETWORK SECURITY
Com-08	Siriprapa Paksa Pimchanok Luechai	PREDICTION OF KORAT WAGYU CATTLE BODY WEIGHT USING DEEP LEARNING TECHNIQUES
Com-09	Natthanich Hirunchavarod	DISCOVERING KNOWLEDGE THROUGH MACHINE LEARNING MODEL EXPLAINABILITY: HOW DO WE ESTIMATE AGE AND SEX FROM PANORAMIC DENTAL X-RAY IMAGES

ID	Name of Students	Senior Project's Title
Food-01	Nutaya Pornananrat Narunathaphan Kanchanasevee Natenapa Pongwilai	FUNCTIONAL DEALCHOHOLIZED WINE FROM MANGOSTEEN PERICARP JUICE
Food-02	Natnicha Chumsilsiri	EFFECT OF MUSHROOM POWDER ON PHYSICAL AND CHEMICAL PROPERTIES OF HEALTHY CRACKER
Food-03	Nattacha Kaewpannaray Narumon Srijaroen	EXTRACTION AND IDENTIFICATION OF BIOACTIVE COMPOUNDS FROM BY-PRODUCTS OF THE COCOA PROCESSING INDUSTRY AS FUNCTIONAL FOOD INGREDIENTS
Food-04	Kittiwadee Kittisuphat	ENHANCING GAMMA-AMINO BUTYRIC ACID CONTENT IN BITTER GOURD (MOMORDICA CHARANTIA) USING ISOLATED STRAINS FROM KIMCHI AND NHAM
Food-05	Yi Ran Wang	PREBIOTIC POTENTIAL OF *Flammulina filiformis* and *Pleurotus eryngii* HYDROLYSATE
Food-06	Nichapatch Thepnimitr	BILE ACID-BINDING CAPACITY AND ANTIOXIDANT ACTIVITIES OF THE HYDROLYSATE FROM HYDROTHERMAL TREATED BITTER GOURD (*Momordica Charatia* L.)
Food-07	Nattida Mano Natnicha Somjit	MEAT-X: AFFORDABLE PLANT-BASED MEAT ANALOGUE FOR SUSTAINABLE FOOD FUTURE
Food-08	Worrawalan Phuengpha Chanthappapha Udomphum Jirawadee Chareonwat Karistha Laosopapirom	DEVELOPMENT AND QUALITY OF REDUCED-CALORIE PHULAE-PINEAPPLE JELLY
Food-09	Panchada Takeaw	PRE-STORAGE O_2-ENRICHED ATMOSPHERE AND COATING AFFECT QUALITY OF FRESH-CUT AVOCADO
Food-10	Boonnapodj Triratrungruang Thanakorn Wiengsamut	POWDERED STARTER TO INCREASE THE VALUE OF BY-PRODUCT FROM THE SOY MILK INDUSTRY
Food-11	Parichat Namaungrak Araya Wanasin Aeknattha Junchamrat	THE PROCESSING OF KHAO KAM BY FERMENTATION
Food-12	Sarida Lasim Sunanta kaomaneechot	OPTIMIZATION CONDITIONS OF SUBCRITICAL WATER EXTRACTION FOR BIOACTIVE COMPOUNDS FROM GINGER (*Zingiber officinale* ROSCOE)
Food-13	Waraporn Donkun Warunee Saladaeng	PRODUCTION OF KOMBUCHA USING BLACK TEA AND INDIAN GOOSEBERRY
Food-14	Pattareeya Limaim	STUDY OF LOW LACTOSE MILK POWDER PRODUCTION PROCESS AND ITS NUTRITION

ID	Name of Students	Senior Project's Title
Env-01	Thithanon Phalachit Phichada Phuiphan	ISOLATION AND SCREENING OF HEAVY METAL-RESISTANT AND INDOLE-3-ACETIC ACID-PRODUCING BACTERIA FROM ROOT AND RHIZOSPHERE SOIL
Env-02	Sunita Samantarat	WASTEWATER SURVEILLANCE TO TRACK THE INFLUENZA DYNAMICS IN BANGKOK, THAILAND
Env-03	Metthawat Pornsansirikul	ASSESSING THE ACCURACY OF NOAA MDMAP 2021 AS A MARINE LITTER SURVEY TOOL: A CASE STUDY AT KOH SI CHANG
Env-04	Napat Joosakoon	STRUCTURAL GEOLOGY INTERPRETATION AND TERRAIN CHARACTERIZATION IN KHON KAEN GEOPARK, NORTHEASTERN THAILAND
Env-05	Juthatip Khonman	INITIAL EXPERIMENT DESIGNS TO ASSESS THE MINERALOGICAL AND GEOCHEMICAL INFLUENCE OF DIFFERENT ROCK TYPES ON CARBON SEQUESTRATION IN THE KHORAT PLATEAU
Env-06	Nadiya Mir	COMPARATIVE METHODS FOR ASSESSING PM2.5 OXIDATIVE POTENTIAL DURING HAZE EVENTS IN CHIANG MAI, THAILAND
Env-07	Chunenapa Klomranok	ROLE OF BERYLLIUM AFFECTING TO HEAT TREATMENT OF BLUE SAPPHIRE
Env-08	Arpapat Tunnarat	GEOCHEMISTRY OF HED ACHONDRITE (DIOGENITE) AS AN INDICATOR FOR IDENTIFYING PARENT BODY
Env-09	Muanfan Wantong	CHARACTERIZATION OF IMPACT-GENERATED HIGH-PRESSURE (HP) GLASS USING ATOMIC FORCE MICROSCOPY
Env-10	Phannathon Samaiklang	INFLUENCE OF SEASONAL FACTORS ON HEAVY METALS CONCENTRATION IN ESTUARIES OF THE INNER GULF OF THAILAND

ID	Name of Students	Senior Project's Title
Mat-01	Sukhita Phoochatong Inthira Niyomthai Teetamas Prakmas	SYNTHESIS OF BIOMASS-DERIVED FLUORESCENT CARBON DOTS
Mat-02	Teetat Wattanasilp	DEVELOPMENT OF LITHIUM-ION BATTERY ELECTRODES BASED ON ECO-FRIENDLY MATERIALS
Mat-03	Khrongkhwan Banjong	FLAME RETARDANCY AND PROPERTIES OF POLYLACTIDE AND SPENT COFFEE GROUND COMPOSITE FILMS FOR TEXTILE APPLICATION
Mat-04	Tanwarat Petgrod	DEVELOPMENT OF NATURAL RUBBER MODELS FOR ORAL SURGERY TRAINING
Mat-05	Kaung Htet Aung	APPLIED STATISTICS AND MACHINE LEARNING APPROACHES TO PREDICT COMPRESSIVE STRENGTH OF GEOPOLYMER PASTE
Mat-06	Napan Phuphathanaphong	RAPID AND NON-DESTRUCTIVE TOOLSET TO CORRELATE NANOSCALE SURFACE ROUGHNESS AND INTERFACIAL ELECTRONIC COMPLEXITY

ID	Name of Students	Senior Project's Title
Math-01	Palapol Limkul	DIGRAPH OF (Y^2 - f(X))(λY^2 - f(X)) = 0 OVER GROUP OF PRIME SQUARE
Math-02	Waranyu Moonta	ACHROMATIC NUMBERS OF SOME SIMPLE GRAPHS
Math-03	Pawanrat Kamkaew Nanthida Sansawat	A MATHEMATICAL MODEL FOR STUDY INVESTOR BEHAVIOR (IN THE FINANCIAL BUBBLES)
Math-04	Wachirawut Talwong	THE ROMAN DOMINATION NUMBER OF GCD-GRAPHS
Math-05	Chaichol Hengsuwan	FIXED POINT THEOREM FOR MAPPINGS OF GENERALIZED EDELSTEIN-SUZUKI'S TYPE

ID	Name of Students	Senior Project's Title
Phy-01	Peeranat Sanglaor	SIMULATING 1-D CLASSICAL COUPLED OSCILLATORS WITH EQUIVALENT MASS AND SPRING CONSTANT USING HAMILTONIAN SIMULATION VIA QUANTUM ALGORITHM
Phy-02	Kesini Chumphuthong	DESIGN AND CONSTRUCTION OF MULTI-PLANE LIGHT CONVERTER (MPLC)
Phy-03	Jenjira Chaimanan	WEARABLE AND FLEXIBLE MULTI-COLOR ELECTROLUMINESCENT DEVICE FOR GAS DETECTION
Phy-04	Nanthapat Chanapai	EFFECT OF PLASMA-BEAM DEFORMATION ON THICKNESS PROFILES OF TETRAHEDRAL AMORPHOUS CARBON (ta-C) FILMS
Phy-05	Piyachat Panyasiripan	TRAVERSABLE WORMHOLE IN MINIMALLY GEOMETRICAL DEFORMED TRACE-FREE GRAVITY USING GRAVITATIONAL DECOUPLING

JUNIOR YOUNG RISING STARS OF SCIENCE AWARD 2024 (JYRSS)

ID	Name of Students	Student Project's Title
JYRSS-01	Pawat Wiphatkrut Chanakarn Tubtiang Unchalika Malithong	GROWTH CHARACTERISTICS AND MORPHOLOGY OF FROZEN-THAWED POECs AND ITS APPLICATION IN CYTOTOXICITY TEST OF KRATOM LEAVES JUICE USING MTT ASSAY
JYRSS-02	Pitchayapa Khunprayoon Siriwan Laohawichitchan Phasinee Tachatatijinda	DESIGN, MOLECULAR DOCKING STUDY, SYNTHESIS OF GALLIC ACID AND BRAZILEIN DERIVATIVES WITH ANTIOXIDANT AND α-GLUCOSIDASE ACTIVITY
JYRSS-03	Surasit Kaewtubtim Kulaphat Vorarattananurak	DEVELOPMENT OF MICRODEVICE FOR ELECTROCHEMICAL AND OPTICAL DUAL-MODE DETECTION OF AMMONIUM ION IN FERTILIZERS
JYRSS-04	Jarupa Ek-amnuay Thanchanok Thanee Radanut Suebsin	DEVELOPMENT OF SCAFFOLD FROM KOMBUCHA BACTERIAL CELLULOSE FOR SKIN TISSUE ENGINEERING
JYRSS-05	Yada Jutapanswatt Sirapop Prapakul Kittitee Teeranitigul	MAGNETIC RAVIOLI-SHAPED SOFT MILLI-ROBOT TOWARDS TARGETED DRUG RELEASE
JYRSS-06	Akira Noysawat Phuriwat Chatuthen Papangkorn Rergsantad	COMPREHENSIVE EXPLORATION OF FIBRINOLYTIC ENZYMES BY CLONING, BIOCHEMICAL CHARACTERIZATION, AND THEIR PROMISING ROLE IN ENHANCING THE WOUND HEALING PROCESS
JYRSS-07	Napat Losathitmonton Kristpong Trangkanont	DEVELOPMENT OF SILICON-RHODAMINE BASED-FLUORESCENT SENSORS FOR METAL ION DETECTION IN REAL WATER SAMPLE
JYRSS-08	Korawit Sengsod Warakorn Chankue	SMART SELF-CLEANING BIOFILTER WITH INNOVATIVE WATER FLOW DESIGN FOR ORNAMENTAL FISH AQUARIUM
JYRSS-09	Jantakan Jaroenwiriyapab Kanisorn Chaijarus	X-RAY SHIELDING MATERIALS BASED ON NATURAL RUBBER/ BARIUM SULFATE/ BISMUTH OXIDE COMPOSITES
JYRSS-10	Natnicha Yimchoi Darintra Wijitphan Woranittha Doungdee	EVALUATION OF RICE PHYTOLITH AND ITS RELATIONSHIP WITH SILICON TRANSLOCATION BY OMICS TECHNOLOGIES
JYRSS-11	Benyapha Woraphithakkul Supphakrit Kongsiriwattanakul	PREPARATION OF ACTIVATED CARBON FILMS FROM WATER HYACINTH WASTE FOR COUNTER-ELECTRODE APPLICATION IN DYE-SENSITIZED SOLAR CELLS
JYRSS-12	Chalakon Pornjariyawatch Krit Assawatwikrai Pakanan Leepakorn	COMPUTATIONAL STUDY ON CARBON DIOXIDE CAPTURE BY TERTIARY AMINES
JYRSS-13	Fahsai Kondhorn Tunrata Tumpunyawat	EVALUATION OF THE ANTIBACTERIAL AND ANTIOXIDANT ACTIVITY OF *Morus alba* L. and *Mormordica charantia* L. LEAF EXTRACTS
JYRSS-14	Ishi-Kulshrestha	IMPACT OF PYRUVATE KINASE GENE OVEREXPRESSION ON BIOMASS YIELD IN THE CYANOBACTERIUM Synechocystis SP. PCC 6803
	Natwara Koonkaeo	

ID	Name of Students	Student Project's Title
JYRSS-15	Chitipat Phukumsak Sirinatthakan Surawit	DEVELOPMENT OF SELECTIVE COLORIMETRIC DETERMINATION OF CREATININE ON ORIGAMI – DEVICE FOR RENAL FUNCTION TEST
JYRSS-16	Krittikorn Yakan Jatturong Bootcha	THE SOLUTIONS OF v^3+w^3+x^3+y^3+z^3=n^3 THAT DEPEND ON SOME SET OF INTEGERS
JYRSS-17	Chutipong Pongwarangkul	SHIITAKE MUSHROOM PROTEIN HYDROLYSATE ATTENUATES RENAL FIBROSIS IN L-NAME INDUCED HYPERTENSIVE RATS
JYRSS-18	Chonnakarn Wongnim Benyapha Sa-ardmuang	DIAGNOSIS OF MANGO LEAVES DISEASES USING MACHINE LEARNING TECHNIQUES
JYRSS-19	Natamon Ruangpayoongsak Kodchapan Paknam Kritpatchara Wongkwan	RECOMMENDATION SYSTEM FOR MARKET-BEATING INVESTMENT FACTOR
JYRSS-20	Saruttaya Rueangsaviat Vipassana Palanant Preeyanit Tangpanyaphon Dhiraputh Narkngam	DEVELOPMENT OF INTERPRETABLE MACHINE LEARNING-BASED PROGRAM FOR PREDICTING thev SYNERGISTIC EFFECTS OF LUNG CANCER DRUG COMBINATIONS
JYRSS-21	Naddaporn Nounmusig Chinnaphat Chinnawong Yada Raya	DEVELOPMENT OF AN ANTI-ACNE PRODUCT FROM NUTMEG FRUIT EXTRACT AND THAI STINGLESS BEE PROPOLIS: AN INNOVATIVE HERBAL APPROACH TO ACNE TREATMENT
JYRSS-22	Nittaya Phichetsiripricha	STEM AND LAMINA ANATOMY OF *Chloris Sw.* and *Cynodon Rich.* (Poaceae) IN THAILAND
JYRSS-23	Pawanpat Vijitprapasin Pranida Chucham	A SURVEY AND STATISTICAL STUDY OF CAZymes CONTAINING PYRANOSE SUGAR AT THE ENZYME ACTIVE SITE
JYRSS-24	Thanavich Chaida Chakkarach Mekkrua Thanadon Phophon	DEVELOPMENT OF A HEALTH MONITORING DEVICE FOR OLDER PEOPLE USING MILLIMETRE WAVE RADAR TECHNOLOGY
JYRSS-25	Warittapat Chaiworn Warittaporn Chaiworn Supakorn Buthsak	AN EXPERIMENTAL AND NUMERICAL INVESTIGATION IN DAMPED HARMONIC OSCILLATIONS FOR 1D-SPRING SYSTEMS
JYRSS-26	Chayut Owatsakul Chanon Owatsukul	AN INNOVATIVE CHILDHOOD DVELOPMENT SUPPORT SYSTEM FOR HEALTH REGION 1, THAILAND
JYRSS-27	Kanyawat Sanjai Jinnanat Puangfu	THE FEASIBILITY STUDY OF UTILIZATING LAC EXTRACTS FOR ENERGY STORAGE MATERIALS IN LITHIUM-ORGANIC BATTERIES
JYRSS-28	Piyaporn Supajai Praewanit Nedsuwan Naruepron Khaemhom	IMPROVING FISH FEED QUALITY AND SUSTAINABILITY BY UPCYCLING FOOD WASTE WITH BLACK SOLDIER FLY LARVAE AND MICROENCAPSULATION FOR CLIMATE CHANGE RESILIENCE
JYRSS-29	Kornrawee Korwanichkul Naphat Na Phattalung	EXTRACTION OF OIL WITH HIGH LAURIC ACID FROM COCONUT AND PALM KERNEL BY SUPERCRITICAL CARBON DIOXIDE
JYRSS-30	Apinan Heetchuai Kittipat Chukaew	SYNTHESIS OF $KMnO_4$ -NANOZEOLITE FROM PALM BUNCH ASH AND PROLONG BANANAS SHELF-LIFE
JYRSS-31	Thanaporn Pootakum Royfha Phatthanakhaobua	PROTOTYPE OF AUTOMATIC OIL PALM RIPENESS CLASSIFICATION
	Pornchita Tantiputtikul	

ID	Name of Students	Student Project's Title
JYRSS-32	Peemmaphon Enkchuan	ISOLATION AND CHARACTERIZATION OF VIBRIO PARAHAEMOLYTICUS LYTIC BACTERIOPHAGES ISOLATED FROM SEAFOOD: ASSESSING NOVEL BIOCONTROL STRATEGIES FOR OPTIMIZING SUSTAINABLE PRODUCTIVITY IN PENAEUS VANNAMEI AQUACULTURE SYSTEMS
JYRSS-33	Wongrapee Koedsin Tunnarot Maneesom	INHIBITORY EFFECT OF TURMERIC EXTRACT-LOADED CHITOSAN MICROPARTICLES ON *Listeria monocytogenes* GROWTH, MOTILITY, AND BIOFILM FORMATION
JYRSS-34	Pichchaon Kaewon Chutisara Wattanasakpubal	CYTOTOXIC EFFECT OF *Halimeda macroloba* ON CERVICAL CANCER (SIHA) SPHEROID CELLS
JYRSS-35	Panisa Konkham Thanatchapoom Ratsamironnachai	STUDY ON THE EFFECTS OF METHANOL EXTRACTION FOR ANALYZING THE RELATIONSHIP BETWEEN PHENOL AND ANTIOXIDANT PROPERTIES IN BAMBOO GRASS (*Tiliacora triandra*) DIELS
JYRSS-36	Kittisak Phromsawat Satana Jarucharoenlap Takdanai Vetthaisong	STUDY ON THE EFFICACY OF INSOLE MADE FROM PENNISETUM GRASS AND WATER HYACINTH MIXED WITH NEEM CRUDE EXTRACTS TO INHIBIT BACTERIA *Staphylococcus aureus* AND *Escherichia* spp.
JYRSS-37	Worawat Luechaphool Thitikan Nirapaka Sarisa Wijarn	BIOCHAR AS AN ECO-FRIENDLY AND ECONOMICAL ADSORBENT FOR THE REMOVAL OF DYES FROM SILK FABRIC DYEING
JYRSS-38	Panita Thongchumroon	SYNTHESIS OF ACTIVATED CARBON FROM WASTE INNER TUBE AS ADSORBENT FOR ACID DYE REMOVAL FROM WATER
JYRSS-39	Nadrada Maneesri Poungmanee Phromchana Paphada Pathomnatikul	PREPARATION OF AMINE – FUNCTIONALIZED RICE HUSK ASH FOR SELECTIVE ADSORPTION POLYPHENOLS FROM GREEN TEA

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11	Dr.	Monchai Jitvisate

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5	Associate Professor Dr.	Aussara Panya
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15	Assistant Professor Dr.	Orawan Kritsunankul
16	Assistant Professor Dr.	Preeyaporn Reanpang
17	Assistant Professor Dr.	Supada Khonyoung

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9	Associate Professor Dr.	Sulawan Kaowphong
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16	Assistant Professor Dr.	Weerinradah Tapala

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9	Dr.	Supawadee Namuangruk

SESSION D - MATHEMATICS / STATISTICS / COMPUTER SCIENCE / DATA SCIENCE / AI

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22	Assistant Professor Dr.	Puntipa Wanitjirattikal
23	Dr.	Kittitat Iamthong
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31	Dr.	Rasryne Hirankalyakorn

SESSION E - ENERGY / ENVIRONMENTAL & EARTH SCIENCE / MATERIALS SCIENCE / CHEMICAL TECHNOLOGY

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2	Assistant Professor Dr.	Nongnuch Rueangjit
3	Assistant Professor Dr.	Yothin Chimupala

SESSION F - FOOD SCIENCE AND TECHNOLOGY/AGRICULTURAL SCIENCE

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SP4 - CHALLENGES AND OPPORTUNITIES IN CLIMATE AND ENVIRONMENTAL CHANGES

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SP7 - CEMENT AND CONCRETE: SCIENCE, TECHNOLOGY AND APPLICATIONS TOWARDS GREEN AND SUSTAINABLE FUTURE

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SP8 - THE SCIENCE OF RESTORING TROPICAL FOREST ECOSYSTEMS: 30 YEARS OF PROGRESS AND BEYOND

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2	Associate Professor Dr.	Stephen Elliott
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4	Assistant Professor Dr.	Pimonrat Tiansawat

5	Assistant Professor Dr.	Prasit Wangpakapattanawong
6	Assistant Professor Dr.	Sutthathorn Chairuangsri
7	Assistant Professor Dr.	Watit Khokthong

SP9 - GENERATIVE AI: AN EMERGING AI TECHNOLOGY

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2	Assistant Professor Dr.	Papangkorn Inkeaw
3	Assistant Professor Dr.	Phimphaka Taninpong
4	Dr.	Sanparith Marukatat
5	Dr.	Sarawoot Kongyoung

SP10 - UNIVERSITY - INDUSTRY RESEARCH COLLABORATION

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2	Associate Professor Dr.	Pitiwat Wattanachai
3	Associate Professor Dr.	Prasert Reubroycharoen
4	Associate Professor Dr.	Sirithan Jiemsirilers
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4	Dr.	Kittisak Chaisan
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