NANOTHAILAND 2023

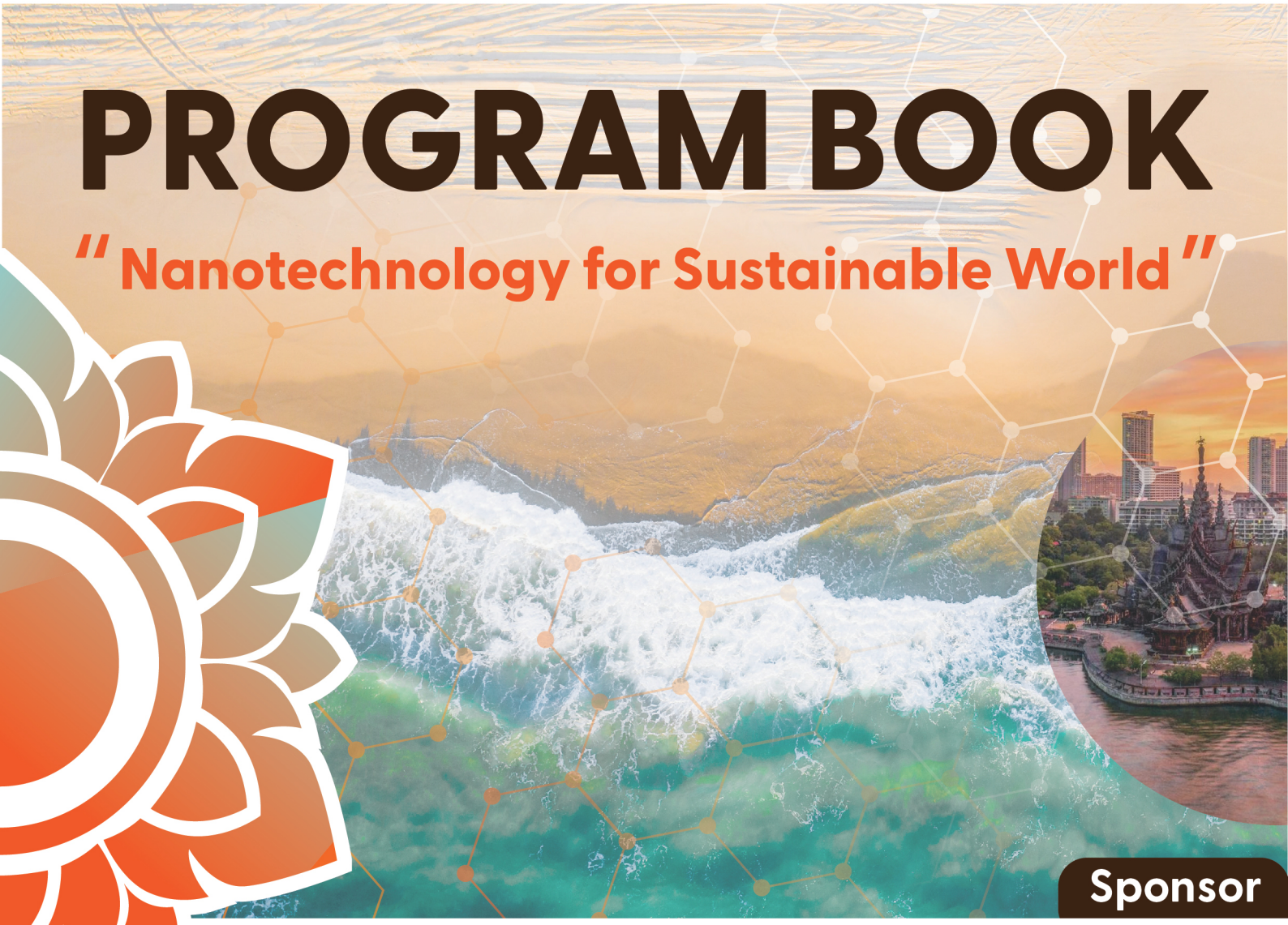
The 8th Thailand International Nanotechnology Conference

November 29- December 1, 2023

Dusit Thani Pattaya Hotel,
Chon Buri,Thailand

PROGRAM BOOK

"Nanotechnology for Sustainable World"



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https://www.nano-thailand.com / nanothailand2023@gmail.com

Welcome Message

From the Nanotechnology Association of Thailand and National Nanotechnology Center (NANOTEC)

Dr. Wannee Chinsirikul

Executive Director of the National Nanotechnology Center (NANOTEC) and President of the Nanotechnology Association of Thailand

On behalf of the Nanotechnology Association of Thailand, it is my great pleasure and privilege to extend a warm invitation to you all for participating the 8th Thailand International Nanotechnology Conference (NanoThailand 2023), which will be held during 29 November – 1 December 2023 at Pattaya, Chonburi, Thailand. I would like to take this opportunity to express my sincere appreciation to Vidyasirimedhi Institute of Science and Technology (VISTEC), National Nanotechnology Center (NANOTEC) and the Nanotechnology Association of Thailand to organize this conference.

The theme of the conference is "Nanotechnology for Sustainable World". The objectives are to apply nanoscience and nanotechnology for a better life and well-being to create a platform for knowledge exchange to further advance technological areas, and to exhibit the latest innovations to the industries. At present, we are collaborating in areas such as e-science, renewable energy and the development of novel drugs to combat a range of infectious diseases. Therefore, Science, Technology, Innovation and technology know-how cooperation among peers are very important. NanoThailand 2023 will provide a platform for experienced researchers in nanotechnology and practitioners from both academics, as well as industry to meet and share cutting-edge development in the field. In order to meet the objectives of the conference, the world renowned speakers, and researchers are invited to present the advancement of nanoscience and to update trend of the World's nanotechnology of their expertise.

I would like to welcome all participants, and to our overseas friends, please enjoy the breath and depth of Science and Technology at the upcoming NanoThailand 2023 (29 November – 1 December 2023) in the vibrant east coastal city of Thailand where you could take times to also absorb many attractive sites there is to offer in Pattaya.

Welcome Message

Form Vidyasirimedhi Institute of Science and Technology (VISTEC)

Professor Dr. Pimchai Chaiyen

President of Vidyasirimedhi Institute of Science and Technology (VISTEC)

On behalf of Vidyasirimedhi Institute of Science and Technology (VISTEC), it is my great pleasure to welcome you all to the 8th Thailand International Nanotechnology Conference (NanoThailand 2023), being held between 29 November – 1 December 2023 at Dusit Thani Hotel, Pattaya, Thailand. VISTEC is proud to be a co-host of this conference.
The conference's theme is "Nanotechnology for Sustainable World" and its objectives are to apply nanotechnology in various fields to contribute to sustainable development. The conference will create a platform for technological knowledge exchange, and to share the latest progress in research and innovations towards a sustainable world. We are expecting around 350 participants from more than 20 countries to attend NanoThailand 2023. The conference features 13 sessions with 2 plenary lectures, 97 keynote and invited talks, 97 oral presentations and 82 posters covering all fields of nanotechnology.
On the scientific side, VISTEC members are contributing extensively to this conference by hosting, chairing, co-chairing, and presenting in all the sessions. Together with our co-host NANOTEC, we aim to showcase advanced and innovative nanoscience and nanotechnology research conducted in Thailand. Our members are hosting and presenting in the following sessions:

- **Session 4**: Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors,
- **Session 5**: Nanomedicine, Nanosensor and Nano-biotechnology,
- **Session 6**: Nanotechnology for Energy Storage and Management, Session 8: Nanotechnology for Catalysis and Industrial Applications,
- **Session 9**: Nanotechnology for Startups and Industrial Enterprises, and
- **Special Session 1**: Advanced Nanostructured Materials for a Global Circular Economy.

We hope that these sessions will provide all participants insights into the current state of cutting-edge research work at VISTEC.
NanoThailand 2023 will provide all participants excellent opportunities to exchange ideas, network professionally, and broaden their knowledge. We hope that you all will have fruitful meetings and enjoy activities at Dusit Thani Hotel, the City of Pattaya, EECi and VISTEC during your excursion, as well as other places you visit in Thailand. Once again, on behalf of Vidyasirimedhi Institute of Science and Technology (VISTEC), we are looking forward to welcoming you at NanoThailand 2023 in Thailand.

Conference Report Message

Dear Chairman of The Opening Ceremony and All Delegates,

This is the 8th Thailand International Nanotechnology Conference (NanoThailand 2023), the largest international nanotechnology conference and exhibition in Thailand. The NanoThailand conference series have been organized biennially since 2008 and this NanoThailand 2023 in the theme of "Nanotechnology for Sustainable World" is co-organized by Vidyasirimedhi Institute of Science and Technology (VISTEC), National Nanotechnology Center, and the Nanotechnology Association of Thailand. This year's conference welcomes over 350 participants and a total of 278 presentations, including 196 oral presentations with 2 world renowned plenary lecturers, 97 keynote and invited speakers, and 82 poster presentations. These scientific presentations will cover various nanotechnology topics:

Nanoencapsulation and Functional Ingredients
Theory and Simulation for Nanosystems
Nanosafety & Standard
Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors
Nanomedicine, Nanosensor and Nano-Biotechnology
Nanotechnology for Energy Storage and Management
Nanotechnology for Environment and Agriculture
Nanotechnology for Catalysis and Industrial Applications
Nanotechnology for Startups and Industrial Enterprises
Nanocharacterization & Instrumentation

and 3 Special Sessions on

Advanced Nanostructured Materials for a Global Circular Economy
Symposium on Bio-Based Chemicals & Fuels from Lignocellulose 2023 (Hub of Knowledge)
The 2nd Thailand Symposium on Nanopore Technology

Again, this NanoThailand 2023 cannot be successful without the help and supports from Nanotechnology Association of Thailand, NANOTEC, NSTDA, VISTEC and all co-organizers and sponsors. The contributions from all members of the organizing committee, and the scientific committee, as well as the advisory board are gratefully acknowledged. Finally, I would like to thank all distinguished speakers, and presenters for their kind and insightful contributions, and staff who dedicated their time and hard work for this conference. Thank you the Chairman of The Opening Ceremony for making this event much more meaningful, and I wish all participants a pleasant and fruitful meeting in this conference.

Prof. Dr. Rattikorn Yimnirun (VISTEC)
Dr. Wiyong Kangwansupamonkon (NANOTEC)
Chairs of the Organizing Committee

Opening Ceremony

The 8th Thailand International Nanotechnology Conference
(NanoThailand 2023)
Thursday 30th November 2023
09.00 – 10.30 am
Napalai B&C Room, Dusit Thani Pattaya, Chonburi

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08.00 – 09.00 am	**Registration**
08.55 – 09.00 am	**INTRODUCTION** By the Master of Ceremonies (MC) Asst. Prof. Pichaya Pattanasattayavong (VISTEC), Miss Kiatnida Treerattrakoon (NANOTEC)
09.00 – 09.30 am	**WELCOME REMARKS** By Dr. Wannee Chinsirikul President of the Nanotechnology Association of Thailand / Executive Director, NANOTEC **BRIEFING OF THE CONFERENCE (NanoThailand 2023)** By Prof. Dr. Vinich Promaruk Co-Host of NanoThailand 2023 (representative) **OPENING REMARKS** By Prof. Dr. Supachai Pathumnakul Deputy Permanent Secretary of the Ministry of Higher Education, Science, Research and Innovation / Chairman of NANOTEC Advisory Board **RIBBON CUTTING CEREMONY** By Prof. Dr. Supacahi Pathimnakul, Dr. Wannee Chinsirikul, Prof. Dr. Jumras Limtrakul **PRESENTATION OF TOKEN OF APPRECIATION TO MAJOR SPONSOR REPRESENTATIVES** By Prof. Dr. Supachai Pathumnakul **BEST NANOQ SLOGAN AWARD** **PHOTO SESSION** Group 1: Prof. Dr. Supachai Pathumnakul, Dr. Wannee Chinsirikul, Prof. Dr. Jumras Limtrakul Group 2: Group 1 + Executive Committee of Nanotechnology Association of Thailand Group 3: Group 1 + Group 2 + Organizing Committee of NanoThailand 2023 Group 4: All Participants
09.30 – 10.30 am	**PLENARY LECTURE I** "Chemistry and Application of Soft Porous Crystals from MOFs/PCPs" Prof. Susumu Kitagawa, iCeMS, Kyoto University, Japan - Presentation of Token of Appreciation to Plenary Speaker **End of Ceremony**
10.30 – 10.45 am	**Coffee Break**

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NanoThailand 2023 Organizing Committee

Executive Advisory Committee

Dr. Wannee Chinsirikul
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Mr. Por Punyaratabandhu
Mr. Phoosak Hiranyatrakul
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Dr.Jeng-Lung Chen

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Prof. Dr. Martin Heeney
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Prof. Dr. Guillaume Wantz
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Assoc. Prof. Dr. Preeyanuch Sangtrirutnugul
Dr. Pongkarn Chakthranont
Prof. Dr. Guillaume Wantz
Dr. Chuchawin Changtong
Dr. Panachit Kittipanya-ngam
Dr. Pimpisut Worakajit
Dr. Suwussa Bamrungsap
Dr. Kantapat Chansaenpak
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Dr. Salatan Duangdangchote
Dr.Udom Asawapirom
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Dr.Warayuth Sajomsang
Dr,Kittiwut Kasemwong
Dr.Kanokwan Sansanaphongpricha
Dr.Tanyakorn Muangnapoh
Dr.Anchalee Junkaew
Dr.Waluree Thongkam
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Dr.Tanyakorn Muangnapoh
Dr.Kritapas Laohhasurayotin
Dr.Annop Klamchuen
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Dr. Pinit Kidkhunthod
Dr.Orapan Sripichai
Dr.Thidathip Wongsurawat
Asst. Prof. Dr. Nuankanya Sathirapongsasuti
Miss Jirapat Santatiwongchai

Local Organizing Committee

Honorary Chairs of The Organizing Committee

Dr. Wannee Chinsirikul	Executive Director of the National Nanotechnology Center (NANOTEC)
Prof. Dr. Pimchai Chaiyen	President of Vidyasirimedhi Institute of Science and Technology (VISTEC)

Chairs of The Local Organizing Organizing Committee

Dr. Wiyong Kangwansupamonkon (NANOTEC)
Prof. Dr. Rattikorn Yimnirun (VISTEC)

Chairs of Scientific Committee

Dr. Kajornsak Faungnawakij (NANOTEC)
Prof. Dr. Vinich Promarak (VISTEC)

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Dr. Panvika Pannopard

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Ms. Benyapa Suwan
Mr. Pongsit Ratanakonvit

Ceremony, Reception and Transportation Committee

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Revenue Committee

Ms. Benyapa Suwan
Ms. Thasikan Popromsree

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Mr. Pongsit Rattanakonvit

Evaluation Committee

Mrs. Weeraya Khunkaew

Public Relations Registration Committee

Mr. Tortrakul Poolsopha

General Secretariat

Mr. Pongsit Rattanakonvit

Academic Sessions

Session 1: Nanoencapsulation and Functional Ingredients

Chair: Dr.Kanokwan Sansanaphongpricha
Co-chair: Dr.Teerapong Yata

Session 2: Theory and Simulation for Nanosystems

Chair: Prof.Siriporn Jungsuttiwong
Co-chairs: Dr.Anchalee Junkaew
Assoc. Prof.Sarana Nutanong

Session 3: Nanosafety and Standard

Chair: Dr.Waluree Thongkam
Co-chair: Dr.Sasitorn Aueviriyavit

Session 4: Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors

Chair: Prof.Vinich Promarak
Co-chair: Dr.Pisist Kumnorkaew
Dr.Anusit Kaewprajak

Session 5: Nanomedicine, Nanosensor and Nano-biotechnology

Chair: Dr.Deanpen Japrung
Co-chairs: Prof.Albert Schulte
Dr.Weerakanya Maneeprakorn
Dr.Suwussa Bamrungsap

Session 6: Nanotechnology for Energy Storage and Management

Chair: Assoc. Prof.Montree Sawangphruk
Co-chair: Dr.Tanyakorn Muangnapoh

Session 7: Nanotechnology for Environment and Agriculture

Chair: Dr.Varol Intasanta
Co-chair: Dr.Warayuth Sajomsang

Session 8: Nanotechnology for Catalysis and Industrial Applications

Chair: Dr.Kajornsak Faungnawakij
Co-chair: Assist. Prof.Sareeya Bureekaew

Session 9: Nanotechnology for Startups and Industrial Enterprises

Chair: Dr.Paisan Khanchaitit
Co-chair: Dr.Pichaya Pattanasattayavong

Academic Sessions

Session 10: Nanocharacterization & Instrumentation

Chair: Dr.Annop Klamchuen
Co-chairs: Dr.Pinit kidkhunthod
Dr.Kitiphat Sinthiptharakoon
Dr.Narong Chanlek

Session 11: [Special Session 1]: Advanced Nanostructured Materials for a Global Circular Economy

Chair: Assoc. Prof.Chularat Wattanakit
Co-chair: Dr.Supawadee Namuangruk

Session 12: [Special Session 2]: Symposium on Bio-based Chemicals & Fuels from Lignocellulose 2023 (Hub of Knowledge)

Chair: Dr.Bunyarat Rungtaweevoranit
Co-chair: Dr.Chotitath Sanpitakseree

Session 13: [Special session 3]: The 2nd Thailand Symposium on Nanopore technology

Chair: Dr.Deanpen Japrung
Co-chairs: Dr.Orapan Sripichai
Dr.Thidathip Wongsurawat
Dr.Nuankanya Sathirapongsauti
Dr.Thitikorn Boonkoom

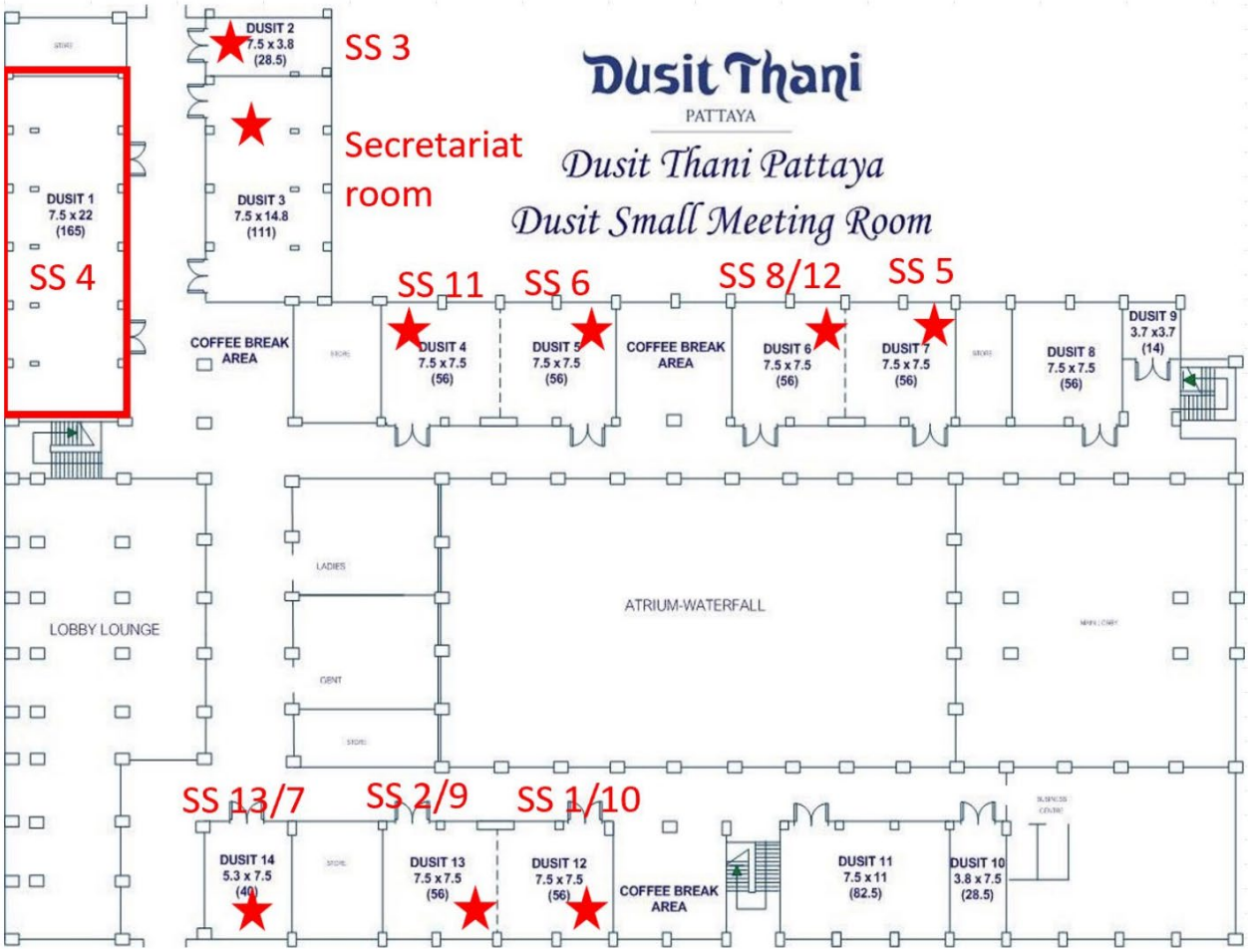
Program Schedule for NanoThailand 2023

Date	Time	Event	Place
29-Nov-23	12:00 PM-06:00 PM	Onsite-Registration	Dusit Thani Pattaya Hotel
	12:30 PM-06:00 PM	Excursion to EECi and VISTEC@Wangchan Valley	Wangchan Valley, Rayong
30-Nov-23	08:00 AM-09:00 AM	Onsite-Registration	Dusit Thani Pattaya Hotel
	09:00 AM-09:30 AM	Opening Ceremony	Napalai B&C Grand Ballroom
	09:30 AM-10:30 AM	Plenary Talk I	Napalai B&C Grand Ballroom
	10:30 AM-10:45 AM	Coffee Break	Napalai Foyer
	10:45 AM-12:15 PM	Parallel Sessions	Dusit Meeting Rooms
	12:15 PM-01:15 PM	Lunch Break	Napalai A Grand Ballroom
	01:15 PM-03:15 PM	Parallel Sessions	Dusit Meeting Rooms
	03:15 PM-03:30 PM	Coffee Break	Napalai Foyer
	03:30 PM-04:30 PM	Poster Session	Napalai B&C Grand Ballroom
	04:30 PM-06:30 PM	Parallel Sessions	Dusit Meeting Rooms
	06:30 PM-09:00 PM	Banquet	Napalai B&C Grand Ballroom
1-Dec-23	08:00 AM-09:00 AM	Onsite-Registration	Dusit Thani Pattaya Hotel
	09:00 AM-10:00 AM	Plenary Talk II	Napalai B&C Grand Ballroom
	10:00 AM-10:15 AM	Coffee Break	Napalai Foyer
	10:15 AM-12:15 PM	Parallel Sessions	Dusit Meeting Rooms
	12:15 PM-01:15 PM	Lunch Break	Napalai A Grand Ballroom
	01:15 PM-03:15 PM	Parallel Sessions	Dusit Meeting Rooms
	03:15 PM-03:30 PM	Coffee Break	Napalai Foyer
	03:30 PM-04:30 PM	Poster Session	Napalai B&C Grand Ballroom
	04:30 PM-05:00 PM	Closing Ceremony	Napalai B&C Grand Ballroom

Technical Program Overview

Date	Session	Time	Talk Type	Talk ID	Talk Title	Speaker	Place
30-Nov-23	**Plenary Session I**	09:30 AM-10:30 AM					Napalai B&C Grand Ballroom
		09:30 AM-10:30 AM	Plenary Talk I	PL-I	Chemistry and Application of Soft Porous Crystals from	Susumu Kitagawa	
		10:30 AM-10:45 AM			Coffee Break		Napalai Foyer
	Session A	10:45 AM-12:15 PM			Paralell Sessions		Dusit Meeting Rooms
		12:15 PM-01:15 PM			Lunch Break		Napalai A Grand Ballroom
	Session B	01:15 PM-03:15 PM			Paralell Sessions		Dusit Meeting Rooms
		03:15 PM-03:30 PM			Coffee Break		Napalai Foyer
		03:30 PM-04:30 PM			Poster Session		Napalai B&C Grand Ballroom
	Session C	04:30 PM-06:30 PM			Paralell Sessions		Dusit Meeting Rooms
1-Dec-23	**Plenary Session II**	09:00 AM-10:00 AM					Napalai B&C Grand Ballroom
		09:00 AM-10:00 AM	Plenary Talk II	PL-II	Employing nanotechnology for single-molecule biology	Cees Dekker	
		10:00 AM-10:15 AM			Coffee Break		Napalai Foyer
	Session D	10:15 AM-12:15 PM			Paralell Sessions		Dusit Meeting Rooms
		12:15 PM-01:15 PM			Lunch Break		Napalai A Grand Ballroom
	Session E	01:15 PM-03:15 PM			Paralell Sessions		Dusit Meeting Rooms
		03:15 PM-03:30 PM			Coffee Break		Napalai Foyer
		03:30 PM-04:30 PM			Poster Session		Napalai B&C Grand Ballroom

Meeting Rooms



Sessions and Meeting Rooms

November 29, 2023 (Wednesday)									
12.00 - 18.00	**Registration starts at Dusit Thani Pattaya**								
12.30 - 18.00	**Excursion Visit EECi & VISTEC Wang Chan, Rayong**								
18.30 - 21.00	**Welcome Reception *(Invitation only)*** [The point]								
November 30, 2023 (Thursday)									
09.00 - 09.30	**Opening Ceremony** [Napalai B+C]								
09.30 - 10.30	**Plenary Session 201: Chemistry and Application of Soft Porous Crystals from MOFs/PCPs** [Napalai B+C]								
10.30 - 10.45	Coffee Break [Napalai Foyer]								
10.45 - 12.15	Session 1 **Nanoencapsulation and Functional Ingredients** [Dusit 12]	Session 2 **Theory and Simulation for Nanosystems** [Dusit 13]	Session 4 **Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors** [Dusit 1]	Session 5 **Nanomedicine, Nanosensor and Nano-biotechnology** [Dusit 7]	Session 6 **Nanotechnology for Energy Storage and Management** [Dusit 5]	Session 7 **Nanotechnology for Environment and Agriculture** [Dusit 14]	Session 8 **Nanotechnology for Catalysis and Industrial Applications** [Dusit 6]	Session 11 **Advanced Nanostructured Materials for a Global Circular Economy** [Dusit 4]	
12.15 - 13.15	Lunch [Napalai A]								
13.15 - 15.15	Session 1 **Nanoencapsulation and Functional Ingredients** [Dusit 12]	Session 2 **Theory and Simulation for Nanosystems** [Dusit 13]	Session 3 **Nanosafety and Standard** [Dusit 2]	Session 4 **Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors** [Dusit 1]	Session 5 **Nanomedicine, Nanosensor and Nano-biotechnology** [Dusit 7]	Session 6 **Nanotechnology for Energy Storage and Management** [Dusit 5]	Session 7 **Nanotechnology for Environment and Agriculture** [Dusit 14]	Session 8 **Nanotechnology for Catalysis and Industrial Applications** [Dusit 6]	Session 11 **Advanced Nanostructured Materials for a Global Circular Economy** [Dusit 4]
15.15 - 15.30	Coffee Break [Napalai Foyer]								
15.30 - 16.30	Poster Presentation [Napalai C]		Session 3 **Nanosafety and Standard**	Poster Presentation [Napalai C]					
16.30 - 19.00	Session 1 **Nanoencapsulation and Functional Ingredients** [Dusit 12]	Session 2 **Theory and Simulation for Nanosystems** [Dusit 13]	Session 3 **Poster Presentation** [Napalai C]	Session 4 **Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors**	Session 5 **Nanomedicine, Nanosensor and Nano-biotechnology** [Dusit 7]	Session 6 **Nanotechnology for Energy Storage and Management** [Dusit 5]	Session 8 **Nanotechnology for Catalysis and Industrial Applications** [Dusit 6]	Session 11 **Advanced Nanostructured Materials for a Global Circular Economy** [Dusit 4]	Session 13 **The 2nd Thailand Symposium on Nanopore technology** [Dusit 14]
18.30 - 21.00 90 min.	**Banquet** [Napalai B+C]								

Sessions and Meeting Rooms

December 1, 2023 (Friday)							
09.00 - 10.00	**Plenary Session 301: Employing nanotechnology for single-molecule biology: from nanopore protein sequencing to chromosome organization** [Napalai B+C]						
10.00 - 10.15	Coffee Break [Napalai Foyer]						
10.15 - 12.15	Session 4 **Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors** [Dusit 1]	Session 5 **Nanomedicine, Nanosensor and Nano-biotechnology** [Dusit 7]	Session 6 **Nanotechnology for Energy Storage and Management** [Dusit5]	Session 8 **Nanotechnology for Catalysis and Industrial Applications** [Dusit 6]	Session 9 **Nanotechnology for Startups and Industrial Enterprises** [Dusit 13]	Session 10 **Nanocharacterization & Instrumentation** [Dusit 12]	Session 11 **Advanced Nanostructured Materials for a Global Circular Economy** [Dusit 4]	Session 13 **The 2nd Thailand Symposium on Nanopore technology** [Dusit 14]
12.15 - 13.15	Lunch [Napalai A]							
13.15 - 15.15	Session 4 **Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors** [Dusit 1]	Session 10 **Nanocharacterization & Instrumentation** [Dusit 12]	Session 11 **Advanced Nanostructured Materials for a Global Circular Economy** [Dusit 4]	Session 12 **Symposium on Bio-based Chemicals & Fuels from Lignocellulose 2023 (Hub of Knowledge)** [Dusit 6]	Session 13 **The 2nd Thailand Symposium on Nanopore technology** [Dusit 14]			
15.15 - 15.30	Coffee Break [Napalai Foyer]							
15.30 - 16.30	**Poster Presentation** [Napalai C]							
16.30 - 17.00	**Closing Ceremony** [Napalai B+C]							

Program Book

Abstract Book

Plenary Speakers

NANOTHAILAND 2023
The 8th Thailand International Nanotechnology Conference
Nanotechnology for Sustainable World
29 November – 1 December 2023
Venue : Dusit Thani Pattaya Hotel, Chon Buri,Thailand

Plenary Talk I

30 November 2023
9.30 AM-10.30 AM
Napalai B&C Grand Ballroom

Chemistry and Application of Soft Porous Crystals from MOFs/PCPs

Metal-organic frameworks (MOFs) or porous coordination polymers (PCPs) possess inherent voids that allow storing, delivering, and separating substances, particularly gases. Among them, 3rd generation MOFs called flexible MOFs or soft porous crystals (SPCs),[1-4] exhibit a structural change from crystal to crystal in response to physical and crystalline stimuli. This feature distinguishes them from other porous materials, reminiscent of the induced fit mechanism of bioenzymes and the cooperative phenomenon of hemoglobin. In contrast to rigid materials showing a Langmuir type I isotherm, SPCs possess a sigmoidal isotherm and higher usable capacity and efficient recognition of guest species. The flexibility depends on the binding ability and mobility of unit ligands and metal ions and other factors, including the deformation of the entire framework due to the guest molecules in the pores. Strategies using ligand functionalization have been developed to investigate the properties but have mainly focused on discovering and understanding dynamic phenomena in SPCs. This trend has now shifted towards controlling the adsorption properties for practical applications. This talk provides an essential and accessible overview of the historical background of the chemistry of SPCs, their features, and outlook as 4th generation MOFs,[2,3] in particular, design and synthesis, dynamic structure analysis, flexibility and function, and theoretical interpretation and prediction of the mechanism, as well as their applications.[5,6]

1.S.Horike, S.Shimomura, and S. Kitagawa, *Nat.Chem.*,**2009**,1,695.
2.S.Kitagawa, *Acc.Chem.Res.*, **2017**,50,514.
3.S. Kraus, N.Hosono, and S.Kitagawa, *Angew.Chem.Int.Ed.*, **2020**.59.15325.
4. N. Behera, J.Duan, W.Jin, and S.Kitagawa, *EnergyChem*, **2021**,3,100067.
5.S.Horike and S.Kitagawa, *Nature Materials*,**2022**,21,983.
6.Y.Su, K.Otake, J.-J. Zheng, S.Horike, S.Kitagawa, C.Gu, *Nature*, **2022**,611,289.
Keywords: Porous Coordination Polymer, Metal-Organic Framework, Soft Porous Crystal, Flexibility

Prof.Susumu Kitagawa
Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University

NANOTHAILAND 2023
The 8th Thailand International Nanotechnology Conference
Nanotechnology for Sustainable World
29 November – 1 December 2023
Venue : Dusit Thani Pattaya Hotel, Chon Buri,Thailand

Plenary Talk II

1 December 2023
9.00 AM-10.00 AM
Napalai B&C Grand Ballroom

Employing nanotechnology for single-molecule biology: from nanopore protein sequencing to chromosome organization

Nanotechnology offers fantastic opportunities to contribute to biology. I will present some recent examples from my lab where nanotech single-molecule tools are used to unravel the biology of cells down to the single-molecule level.

1. A DNA origami turbine powered by nanoscale flow [1]

We recently built artificial nanoscale turbines. We demonstrated driven rotary motion of a nanoscale DNA origami turbine which harnessed energy from a water flow generated by a static chemical or electrical potential gradient in a solid-state nanopore. The origami nanoturbine consisted of a 6-helix DNA bundle that adopted a chiral conformation upon phoretic docking onto the nanopore and subsequently displayed a sustained unidirectional rotary motion of up to 20 revolutions/s. These artificial nano-engines operate autonomously in physiological conditions, converting energy into useful mechanical work.

2. Nanopore-based sequential reading of peptides [2]

We recently demonstrated a nanopore-based single-molecule peptide reader capable of reliably detecting single amino-acid substitutions within individual peptides. A peptide is linked to a DNA molecule and sequentially pulled through a biological nanopore by a DNA helicase in single amino-acid steps. Stepping ion-current signals enable discrimination of single-amino-acid substitutions in single reads. Notably, we demonstrated the capability to 'rewind' peptide reads, obtaining indefinitely many independent reads of the same molecule, yielding an undetectably low error rate in single-amino-acid variant identification. Recently, we expanded this concept to discriminating single post-translational modifications within peptides of mixed charge. These proof-of-concept experiments constitute a promising basis for the development of a single-molecule protein sequencer.

3. Real-time imaging of DNA loop extrusion by condensin and cohesin SMC complexes [3]

Structural Maintenance of Chromosomes (SMC) proteins like cohesin and condensin spatially organize chromosomes by extruding DNA into large loops. Using single-molecule assays, we provided unambiguous evidence for loop extrusion by directly visualizing the processive extension of DNA loops by SMCs in real-time. In recent extensions of this work, we showed how this process occurs on supercoiled DNA, that SMCs also can exhibit phase condensation, and that SMC proteins can bypass huge roadblocks of bound proteins on DNA.

References:
[1] X. Shi et al, Nature Physics 18, 1105 (2022); X. Shi et al, Nature Nanotechnology, under review (2023).
[2] H. Brinkerhoff et al, Science 374, 1509 (2021); I. Nova et al, Nature Biotechnology, in print (2023).
[3] Ganji et al, Science 360, 102 (2018); Kim et al, Nature 579, 438 (2020); B. Pradhan et al, Cell Reports 41, 111491(2022).

Prof.Cees Dekker
Kavli Institute of Nanoscience, Delft University of Technology

Keynote Speakers

Keynote Speakers

Session 1: Nanoencapsulation and Functional Ingredients

Prof. Mi-Jung Choi
Department of Food Science and Biotechnology of Animal Resources, Konkuk University, South Korea

Assoc. Prof. Neti Waranuch
Pharmaceutics and Cosmetic Sciences, Faculty of Pharmaceutical Sciences, Naresuan University, Thailand

Session 2: Theory and Simulation for Nanosystems

Prof. Hiromi Nakai
Department of Chemistry and Biochemistry, School of Science and Engineering, Waseda University, Japan

Prof. Ruiqin Zhang
Department of Physics, City University of Hong Kong

Session 4 : Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors

Prof. Natalie Stingelin
Georgia Institute of Technology, USA

Prof. Thomas Anthopoulos
King Abdullah University of Science and Technology (KAUST), Saudi Arabia

Session 5: Nanomedicine, Nanosensor and Nano-biotechnology

Prof. Damion Corrigan
Centre for Advanced Measurement and Health Translation, University of Strathclyde, Scotland

Prof. Alberto Escarpa
Department of Analytical Chemistry, Physical Chemistry, and Chemical Engineering, Faculty of Sciences,University of Alcalá, Spain

Session 6: Nanotechnology for Energy Storage and Management

Dr. Jiaqian Qin
Metallurgy and Materials Science Research Institute, Chulalongkorn University, Thailand

Prof. Nonglak Meethong
Khon Haen University, Thailand

Session 7: Nanotechnology for Environment and Agriculture

Prof. Puangrat Kajitvichyanukul
Department of Environmental Engineering, Faculty of Engineering, Chiang Mai University, Thailand

Session 8: Nanotechnology for Catalysis and Industrial Applications

Prof. George Shimizu
University of Calgary, Canada

Prof. Deanna M. D'Alessandro
The University of Sydney, Australia

Session 9: Nanotechnology for Startups and Industrial Enterprises

Prof. Damion Corrigan
Aureum Diagnostics and Microplate Dx, Scotland, United Kingdom

Session 10: Nanocharacterization & Instrumentation

Dr. Jeng-Lung Chen
National Synchrotron Radiation Research Center, Taiwan

Special Session 1: Advanced Nanostructured Materials for a Global Circular Economy

Prof. Alexander Kuhn
Institut des Sciences Moléculaires, Groupe Nanosystèmes Analytiques, Université de Bordeaux, France

Prof. Emiel Hensen
Chemical Engineering and Chemistry, Eindhoven University of Technology, Netherlands

Prof. Ming-Kang (Brad) Tsai
Department of Chemistry, National Taiwan Normal University, Taiwan

Special Session 2: Symposium on Bio-based Chemicals & Fuels from Lignocellulose 2023 (Hub of Knowledge)

Prof. Navadol Laosiripojana
The Joint Graduate School of Energy and Environment (JGSEE), King Mongkut's University of Technology Thonburi, Thailand

Special Session 3: The 2nd Thailand Symposium on Nanopore Technology

Prof. Cees Dekker
Kavli Institute of Nanoscience, Delft University of Technology, Netherlands

Prof. Giovanni Maglia
University of Groningen, Netherlands

Prof. Haichen Wu
Institute of Chemistry, Chinese Academy of Sciences, China

Prof. Mathias Winterhalter
School of Science, University Bremen gGmbH, Germany

Session Keynote and Invited Speakers

Session 1:
Nanoencapsulation and Functional Ingredients

Keynote Speakers

Prof. Mi-Jung Choi
Department of Food Science and Biotechnology of Animal Resources, Konkuk University, South Korea

Assoc. Prof. Neti Waranuch
Pharmaceutics and Cosmetic Sciences, Faculty of Pharmaceutical Sciences, Naresuan University, Thailand

Invited Speakers

Dr. Kanokwan Sansanaphongpricha
Nanomedicine and Veterinary Research Team, NANOTEC, Thailand

Dr. Teerapong Yata
Faculty of Veterinary Science, Chulalongkorn University, Thailand

Dr. Thongchai Koobkokkruad
Nanolife and Cosmeceuticals Research Team
Nanoencapsulation Research Group
NANOTEC, Thailand

Session 2:
Theory and simulation for Nanosystems

Keynote Speakers

Prof. Hiromi Nakai
Department of Chemistry and Biochemistry,
School of Science and Engineering,
Waseda University, Japan

Prof. Ruiqin Zhang
Department of Physics,
City University of Hong Kong

Invited Speakers

Prof. Jyh-Chiang Jiang
The Department of Chemical Engineering,
the National Taiwan University of Science and
Technology (NTUST), Taiwan

Assoc. Prof. Supareak Praserthdam
Department of Chemical Engineering,
Faculty of Engineering,
Chulalongkorn University, Thailand

Session 3:
Nanosafety and Standard

Invited Speakers

Prof. Ying-Jan Wang
Department of Environmental and Occupational Health, College of Medicine, National Cheng Kung University

Mr. Toshiki Nagano
Fellow/Director, MBA
Center for Research and Development Strategy (CRDS), Japan Science and Technology Agency (JST)

Mr. Dominic Geruka
National Nanotechnology Centre (NNC), Ministry of Science, Technology & Innovation (MOSTI) (Assistant Director & Research Officer), Malaysia

Dr. Jaeseok Kim
Nano-safety Team, Korea Research Institute of Standards and Science (KRISS), South Korea

Prof. Harald F. Krug
NanoCASE GmbH

Assoc. Prof. Worradorn Phairuang
Faculty of Geosciences and Civil Engineering, Institute of Science and Engineering, Kanazawa University, Japan

Dr. Sasitorn Aueviriyavit
National Nanotechnology Center, National Science and Technology Development Agency

Session 4:
Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors

Keynote Speakers

Prof. Natalie Stingelin
Georgia Institute of Technology, USA

Prof. Thomas Anthopoulos
King Abdullah University of Science and Technology (KAUST), Saudi Arabia

Invited Speakers

Prof. Martyn McLachlan
Imperial College London, UK

Prof. Martin Heeney
King Abdullah University of Science and Technology (KAUST), Saudi Arabia

Prof. Nicola Gasparini
Imperial College London, UK

Dr. Satyajit Das
Pragmatic Semiconductor, UK

Prof. Guillaume Wantz
CNRS, University of Bordeaux, France

Prof. Hiroshi Yamamoto
Institute for Molecular Science, Japan

Prof. Fabrice Goubard
CY Cergy Paris Université, France

Assoc. Prof. Pongsakorn Kanjanaboos
Mahidol University, Thailand

Dr. Watcharaphol Paritmongkol
Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand

Prof. Safa Shoaee
University Potsdam , Germany

Prof. Byoung Hun Lee
Pohang University of Science and Technology, Korea

Prof. Jinho Ahn
Hanyang University, Korea

Prof. Rino Choi
Inha University,Korea

Session 5:
Nanomedicine, Nanosensor and Nano-biotechnology

Keynote Speakers

Prof. Damion Corrigan
Centre for Advanced Measurement and Health Translation, University of Strathclyde, Scotland

Prof. Alberto Escarpa
Department of Analytical Chemistry, Physical Chemistry, and Chemical Engineering, Faculty of Sciences,University of Alcalá, Spain

Invited Speakers

Dr. Deanpen Japrung
National Nanotechnology Center, National Science and Technology Development Agency, Thailand

Dr. Suwussa Bamrungsap
National Nanotechnology Center, National Science and Technology Development Agency, Thailand

Prof. Albert Schulte
School of Biomolecular Science & Engineering, Vidyasirimedhi Institute of Science and Technology. Thailand

Dr. Kantapat Chansaenpak
National Nanotechnology Center, National Science and Technology Development Agency, Thailand

Assoc. Prof. Prapasiri Pongprayoon
Kasetsart university,Thailand

Session 6:
Nanotechnology for Energy Storage and Management

Keynote Speakers

Dr. Jiaqian Qin
Metallurgy and Materials Science Research Institute,
Chulalongkorn University, Thailand

Prof. Nonglak Meethong
Khon Kaen University, Thailand

Invited Speakers

Dr. Pawin Iamprasertkun
Sirindhorn International
Institute of Technolgy,
Thammasat University, Thailand

Prof. Pierre-Henri Aubert
University of Cergy-Pontoise, France

Dr. Salatan Duangdangchote
University of Toronto, Canada

Session 7:
Nanotechnology for Environment and Agriculture

Keynote Speakers

Prof. Puangrat Kajitvichyanukul
Department of Environmental Engineering,
Faculty of Engineering, Chiang Mai University, Thailand

Invited Speakers

Assoc. Prof. Patiparn Punyapalakul
Department of Environmental Engineering,
Faculty of Engineering,
Chulalongkorn University , Thailand

Dr. Chalita Ratanatawanate
National Nanotechnology Center, National Science and Technology Development Agency, Thailand

Session 8:
Nanotechnology for Catalysis and Industrial Applications

Keynote Speakers

Prof. George Shimizu
University of Calgary, Canada

Prof. Deanna M. D'Alessandro
The University of Sydney, Australia

Invited Speakers

Asst. Prof. Sareeya Bureekaew
School of Energy Science & Engineering,
Vidyasirimedhi Institute of Science and Technology, Thailand

Tomohiro Fukushima
Faculty of Science, Hokkaido University, Japan

Asst. Prof. Atthapon Srifa
Faculty of Engineering,
Mahidol University, Thailand

Assoc. Prof. Valerio D'Elia
School of Material Science & Engineering,
Vidyasirimedhi Institute of Science and Technology, Thailand

Assoc. Prof. Preeyanuch Sangtrirutnugul
Faculty of Science, Mahidol University, Thailand

Dr. Pongkarn Chakthranont
National Nanotechnology Center (NANOTEC), NSTDA

Session 9:
Nanotechnology for Startups and Industrial Enterprises

Keynote Speakers

Prof. Damion Corrigan
Aureum Diagnostics and Microplate Dx,
Scotland, United Kingdom

Invited Speakers

Prof. Guillaume Wantz
HEOLE, France

Dr. Chuchawin Changtong
RPC Innovation Center, Thailand

Dr. Panachit Kittipanya-ngam
Accomate co., ltd ('ZTRUS')
ex-president of Thailand Tech Startup Association, Thailand

Dr. Pimpisut Worakajit
Cleantech & Beyond, Thailand

Dr. Paisan Khanchaitit
CEO/CTO SPIKE ARCHITECTONICS, THAILAND

Session 10:
Nanocharacterization & Instrumentation

Keynote Speakers

Dr. Jeng-Lung Chen
National Synchrotron Radiation Research Center, Taiwan

Invited Speakers

Prof. Richard E. Palmer
Nanomaterials Lab, Swansea University

Prompong Pienpinijtham
Department of Chemistry, Faculty of Science, Chulalongkorn University

Che Boyang
Application Scientist, HORIBA Instruments (Singapore)

Prof. Ho-Hsiu Chou
National Tsing Hua University
Department of Chemical Engineering, Taiwan

Special Session 1:

Advanced Nanostructured Materials for a Global Circular Economy

Keynote Speakers

Prof. Alexander Kuhn
Institut des Sciences Moléculaires,
Groupe Nanosystèmes Analytiques,
Université de Bordeaux, France

Prof. Emiel Hensen
Chemical Engineering and Chemistry,
Eindhoven University
of Technology, Netherlands

Prof. Ming-Kang (Brad) Tsai
Department of Chemistry,
National Taiwan
Normal University, Taiwan

Invited Speakers

Prof. Xiaolei Fan
Department of Chemical Engineering,
University of Manchester, UK

Prof. Neso Sojic
Institut des Sciences Moléculaires,
University of Bordeaux, France

Assoc. Prof. Alejandro Montoya
School of Chemical and Biomolecular Engineering,
The University of Sydney, Australia

Prof. Kevin C.-W, Wu
Department of Chemical Engineering,
National Taiwan University, Taiwan

Prof. Tetsu Yonezawa
Faculty of Engineering,Materials Science
and Engineering, Hokkaido University, Japan

Dr. Kaito Takahashi
Institute of Atomic and Molecular Sciences,
Academia Sinica, Taipei, Taiwan

Prof. Evgeny Pidko
ISE/ChemE/TNW/TU Delft,
The Netherlands

Prof. Satoshi Watanabe
Department of Materials Engineering,
The University of Tokyo, Japan

Prof. Søren Kegnæs
DTU Chemistry, Technical University
of Denmark, Denmark

Asst.Prof. Thidarat Imyen
Institute for Integrated Cell-Material Sciences (iCeMS)
for Advanced Study, Kyoto University, Japan

Prof. Serena Arnaboldi
Chemistry Department,
University of Milano,Italy

Prof. Lin Zhang
Engineering Research Center for Nanomaterials,
Henan University, China

Prof. Li-Hsien Yeh
National Taiwan University of
Science and Technology, Taiwan

Special Session 2:
Symposium on Bio-based Chemicals & Fuels from Lignocellulose 2023 (Hub of Knowledge)

Keynote Speakers

Prof. Navadol Laosiripojana
The Joint Graduate School of Energy and Environment (JGSEE),
King Mongkut's University of Technology Thonburi, Thailand

Invited Speakers

Prof. Akira Nakayama
University of Tokyo

Dr. Jayeon Baek
Korea Institute of Industrial Technology (KITECH)

Dr. Chotitath Sanpitakseree
National Nanotechnology Center (NANOTEC)

Dr. Sanchai Kuboon
National Nanotechnology Center (NANOTEC)

Prof. Noppadon Sathitsuksanoh
Department of Chemical Engineering,
University of Louisville, USA

Special Session 3:
The 2nd Thailand Symposium on Nanopore technology

Keynote Speakers

Prof. Cees Dekker
Kavli Institute of Nanoscience, Delft University of Technology, Netherlands

Prof. Giovanni Maglia
University of Groningen, Netherlands

Prof. Haichen Wu
Institute of Chemistry, Chinese Academy of Sciences, China

Prof. Mathias Winterhalter
School of Science, University Bremen gGmbH, Germany

Invited Speakers

Dr. Thidathip Wongsurawat
Faculty of Medicine Siriraj Hospital, Mahidol University

Prof. Wipa Suginta
School of Biomolecular Science & Engineering, Vidyasirimedhi Institute of Science and Technology

Dr. Thitikorn Boonkoom
National Nanotechnology Center, NationalScience and Technology Development Agency

Dr. Nuankanya Sathirapongsasuti
Ramathibodi Hospital, Mahidol University

Dr. Piroon Jenjaroenpun
Siriraj Hospital, Mahidol University

Dr. Oraphan Sripichai
National Institute of Health of Thailand

Dr. Pongpun Sawatwong
Division of Global Health Protection, Thailand Ministry of Public Health–US Centers or Disease Control and Prevention Collaboration, Nonthaburi, Thailand

Session 1: Nanoencapsulation and Functional Ingredients
Meeting Room: Dusit 12

Session 1: Nanoencapsulation and Functional Ingredients						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
30 Nov. 23	Session A	10:45 AM-12:15 PM	Session Chair/Co-Chair: Dr. Kanokwan Sansanaphongpricha/Dr. Teerapong Yata			
		10:45 AM-11:15 AM	KN	1A-KN-01	Rheological, structural, and physicochemical properties of heat- and cold-induced emulsion gels using myofibrillar protein or gelatin	Mi-Jung Choi
		11:15 AM-11:45 AM	INV	1A-INV-01	Nanotechnology Advancements in Veterinary Science: Enhancing Healthcare and Performance Across Animal Industries	Teerapong Yata
		11:45 AM-12:00 PM	Regular	1A-OR-01	Green synthesis of silver nanoparticles from Nigella sativa seeds extract: A promising natural approach for enhanced wound healing via PDGF and VEGF signalling pathways activation	Chella Perumal Palanisamy
		12:00 PM-12:15 PM	Regular	1A-OR-02	Imitated Melanin Particles: Hollow Polydopamine Synthesis and Its Application in Sunscreen Product	Yodsathorn Wongngam
		12:15 PM-01:15 PM	Lunch Break			
	Session B	01:15 PM-03:15 PM	Session Chair/Co-Chair: Dr. Kanokwan Sansanaphongpricha/Dr. Teerapong Yata			
		01:15 PM-01:45 PM	KN	1B-KN-01	Nanoencapsulated herbal extract: from idea to products	Neti Waranuch
		01:45 PM-02:15 PM	INV	1B-INV-01	Green extraction development and biological activities of flavonoids compound in Houttuynia cordata Thunb. Extract for functional ingredient indicating its potential as a health product	Thongchai Koobkokkruad
		02:15 PM-02:30 PM	Regular	1B-OR-01	Simple method to increase the liposomes stability and encapsulation efficiency.	Supreeda Tambunlertchai
		02:30 PM-02:45 PM	Regular	1B-OR-02	Panitumumab modified 5,7-dimethoxyflavone loaded-liposome improves targeting and therapeutic efficacy on prostate cancer cells.	Prattana Tanyapanyachon
		02:45 PM-03:00 PM	Regular	1B-OR-03	Resveratrol-loaded liposomes for Targeting and Reprograming Cancer-Associated Fibroblasts in Prostate Cancer	Natsorn Watcharadulyarat
		03:15 PM-03:30 PM	Coffee Break			
		03:30 PM-04:30 PM	Poster Session			
	Session C	04:30 PM-06:30 PM	Session Chair/Co-Chair: Dr. Kanokwan Sansanaphongpricha/Dr. Teerapong Yata			
		04:30 PM-05:00 PM	INV	1C-INV-01	Enhancing Anti-Inflammatory Potential: Ginger-Gold Liposomes with Iontophoresis for Skin Effect	Kanokwan Sansanaphongpricha
		05:00 PM-05:15 PM	Regular	1C-OR-01	Synthesis of Lipid Nanoparticles-Based RNA Delivery Using Microfluidic Technology	Pattanaphong Janphuang
		05:15 PM-05:30 PM	Regular	1C-OR-02	Characterization and In Vitro Digestibility of Colostrum Whey based Nanoparticles through the Structural Modification of Proteins with Ethanol	Muhammad Umar
		05:30 PM-05:45 PM	Regular	1C-OR-03	Characterization and Stability Evaluation of Extracted Mitragyna speciosa (Kratom) Nanoemulsion	Nutlaphat Wasyot

Session 2: Theory and Simulation for Nanosystems
Meeting Room: Dusit 13

Session 2: Theory and Simulation for Nanosystems						
Date	Session	Time	Talk Type	Talk ID	Talk Title	Speaker
30 Nov. 23	Session A	10:45 AM-12:15 PM	Session Chair/Co-Chair:	Prof. Siriporn Jungsuttiwong/Dr. Anchalee Junkaew		
		10:45 AM-11:15 AM	KN	2A-KN-01	Computational Studies of Nanomaterials using DCDFTBMD Program	Prof. Hiromi Nakai
		11:15 AM-11:30 AM	Regular	2A-OR-01	A Systematic Investigation of MBene Anodes for Metal Ion Batteries: A First-Principles Study	Lappawat Ngamwongwan
		11:30 AM-11:45 AM	Regular	2A-OR-02	Mechanism of Glucose Electrooxidation to Gluconolactone on Gold Nanocluster Surface	Hung Tan Pham
		11:45 AM-12:00 PM	Regular	2A-OR-03	First-principles study of metal-decorated biphenylene monolayer as promising hydrogen storage materials	Maneerat Chotsawat
		12:00 PM-12:!5 PM	Regular	2A-OR-04	Insights into different selectivity in HMF hydrogenation over Ni and Cu catalysts through molecular simulation	Aunyamanee Plucksacholatarn
		12:15 PM-01:15 PM	Lunch Break			
	Session B	01:15 PM-03:15 PM	Session Chair/Co-Chair:	Prof. Siriporn Jungsuttiwong/Dr. Anchalee Junkaew		
		01:15 PM-01:45 PM	KN	2B-KN-01	Charge separation and exciton structure in graphene quantum dots and carbon nitride quantum dots	Prof. Ruiqin Zhang
		01:45 PM-02:15 PM	INV	2B-INV-01	Heterogeneous Catalysts Screening with the help of Quantum Chemistry and Machine Learning: A case of high-entropy alloys	Assoc. Prof. Supareak Praserthdam
		02:15 PM-02:30 PM	Regular	2B-OR-01	Charge transport properties in metal halide hybrid perovskites: the perspective of large polarons, alloy scattering, and self-trapped carriers	Anusit Thongnum
		02:30 PM-02:45 PM	Regular	2B-OR-02	Unraveling the role of hydrogen insertion in enhancing electrochemical performance of V2O5 cathode for Mg-ion batteries: A first-principles study	Panupol Untarabut
		02:45 PM-03:00 PM	Regular	2B-OR-03	Suppression of Shuttle Effect via Single Atom Deposition on Biphenylene Cathodes for Na-S Batteries: A First-Principles Study	Pariwut Falun
		03:00 PM-03:15 PM	Regular	2B-OR-04	Computational exploration of dual atom catalysts on defective graphene for hydrogen storage at liquid organic hydride	Bunrat Tharat
		03:15 PM-03:30 PM	Regular	2B-OR-05	DFT Insights into CO2 Electrochemical Reduction on Cu-Based Catalysts: Effects of Explicit Solvent and Surface Structure on C2 Product Selectivity	Jirapat Santatiwongchai
		03:15 PM-03:30 PM	Coffee Break			
		03:30 PM-04:30 PM	Poster Session			

Session 3: Nanosafety and Standard
Meeting Room: Dusit 2

Session 3: Nanosafety and Standard						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
30 Nov. 23	Session B	01:30 PM-04:25 PM	Session Chair/Co-Chair:	Waluree Thongkam/Sasitorn Aueviriyavit		
		01:30 PM-01:50 PM	INV	3B-INV-01	Nanosafety - Excessive data, huge uncertainty How reasonable databases can solve this Gordian knot	Harald F.Krug
		01:50 PM-02:10 PM	INV	3B-INV-02	The Possible Role of Autophagy in Nanomaterials Safety Assessment-Related Alternative Testing Strategies: Take the Ag/ZnO NPs for example	Ying-Jan Wang
		02:10 PM-02:30 PM	INV	3B-INV-03	Towards Responsible Innovation: Challenges for Future Nanotechnology and Advanced Materials	Toshiki Nagano
		02:30 PM-02:50 PM	INV	3B-INV-04	Activities of Center for NanoSafety Metrology in Korea	Jaeseok Kim
		02:50 PM-03:10 PM	INV	3B-INV-05	Insights From Physical-Chemical Testing in Nano-Based Products	Dominic Geruka
		03:15 PM-03:30 PM			Coffee Break	
	Session C	03:30 PM-04:25 PM	Session Chair/Co-Chair:	Waluree Thongkam/Sasitorn Aueviriyavit		
		03:30 PM-03:50 PM	INV	3C-INV-01	Using proteomic approach for investigation of adverse outcome pathways related to nano- and microplastics in human 3D-intestinal model	Sasitorn Aueviriyavit
		03:50 PM-04:10 PM	INV	3C-INV-02	Dynamic Cellular Effects of Airborne Nanoparticles (PM0.1) in Upper Southeast Asia via High-Speed Scanning Ion Conductance Microscopy	Worradorn Phairuang
		04:10 PM-04:25 PM	Regular	3C-OR-01	Particle size distribution, morphology and elemental composition of ultrafine particles in Bangkok traffic area comparing to Euro4 diesel	Kanokwan Sukrak
		03:30 PM-04:30 PM			Poster Session	

Session 4: Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors
Meeting Room: Dusit 1

Session 4: Nanomaterials and Nanotechnology for Electronic/Optoelectronic Devices and Sensors						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
30 Nov. 23	Session A	10:45 AM-12:15 PM	Session Chair/Co-Chair:	Pichaya Pattanasattayawong/Pisist Kumnorkeaew		
		10:45 AM-11:15 AM	KN	4A-KN-01	Flexible Electronics: Challenges and Opportunities — a Materials Science View	Natalie Stingelin
		11:15 AM-11:45 AM	INV	4A-INV-01	Towards Robust Organic Solar Cells Based On Responsible Materials Printed From Water	Guillaume Wantz
		11:45 AM-12:15 AM	INV	4A-INV-02	Metal-Organic Chalcogenolates – An Emerging Family of Low-Dimensional Hybrid Semiconductors	Watcharaphol Paritmongkol
		12.15 PM-12.30 PM	Regular	A4-OR-01	Nanofabrication of Plasmonic Au-Nanohole Arrays via Direct-Impressing Process	Potejanasak Potejana
		12:30 PM-12:45 PM	Regular	A4-OR-02	Deep blue emitter with a combination of hybridized local and charge transfer excited state and aggregation-induced emission features for efficient non-doped OLEDs	Teerapat Itsoponpan
		12:15 PM-01:15 PM			Lunch Break	
	Session B	01:15 PM-03:15 PM	Session Chair/Co-Chair:	Guillaume Wantz/Pisist Kumnorkaew		
		01:15 PM-01:45 PM	INV	4B-INV-01	Design of high performing conjugated polymers with low-synthetic complexity	Martin Heeney
		01:45 PM-02:15 PM	INV	4B-INV-02	From UV to Near-Infrared light detection: next generation photodetectors for imaging and biometric applications	Nicola Gasparini
		02.15 PM-02:45 PM	INV	4B-INV-03	Thin Films for Multiplex Applications: Solar Cell, Light Emitting Diode, Photodetector, and Radiative Cooling Film	Pongsakorn Kanjanaboos
		02:45 PM-03.15 PM	INV	4B-INV-04	What is special about Y6; the working mechanism of neat Y6 organic solar cells	Safa Shoaee
		03:15 PM-03.30 PM	Regular	4B-OR-01	A Switchable Ionic Diode Membrane Enabled by Covalent Organic Framework and PET Conical Nanochannels	Chia-An Lung
		03.30 PM-03.45 PM	Regular	4B-OR-02	Synthesis of Fe3O4 Ceramic Magnet via Cold Sintering Process	Nuchjaree Salidkul
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
	Session C	04:30 PM-06:30 PM	Session Chair/Co-Chair:	Watcharaphol Paritmongkol/Vinich Promarak		
		04:30 PM-05:00 PM	INV	4C-INV-01	Engineering Performance and Stability Enhancements in Perovskite Photovoltaics	M. A. McLachlan
		05.00 PM-05:30 PM	INV	4C-INV-02	Molecular Engineering of Hole Transporting Molecules for High Efficient and Enhanced Thermal Stability Perovskite Solar Cell	Fabrice GOUBARD
		05:30 PM-05:45 PM	Regular	4C-OR-01	Towards Perovskite-Based Next-Generation Electronics: n-Type Doping of Methylammonium Lead Iodide Thin Films	Zuzanna Molenda
		05:45 PM-06.00 PM	Regular	4C-OR-02	Exploring compositional landscape of triple cation perovskite to achieve functional perovskite solar cell for indoor application	Ladda Srathongsian
		06.00 PM-06.15 PM	Regular	4C-OR-03	High-Performance Perovskite/Organic Tandem Solar Cells	Furkan Isikgor
		06:15 PM-06:30 PM	Regular	4C-OR-04	Energy-efficient Perovskite Solar Cell Production via Microwave Annealing Process and Carbon-based Additives	Thunrada Sukwiboon
		06:30 PM-06:45 PM	Regular	4C-OR-05	Thermal stability of total absorptivity in metallic oxide nanotextured surfaces for enhanced performance selective solar coatings	Piyawath Tapsanit
		06:45 PM-07.00 PM	Regular	4C-OR-06	Synthesis of Natural Rubber-Titanium Dioxide/Silver Nanocomposite for the fabrication of high performance Triboelectric Nanogenerator	Weeraya Bunriw
1 Dec. 23	Session D	10:15 AM-12:15 PM	Session Chair/Co-Chair:	Hiroshi M Yamamoto/Anusit Kaewprajak		
		10:15 AM-10:45 AM	KN	4D-KN-01	Innovative Nanomanufacturing Paradigms for Sustainable Large-Area Electronics	Thomas D. Anthopoulos
		10:45 AM-11.15 AM	INV	4D-INV-01	Advancement of EUV Lithography through Nano-material Technologies in Masks and Pellicles	Jinho Ahn
		11:15 AM-11:45 AM	INV	4D-INV-02	Facile Process to Control the Phase of Ferroeletric HfO2/ZrO2 Composite Dielectrics using CW Laser Annealing	Byoung Hun Lee
		11:15 AM-12.00 PM	Regular	4D-OR-01	Synthesis and Characterization of Diamond-Like Carbon Films with Different Proton Acceptor Hydrocarbon Electrolytes of Electrodeposition for Motion Sensor	Suwat Buathong
		12:00 PM-12.15 PM	Regular	4D-OR-02	Synthesis of cellulose paper from sugarcane leaves filled with magnetite nanoparticles for triboelectric nanogenerator application to harvest mechanical energy	Wimonsiri Yamklang
		12:15 PM-01:15 PM			Lunch Break	
	Session E	01:15 PM-03:15 PM	Session Chair/Co-Chair:	Pongsakorn Kanjanaboos/Watcharaphol Paritmongkol		
		01:15 PM-01:45 PM	INV	4E-INV-01	Magnetic Enantioseparation and Chirality-Induced Spin Selectivity	Hiroshi M. Yamamoto
		01.45 PM-02:15 PM	INV	4E-INV-02	Advancements in 3D Integration: Challenges and Possibilities	Rino Choi
		02:15 PM-02:30 PM	Regular	4E-OR-01	Performance of Carbon Nanotube Thermal Paste in Peltier Cooling Applications	Nur Diyana Syazwani Zambri
		02:30 PM-02:45 PM	Regular	4E-OR-02	Hot-electron SERS substrate for solar thermal coating	Kitiphat Sinthiptharakoon
		02:45 PM-03:00 PM	Regular	4E-OR-03	Effect of sintering temperature on the thermoelectric properties of Ag2Se fabricated by spark plasma sintering with high compression	Dulyawich Palaporn
		03.00 PM-03:15 PM	Regular	4E-OR-04	Effects of capping agent on tin dioxide nanoparticles synthesized by simple precipitation method	Chutima Nakmuk
		03.15 PM-03.30 PM	Regular	4E-OR-05	Electrically Conducting PDMS Elastomer for Fluid Flow Detection	Tanujjal Bora
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
		04:30 PM-05:00 PM			Closing Ceremony	

Session 5: Nanomedicine, Nanosensor and Nano-biotechnology
Meeting Room: Dusit 7

Session 5: Nanomedicine, Nanosensor and Nano-biotechnology						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
30 Nov. 23	Session A	10:45 AM-12:15 PM	Session Chair/Co-Chair: Dr. Deanpen Japrung and Co-Chairs			
		10:45 AM-11:15 AM	KN	5A-KN-01	New Biosensor Modalities Through Surface Modification With Nanoscale DNA Origami Structures	Damion K Corrigan
		11:15 AM-11:45 AM	INV	5A-INV-01	Emerging Nanosensors for Cancer and Metabolic Disease Screening A Journey	Deanpen Japrung
		11:45 AM-12:00 PM	Regular	5A-OR-01	Plasmonic Nanowire SERS Endoscopy for Unveiling Intracellular Drug Dynamics	Farsai Taemaitree
		12:00 PM-12:15 PM	Regular	5A-OR-02	Antibody-Aptamer SERS-based Lateral Flow Immunoassay (SERS-LFIA) For The Quantitative Detection of Human Serum Albumin Protein	Kiatnida Treerattrakoon
		12:15 PM-01:15 PM	Lunch Break			
	Session B	01:15 PM-03:15 PM	Session Chair/Co-Chair: Dr. Deanpen Japrung and Co-Chairs			
		01:15 PM-01:45 PM	INV	5B-INV-01	Micromotors in nanomedicine: biosensing on the fly for clinical diagnosis	Alberto Escarpa
		01:45 PM-02:15 PM	INV	5B-INV-02	Carbon nanotubes-modified sustainable sensors for advanced practical electr	Albert Schulte
		02:15 PM-02:30 PM	Regular	5B-OR-01	Hepatoprotective Effect of Zinc Oxide Nanoparticles Against Non-Alcoholic Fatty Liver Disease in Hepatocellular Carcinoma Cells	Kornwalai Tunkaew
		02:30 PM-02:45 PM	Regular	5B-OR-02	Zinc oxide nanoparticle from Flame spray pyrolysis (FSP ZnO-NP) alleviate intestinal cholesterol absorption in intestinal Caco-2 cells	Thanthakan Saithong
		02:45 PM-03:00 PM	Regular	5B-OR-03	Effect of the ethanol-to-water ratio on the properties of silica,Äìcarbon core,Äìshell materials for prolonged antibacterial activity of thymol	Jakkapop Phanthasri
		03:00 PM-03:15 PM	Regular	5B-OR-04	Screen-printed graphene electrodes for 11-nor-delta-9-tetrahydrocannabinol-carboxylic acid based on electrochemical sensing.	Wichayaporn Kamsong
		03:15 PM-03:30 PM	Coffee Break			
		03:30 PM-04:30 PM	Poster Session			
	Session C	04:30 PM-06:30 PM	Session Chair/Co-Chair: Dr. Deanpen Japrung and Co-Chairs			
		04:30 PM-05:00 PM	INV	5C-INV-01	SERS-based biosensors for medical applications	Suwussa Bamrungsap
		05:00 PM-05:15 PM	Regular	5C-OR-01	Nanoporous composites for environment, catalysis, and medicine	Raffaele Ricco
		05:15 PM-05:30 PM	Regular	5C-OR-02	Synthesis of Chlorophytum borivilianum mediated synthesized silver nanoparticles and their antioxidant and antibacterial activities	Shabnam Thakur
		05:30 PM-05:45 PM	Regular	5C-OR-03	Mesoporous silica nanoparticles conjugated with curcumin as a redox-responsive and targeted drug delivery agent for brain cancer therapy	Wahyu Nur Safitriono
		05:45 PM-06:00 PM	Regular	5C-OR-04	Hydrothermal Optimization of Bicontinuous Concentric Lamellar (bcl) Mesoporous Silica for Enhanced Drug Loading	Dyah Ellyawati
						Kusumaningtyas Maharani
1 Dec. 23	Session D	10:15 AM-12:15 PM	Session Chair/Co-Chair: Dr. Deanpen Japrung and Co-Chairs			
		10:15 AM-10:45 AM	KN	5D-KN-01	Advanced Nanomaterials for Cancer Detection and Phototherapy using light-	Kantapat Chansaenpak
		10:45 AM-11:15 AM	INV	5D-INV-01	Modelling the aggregation of miRNA cancer biomarkers on a graphene	Prapasiri Pongprayoon
		11:15 AM-11:30 AM	Regular	5D-OR-01	Methanethiol electroanalysis with carbon nanotube/gelatin-modified glassy carbon electrodes	Somjai Teanphonkrang
		11:30 AM-11:45 AM	Regular	5D-OR-02	Electrochemical sensor based on graphene oxide-gold nanoparticles/poly(3-aminobenzoic acid) for Paraquat detection in water	Dechnarong Pimalai
		11:45 AM-12:00 PM	Regular	5D-OR-03	Chitosan Blending with Water-Soluble Polymers and Sugars as Dissolving Microneedles for Controlled Drug Release	Fuad Saleh
		12:15 PM-01:15 PM	Lunch Break			

Session 6: Nanotechnology for Energy Storage and Management
Meeting Room: Dusit 5

Session 6: Nanotechnology for Energy Storage and Management						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
30 Nov. 23	Session A	10:45 AM-12:15 PM	Session Chair/Co-Chair:	Montree Sawangphruk/Tanyakorn Muangnapoh		
		10:45 AM-11:15 AM	KN	6A-KN-01	Multi-layer Silicene Nanosheets Derived from End-of-life Solar Cells for Use as Anodes in Lithium-ion Batteries	Nonglak Meethong
		11:15 AM-11:30 AM	Regular	6A-OR-01	A Heterogeneous Ionic Diode Membrane with High Geometry Gradient Based on Metal-Organic Frameworks for Efficient Osmotic Power Generation in Organic Solution	Fery Prasetyo
		11:30 AM-11:45 AM	Regular	6A-OR-02	A New Electrokinetic Energy Generator Inspired by Trees	Chi-Han Bai
		11:45 AM-12:00 PM	Regular	6A-OR-03	Biomimetic Ionic Diode Membranes Based on Covalent-Organic Frameworks for Highly Efficient Energy Harvesting from Ionic Gradients	Cheng-Hsuan Hung
		12:00 PM-12:15 PM	Regular	6A-OR-04	Sulfide Oxidation on Ladder-type Heteroarenes to Construct All-acceptor Copolymers for Visible-light-driven Hydrogen Evolution	Wei-Cheng Lin
		12:15 PM-01:15 PM			Lunch Break	
	Session B	01:15 PM-03:15 PM	Session Chair/Co-Chair:	Montree Sawangphruk/Tanyakorn Muangnapoh		
		01:15 PM-01:45 PM	INV	6B-INV-01	All-solid-state Supercapacitors Combining rGO and Dynamic Ion Gels	P.H. Aubert
		01:45 PM-02:00 PM	Regular	6B-OR-01	Nanoporous Activated Carbon from Rice Husk as Electrode Material: Enhancing Supercapacitor Electrochemical Performance	Nattarika Boonraksa
		02:00 PM-02:15 PM	Regular	6B-OR-02	Enhancing Nafion Electrolyte Membrane Performance with Zn-Based Metal-Organic Framework	Teerapat Kotpatjim
		02:15 PM-02:30 PM	Regular	6B-OR-03	The effect of NiCo2O4, NiCo2S4, and NiCo2Se4 as Bifunctional Photoelectrocatalysts towards Zinc-air Batteries	Daranphop Pikulrat
		02:30 PM-02:45 PM	Regular	6B-OR-04	Unveiling Enhancements in Ultrathin Coating Layers on Ni-Rich NMC811 Thick Electrodes for Improved Electrochemical Performance	Surat Prempluem
		02:45 PM-03:00 PM	Regular	6B-OR-05	NiMnO3 (NMO) and Mn3O4/NiMnO3 nanostructures synthesized by hydrothermal method as supercapacitor	Thitirat Kansaard
		03:00 PM-03:15 PM	Regular	6B-OR-06	Microcracking of Ni-rich Layered Oxide Does Not Occur at Single Crystal Primary Particles Even Abused at 4.7 V	Kan Homlamai
		03:15 PM-03:30 PM	Regular	6B-OR-07	Nanocomposite Cathode for Sodium Ion Batteries: Single-Step Precipitation Synthesis of Prussian Blue/Reduced Graphene Oxide with Ascorbic Acid	Tanaporn Kongthong
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
	Session C	04:30 PM-06:30 PM	Session Chair/Co-Chair:	Montree Sawangphruk/Tanyakorn Muangnapoh		
		04:30 PM-04:55 PM	INV	6C-INV-01	2D Materials: Bridging the Gap between Experiments and Data Mining for Cutting-edge Electrochemical Applications	Pawin Iamprasertkun
		04:55 PM-05:15 PM	INV	6C-INV-02	Materials graph neural networks and the discovery of solid-state electrolyte materials	Salatan Duangdangchote
		05:15 PM-05:30 PM	Regular	6C-OR-01	Reducing Intrinsic Drawbacks of Ni-rich Layered Oxide with a Multifunctional Materials Dry-coating Strategy	Nichakarn Anansuksawat
		05:30 PM-05:45 PM	Regular	6C-OR-02	Impact of cationic molecular length of ionic liquid electrolytes on cell performance of 18650 supercapacitors	Phatsawit Wuamprakhon
		05:45 PM-06:00 PM	Regular	6C-OR-03	Non-flammable electrolyte for practical Ni-rich Li-ion batteries with zero risk in battery explosion and thermal runaway	Thitiphum Sangsanit
		06:00 PM-06:15 PM	Regular	6C-OR-04	The failure mechanism of large-scale 18650 lithium,Äisulfur batteries	Surasak Kaenket
		06:15 PM-06:30 PM	Regular	6C-OR-05	Graphite Unleashed: Natural vs. Artificial in Boosting Ni-rich Li-ion Batteries Across Coin and Cylindrical Configurations	Ronnachai Songthan
1 Dec. 23	Session D	10:15 AM-12:15 PM	Session Chair/Co-Chair:	Montree Sawangphruk/Tanyakorn Muangnapoh		
		10:15 AM-10:45 AM	KN	6D-KN-01	Toward High-Performance Zn ion Batteries	Jiaqian Qin
		10:45 AM-11:00 AM	Regular	6D-OR-01	Biochar-supported Pd Electrocatalysts for Ethanol Oxidation Reaction in Basic Medium	Bernard John V. Tongol
		11:00 AM-11:15 AM	Regular	6D-OR-02	The effects of severe operating temperature on supercapacitors	Apichanont Limsukhon
		11:15 AM-11:30 AM	Regular	6D-OR-03	Biochar and Polypyrrole on Natural Woven Fabrics as Electrodes for Symmetrical Supercapacitors	CHRISTINA BINAG
		11:30 AM-11:45 AM	Regular	6D-OR-04	Graphene-Based Fiber Electrode for Flexible Zn-Ion Battery	Nakarin Subjalearndee
		11:45 AM-12:00 PM	Regular	6D-OR-05	Electrochemical development of MnFe2O4 ferrite oxide and Mn3O4/MnFe2O4 nanomaterials for supercapacitor.	Thareeart Singha
		12:00 PM-12:15 PM	Regular	6D-OR-06	Modified cellulose-based binders for aqueous-electrolyte supercapacitor	Jedsada Manyam
		12:15 PM-01:15 PM			Lunch Break	

Session 7: Nanotechnology for Environment and Agriculture
Meeting Room: Dusit 14

Session 7: Nanotechnology for Environment and Agriculture						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
30 Nov. 23	Session A	10:45 AM-12:15 PM	Session Chair/Co-Chair: Dr. Varol Intasanta/Dr. Warayuth Sajomsang			
		10:45 AM-11:15 AM	KN	7A-KN-01	Leveraging Nanotechnology for Green Mitigation Change and Effects on Environment and Agriculture	Puangrat Kajitvichyanukul
		11:15 AM-11:45 AM	INV	7A-INV-01	Removal of iodinated disinfection by-products by modified metal-organic frameworks	Patiparn Punyapalakul
		11:45 AM-12:00 PM	Regular	7A-OR-01	Innovative Graphene Oxide-Nile Red Fluorescent Dye for Identification and Quantitation of Microplastics	Sukanya Sirimak
		12:00 PM-12:15 PM	Regular	7A-OR-02	Enhancing the TDS removal in sedimentation process by graphene magnetic property	Suchanan Thanyaphutthinon
		12:15 PM-01:15 PM	Lunch Break			
	Session B	01:15 PM-03:15 PM	Session Chair/Co-Chair: Dr. Varol Intasanta/Dr. Warayuth Sajomsang			
		01:15 PM-01:45 PM	INV	7B-INV-01	Towards Environmental Sustainability: Synthesis and Scale-up of MOFs from Recycled Materials for Environmental Applications	Chalita Ratanatawanate
		01:45 PM-02:00 PM	Regular	7B-OR-01	Synthesis of Graphene from Agricultural Waste for Electrodes in Capacitive Deionization Applications	Penpicha Poonpat
		02:00 PM-02:15 PM	Regular	7B-OR-02	Fabricating of RGO Nanosheet from Sugarcane Bagasse as a Profitable Material Based on the Chemical Reaction Routes	Ikhwan Darmawan
		02:15 PM-02:30 PM	Regular	7B-OR-03	A Study on Superhydrophilic and Anti-Dust Coatings Using Mixed Colloidal Silica Nanoparticles	Tippawan Sodsai
		03:15 PM-03:30 PM	Coffee Break			
		03:30 PM-04:30 PM	Poster Session			

Session 8: Nanotechnology for Catalysis and Industrial Applications
Meeting Room: Dusit 6

Session 8: Nanotechnology for Catalysis and Industrial Applications						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
30 Nov. 23	Session A	10:45 AM-12:15 PM	Session Chair/Co-Chair:	Kajornsak Faungnawakij / Sareeya Bureekaew		
		10:45 AM-11:15 AM	KN	8A-KN-01	De-risking a Metal-Organic Framework for Practical Carbon Capture	George Shimizu
		11:15 AM-11:45 AM	INV	8A-INV-01	Co-based metal-organic frameworks for photocatalytic hydrogen production	Sareeya Bureekaew
		11:45 AM-12:00 AM	Regular	8A-OR-01	Enhanced Syngas Production via CO2 Reforming of Methane over Ni/SBA-15 Nano-Catalyst Derived from Palm Oil Fuel Ash	Ahmad Salam Farooqi
		12:00 AM-12:15 AM	Regular	8A-OR-02	In-situ growth of amine-functionalized g-C3N4 nanotubes with carbon vacancies induced by Ni single atoms for efficient visible-light photocatalytic CO2 reduction	Tammanoon Chankhanittha
		12:15 PM-01:15 PM			Lunch Break	
	Session B	01:15 PM-03:15 PM	Session Chair/Co-Chair:	Pongkarn Chakthranont / Kajornsak Faungnawakij		
		01:15 PM-01:45 PM	KN	8B-KN-01	Harnessing Electroactivity in Metal-Organic Frameworks: Fundamentals to Applications	Deanna M. D'Alessandro
		01:45 PM-02:15 PM	INV	8B-INV-01	Advances in Process Design for Electrocatalytic CO2 Reduction and Biomass Oxidation: From Catalysts to Functional Devices	Pongkarn Chakthranont
		02:15 PM-02:30 PM	Regular	8B-OR-01	Electrochemical oxidation of hydroxymethylfurfural (HMF) to furandicarboxylic acid (FDCA) and CO2 reduction over metal nanoparticles/carbon nanotubes derived from CO2	Anousha Sohail
		02:30 PM-02:45 PM	Regular	8B-OR-02	Copper-nickel alloy modified silicon photoanodes for photoelectrochemical water oxidation and urea oxidation	Kanokwan Klahan
		02:45 PM-03:00 PM	Regular	8B-OR-03	Accelerated synthesis of nanolayered MWW zeolite by interzeolite transformation	Peerapol Pornsetmetakul
		03:00 PM-03:15 PM	Regular	8B-OR-04	Accelerated synthesis of hierarchical FER nanoneedles via ETL seed-assisted approach and their application in bioethanol dehydration	Narasiri Maineawklang
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
	Session C	04:30 PM-06:30 PM	Session Chair/Co-Chair:	Tomohiro Fukushima / Kajornsak Faungnawakij		
		04:30 PM-05:00 PM	INV	8C-INV-01	Enhanced Ionic Conduction by Vibrational Strong Coupling of Water	Tomohiro Fukushima
		05:00 PM-05:30 PM	INV	8C-INV-02	Utilizing the Heterogeneous Catalysts for Conversion of Oil-based Feedstocks and Platform Chemicals to Biofuel and Biochemicals in Biorefinery Applications	Atthapon Srifa
		05:30 PM-05:45 PM	Regular	8C-OR-01	A new Electrode Using a Cu-SiO2 nanocatalyst for Reducing Chloride Ions from Eshidiya Mine Wastewater, South Jordan	Mohammad Al-Hwaiti
		05:45 PM-06:00 PM	Regular	8C-OR-02	Zinc-organic framework and titanium dioxide nanocomposite for use as photocatalyst for dye degradation	Pemika Chaichana
		06:00 PM-06:15 PM	Regular	8C-OR-03	Antibacterial Effect of Core-Shell Gold-Based Nanoparticles in Paint	Romchalee Poopakaphunpong
	Session C	04:30 PM-06:30 PM	Session Chair/Co-Chair:	Tomohiro Fukushima / Kajornsak Faungnawakij		
		04:30 PM-05:00 PM	INV	8C-INV-01	Enhanced Ionic Conduction by Vibrational Strong Coupling of Water	Tomohiro Fukushima
		05:00 PM-05:30 PM	INV	8C-INV-02	Utilizing the Heterogeneous Catalysts for Conversion of Oil-based Feedstocks and Platform Chemicals to Biofuel and Biochemicals in Biorefinery Applications	Atthapon Srifa
		05:30 PM-05:45 PM	Regular	8C-OR-01	A new Electrode Using a Cu-SiO2 nanocatalyst for Reducing Chloride Ions from Eshidiya Mine Wastewater, South Jordan	Mohammad Al-Hwaiti
		05:45 PM-06:00 PM	Regular	8C-OR-02	Zinc-organic framework and titanium dioxide nanocomposite for use as photocatalyst for dye degradation	Pemika Chaichana
		06:00 PM-06:15 PM	Regular	8C-OR-03	Antibacterial Effect of Core-Shell Gold-Based Nanoparticles in Paint	Romchalee Poopakaphunpong
1 Dec. 23	Session D	10:15 AM-12:15 PM	Session Chair/Co-Chair:	Valerio D' Elia / Sareeya Bureekaew		
		10:15 AM-10:45 AM	INV	8D-INV-01	Simple Catalysts with Remarkable Chemistry for the Cycloaddition of CO2 to epoxides	Valerio D' Elia
		10:45 AM-11:15 AM	INV	8D-INV-02	Triazole-containing catalysts for alcohol oxidation and CO2 conversion	Preeyanuch Sangtrirutnugul
		11:15 AM-11:30 AM	Regular	8D-OR-01	Cellulose Benzenesulfonic Acid as a Solid Acid Catalyst for Fructose Conversion to 5-HMF	Aniwat Pengsawang
		11:30 AM-11:45 AM	Regular	8D-OR-02	Sustainable production of silver doped activated carbon using a green process: Facile upscaling from Laboratory scale to pilot plant	Wittawat Toomsan
		11:45 AM-12:00 AM	Regular	8D-OR-03	Preparation of Mesoporous Nanosphere Carbon as an efficient Heterogeneous Fenton-like catalyst for degradation of Reactive dyes	Manunchaya Jaideekard
		12:15 PM-01:15 PM			Lunch Break	

Session 9: Nanotechnology for Startups and Industrial Enterprises
Meeting Room: Dusit 13

Session 9: Nanotechnology for Startups and Industrial Enterprises						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
1 Dec. 23	Session D	10:15 AM-12:15 PM	Session Chair/Co-Chair:	Asst.Prof. Dr. Pichaya Pattanasattayavong and Dr. Paisan Khanchaitit		
		10:15 AM-10:45 AM	KN	9D-KN-01	Translating electrochemical biosensor technologies from the university environment into the commercial space	Prof. Damion Corrigan
		10:45 AM-11:15 AM	INV	9D-INV-01	HEOLE: Organic Solar Sails And Textiles For Marine Decarbonation And Building Integrated Photovoltaic	Prof. Guillaume Wantz
		11:15 AM-11:45 AM	INV	9D-INV-02	Digital Temperature Indicators (DTIs) – Battery-free RFID/NFC smart labels based on thermoresponsive materials	Dr. Pimpisut Worakajit
		11:45 AM-12:15 PM	INV	9D-INV-03	Challenging Factors in Advancing Research to New Business: Case Studies	Dr. Chuchawin Changtong
		12:15 PM-12:45 PM	INV	9D-INV-04	A Case Study of a Scalable and Pivotable Platform for Deep-Tech Startups in Microstructure Fabrication for Biomedical Engineering	Dr. Paisan Khanchaitit
		12:15 PM-01:15 PM			Lunch Break	

Session 10: Nanocharacterization & Instrumentation
Meeting Room: Dusit 12

Session 10: Nanocharacterization & Instrumentation						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
1 Dec. 23	Session D	10:15 AM-12:15 PM	Session Chair/Co-Chair: Dr. Annop Klamchuen/Dr. Pinit kidkhunthod/Dr. Kitiphat Sinthiptharakoon/Dr. Narong Chanlek			
		10:15 AM-10:45 AM	KN	10D-KN-01	Application of X-ray absorption spectroscopy at TPS 44A1 beamline to decipher the active site in energy material science	Jeng-Lung Chen
		10:45 AM-11:15 AM	INV	10D-INV-01	NanoRaman: Integrating AFM and Raman to Provide Colocalized and Tip-Enhanced Analysis	Che Boyang
		11:15 AM-11:45 AM	INV	10D-INV-02	Tip-Enhanced Raman Scattering for Nanoscale Investigation	Prompong Pienpinijtham
		11:45 AM-12:15 PM	INV	10D-INV-03	Quantum electron dose for electron beam sensitive nano-materials	Tetsuo Oikawa
		12:15 PM-01:15 PM			Lunch Break	
	Session E	01:15 PM-03:15 PM	Session Chair/Co-Chair: Dr. Annop Klamchuen/Dr. Pinit kidkhunthod/Dr. Kitiphat Sinthiptharakoon/Dr. Narong Chanlek			
		01:15 PM-01:45 PM	INV	10E-INV-01	Nanoparticles in the real world: Insights into deposited clusters from aberration-corrected electron microscopy	Richard E. Palmer
		01:45 PM-02:15 PM	INV	10E-INV-02	Semiconducting Polymer Photocatalysts for Solar-driven Hydrogen Evolution	Ho-Hsiu Chou
		02:15 PM-02:30 PM	Regular	10E-OR-01	3D-Image Analysis of the Microstructure of Porous High-Temperature Ceramics using FIB-SEM	Efi Dwi Indari
		02:30 PM-02:45 PM	Regular	10E-OR-02	The influence of polyvinylpyrrolidone on dispersion stability and photocatalytic activity of Ag-TiO2 nanoparticles with ultra-probe sonication	Siripond Phromma
		02:45 PM-03:00 PM	Regular	10E-OR-03	The Study of Nanoparticle Composition in Sub-urban area	Yaowatat Boongla
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
		04:30 PM-05:00 PM			Closing Ceremony	

Session 11 [Special Session 1]: Advanced Nanostructured Materials for a Global Circular Economy
Meeting Room: Dusit 4

Session 11 [Special Session 1] : Advanced Nanostructured Materials for a Global Circular Economy						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
30 Nov. 23	Session A	10:45 AM-12:15 PM	Session Chair/Co-Chair:	Prof. Alexander Kuhn/ Assoc. Prof. Dr. Chularat Wattanakit		
		10:45 AM-11:15 AM	KN	11A-KN-01	Nanoscale Control in Heterogeneous Catalysis for a Sustainable Future	Prof. Emiel Hensen
		11:15 AM-11:45 AM	INV	11A-INV-01	Plasma Catalysis: Process Intensification at the Molecular Level	Prof. Xiaolei Fan
		11:45 AM-12:15 PM	INV	11A-INV-02	Exploring a Novel Oxide State of Copper for Semiconductor Technology Materials	Prof. Tetsu Yonezawa
		12:15 PM-01:15 PM			Lunch Break	
	Session B	01:15 PM-03:15 PM	Session Chair/Co-Chair:	Prof. Kevin C.-W. Wu/ Dr. Supawadee Namuangruk		
		01:15 PM-01:45 PM	KN	11B-KN-01	Formic Acid Synthesis from CO2 + H2 by Transition Metal-Chelated MOF-253: A Computational Chemistry Perspective	Prof. Ming-Kang (Brad) Tsai
		01:45 PM-02:15 PM	INV	11B-INV-01	Decoding Multimetallic Ensembles in Zeolite Pores: Towards Bias-Free Operando Modeling	Prof. Dr. Evgeny Pidko
		02:15 PM-02:45 PM	INV	11B-INV-02	Theoretical Understanding on Carbon-Carbon Coupling Reaction on B-doped Graphyne from Bond Order Conservation	Dr. Kaito Takahashi
		02:45 PM-03:15 PM	INV	11B-INV-03	Simulations on Ion-Dynamics-Related Properties of Nanomaterials via Machine Learning Potentials	Prof. Satoshi Watanabe
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
	Session C	04:30 PM-06:30 PM	Session Chair/Co-Chair:	Prof. Satoshi Watanabe/ Asst.Prof. Thidarat Imyen		
		04:30 PM - 05.00 PM	INV	11C-INV-01	Utilization of CO2 using nanostructured heterogeneous catalysts	Prof. Søren Kegnæs
		05:00 PM - 05:30 PM	INV	11C-INV-02	Metal-Organic Frameworks (MOFs)-Driven Carbon Neutral Society: Heterogeneous Catalysis of Waste Biomass and Plastics Conversion	Prof. Kevin C.-W. Wu
		05.30 PM - 06.00 PM	INV	11C-INV-03	Towards Ultrahigh Osmotic Power Harvesting by Metal-Organic Frameworks and Covalent-Organic Frameworks	Prof. Li-Hsien Yeh
1 Dec. 23	Session D	10:15 AM-12:15 PM	Session Chair/Co-Chair:	Prof. Emiel Hensen/ Dr. Kaito Takahashi		
		10:15 AM-10:45 AM	KN	11D-KN-01	Nanostructured electrodes as an attractive tool for green chemistry	Prof. Alexander Kuhn
		10:45 AM-11:15 AM	INV	11D-INV-01	Green Energy and Water Cleanup: Biocrude Production and Advanced Remediation of Carbon and Nitrogen-Enriched Wastewater	Assoc. Prof. Alejandro Montoya
		11:15 AM-11:45 AM	INV	11D-INV-02	Macroscopic shaping of monolithic catalyst via crystal-glass transformation of coordination polymer	Asst.Prof. Thidarat Imyen
		11:45 AM-12:00 PM	Regular	11D-OR-01	Magnetic Field-Enhanced Self-Electrophoretic Propulsion for Enantioselective Synthesis with Nanostructured Microswimmers	Dr. Gerardo Salinas
		12:00 PM-12:15 PM	Regular	11D-OR-02	Accelerating Circular Economy Initiatives for a Sustainable Future	Ms. Norhaizam Mustaffa
		12:15 PM-01:15 PM			Lunch Break	
	Session E	01:15 PM-03:15 PM	Session Chair/Co-Chair:	Prof. Xiaolei Fan/ Dr. Sopon Butcha		
		01:15 PM-01:45 PM	INV	11E-INV-01	Photo-Induced Electrochemiluminescence at Nanostructured Semiconductor Surfaces	Prof. Neso Sojic
		01:45 PM-02:15 PM	INV	11E-INV-02	Bulk Electroenzymatic Synthesis with Microelectrodes by Bipolar Electrochemistry	Prof. Lin Zhang
		02:15 PM-02:45 PM	INV	11E-INV-03	Electromechanical Systems for the Enantioselective Wireless Loading and Release of Fluids	Assoc. Prof. Serena Arnaboldi
		02:45 PM-03:00 PM	Regular	11E-OR-01	Miniaturized tubular devices for the wireless separation of racemic mixtures	Dr. Sara Grecchi
		03:00 PM-03:15 PM	Regular	11E-OR-02	Bifunctional hafnium-isomorphously substituted Beta zeolite for one-pot 5-hydroxymethylfurfural synthesis from glucose	Wanmai Srisuwanno
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
		04:30 PM-05:00 PM			Closing Ceremony	

Session 12 [Special Session 2]: Symposium on Bio-based Chemicals & Fuels from Lignocellulose 2023 (Hub of Knowledge) Meeting Room: Dusit 6

Session 12 [Special Session 2]: Symposium on Bio-based Chemicals & Fuels from Lignocellulose 2023 (Hub of Knowledge)						
Date	**Session**	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
1 Dec. 23	Session E	01:15 PM-03:15 PM	Session Chair/Co-Chair:	Bunyarat Rungtaweevoranit / Chotitath Sanpitakseree		
		01:15 PM-01:45 PM	KN	12E-KN-01	Synthesis of Carbon-based Acid Catalysts from Lignin and its Activity toward Synthesis of Long-Chain Hydrocarbon Phase Change Material (PCM)	Navadol Laosiripojana
		01:45 PM-02:10 PM	INV	12E-INV-01	Molecular Adsorption and Conversion at the Liquid/Solid-Oxide Interface by Computational Approach	Akira Nakayama
		02:10 PM-02:35 PM	INV	12E-INV-02	Valorization of biomass-derived chemicals and C1 gases to value-added commodities via catalytic reactions	Jayeon Baek
		02:35 PM-03:00 PM	INV	12E-INV-03	Unlocking values in biomass toward energy transition	Noppadon Sathitsuksanoh
		03:00 PM-03:25 PM	INV	12E-INV-04	Solid biofuel and its future as an alternative energy source in Thailand	Sanchai Kuboon
		03:25 PM-03:50 PM	INV	12E-INV-05	Revealing kinetics post rate-determining step for Bronsted-acid catalyzed reactions of fructose	Chotitath Sanpitakseree
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
		04:30 PM-05:00 PM			Closing Ceremony	

Session 13 [Special session 3]: The 2nd Thailand Symposium on Nanopore technology
Meeting Room: Dusit 14

30 Nov. 23	cial session 3]:The 2nd Thailand Symposium on Nanopore technology					
	Session	**Time**	**Talk Type**	**Talk ID**	**Talk Title**	**Speaker**
	Session C	04:30 PM-06:30 PM	Session Chair/Co-Chair: Dr. Deanpen Japrung and Co-Chairs			
		04:30 PM-05:00 PM	KN	13C-KN-01	Nanopores for fingerprinting and sequencing individual proteins	Cees Dekker
		05:00 PM-05:30 PM	KN	13C-KN-02	Transport across biological nanopores	Mathias Winterhalter
		05:30 PM-06:00 PM	INV	13C-INV-01	Biological nanopores: their roles in nutrient uptake and antibotic transport and their implications in novel antimicrobial agent development	Wipa Suginta
		06:00 PM-06:30 PM	INV	13C-INV-02	Structural- and Surface- Modifications of Solid-State Nanopores for Active Ion Translocation Control and Sensing Applications	Thitikorn Boonkoom
		06:30 PM-09:30 PM			Banquet	
	Session D	10:15 AM-12:15 PM	Session Chair/Co-Chair: Dr. Deanpen Japrung and Co-Chairs			
		10:15 AM-10:45 AM	KN	13D-KN-01	Nanopore sensors for single-molecule metabolite sensing and enzymology	Giovanni Maglia
		10:45 AM-11:15 AM	INV	13D-INV-01	Large Cuozdan pore-forming proteins as new resources of biological nanopore	Nuankanya Sathirapongsasuti
		11:15 AM-11:45 AM	INV	13D-INV-02	TBA	Oraphan Sripichai
		11:45 AM-12:15 PM	INV	13D-INV-03	Southeast Asia Applied Science Hub "One CDC" concept to support cross-CIO collaborative applied science activities that accelerate Global Health Security (GHS)/Fund and training support	Pongpun Sawatwong
		12:15 PM-01:15 PM			Lunch Break	
1 Dec. 23	Session E	01:15 PM-03:15 PM	Session Chair/Co-Chair: Dr. Deanpen Japrung and Co-Chairs			
		01:15 PM-01:45 PM	INV	13E-INV-01	Peptide sequencing based on host-guest interaction-assisted nanopore sensing	Hai-Chen Wu
		01:45 PM-02:15 PM	INV	13E-INV-02	Recent Advances in Nanopore Sequencing: A Glimpse into Ten Cases Studies in Thailand	Thidathip Wongsurawat
		02:15 PM-02:45 PM	INV	13E-INV-03	Nanopore sequencing technology (ONT)	Piroon Jenjaroenpun
		02:45 PM-03:00 PM	Regular	13E-OR-01	Single-Molecule Analysis of SARS-CoV-2 and its Receptor-Encoded Nucleotides ...	Ibrar Alam
		03:00 PM-03:15 PM	Regular	13E-OR-02	Sub-nanometer solid-state pore sculpting in a salt solution using high electric ...	Kittipitch Yooprasertchuti
		03:15 PM-03:30 PM			Coffee Break	
		03:30 PM-04:30 PM			Poster Session	
		04:30 PM-05:00 PM			Closing Ceremony	

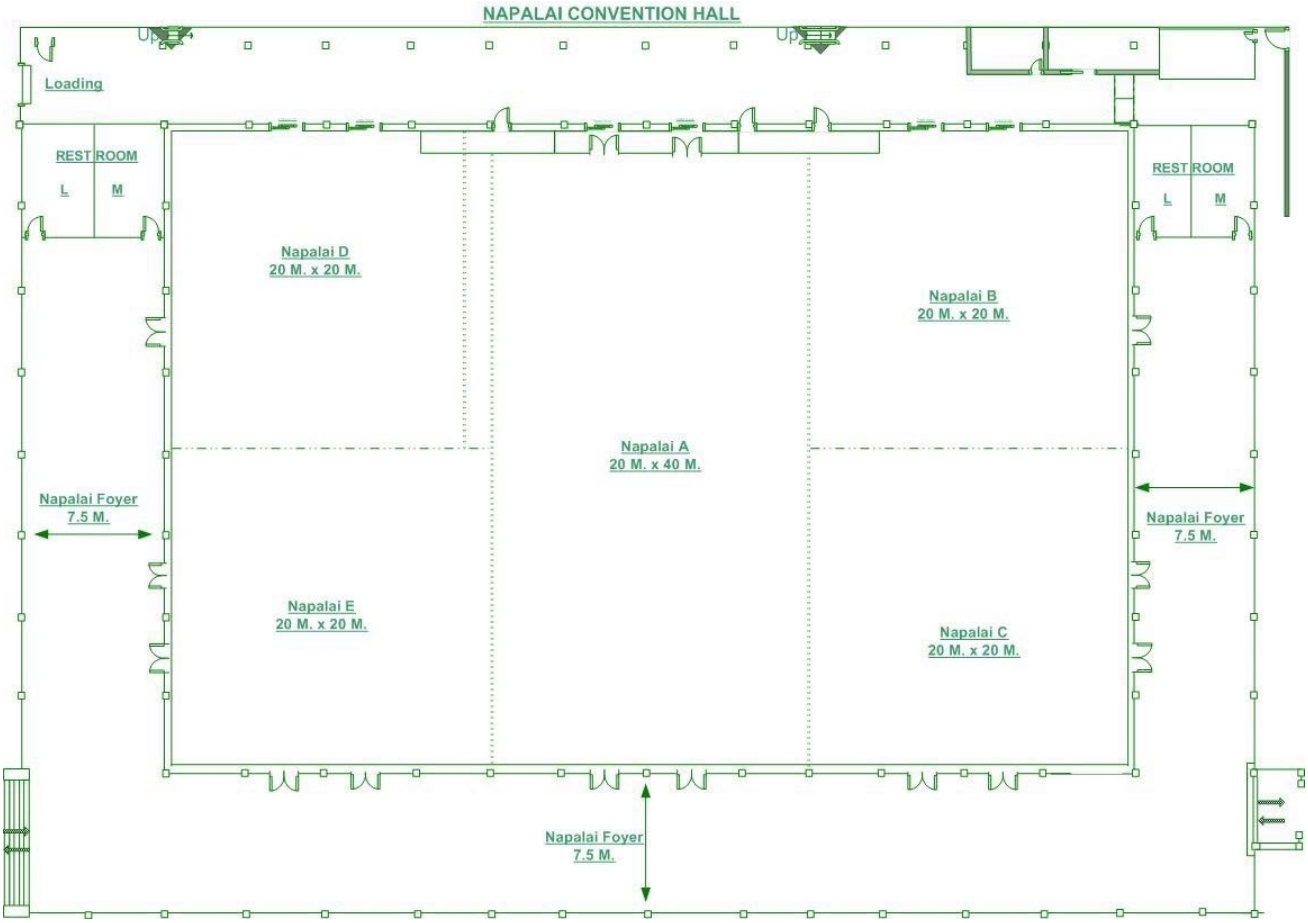
Poster Presentations

Session	Abstract ID	Poster ID	Title	Presenter
Session 1	101	PS1-01	Effect of Trans-Cinnamaldehyde on the Textural Properties of Myofibrillar Protein Gels Filled Micro- and Nano-Sized Emulsions	Jiseon Lee
	102	PS1-02	High Internal Phase Emulsions Stabilized Solely by Mung Bean Protein Isolate at Various pHs: Effect of Heat Treatment and Ultrasonication	Yoohee Choi
	141	PS1-03	Synthesis of Cellulose Paper from Sugar Cane Leaves Filled with Zinc Oxide Nanoflakes for Triboelectric Nanogenerator Application to Harvest Mechanical Energy.	Praphadsorn Chimsida
Session 2	11	PS2-01	Computational Study of NH3 Detection Using Metal-Decorated Siligene as a Work Function-Type Sensor	Brandom Jhoseph Cid
	47	PS2-02	Density functional investigation of the carbonyl-ene reaction between encapsulated formaldehyde and propylene over M,ÄìCu,ÄìBTC MOFs (M = Be, Mg, and Ca)	Winyoo Sangthong
	201	PS2-03	Theoretical Study of Dechlorination for Groundwater Remediation using Sulfidized Nanoscale Zerovalent Iron	Mayuree P. Reilly
	205	PS2-04	The theoretical study on ethanol synthesis catalyzed by synergistic effect of metal and non-metal dope on Graphyne	Poobodin Mano
Session 3	156	PS3-01	Effect of biodiesel concentrations on particulate emissions from the combustion of biodiesel generated by Euro 2 vehicle: Concentrations, size distributions and carbonaceous components	Woranan Netkueakul
	171	PS3-02	Application of lung tissue model for study the adverse outcome pathways of ultrafine particles and fine particles in Bangkok traffic area	Nalinrat Petpiroon
	197	PS3-03	The safety study of intestinal exposure to food-grade titanium dioxide (E171) using 3D-intestinal model	Ratjika Wongwanakul
Session 4	22	PS4-01	Electronic Properties of Solution-processed AgSPh and CuSPh	Pongkamon Prayongkul
	41	PS4-02	Exploring Interfacial Doping of Copper(I) Thiocyanate and Application in Thin-Film Transistors	Chitsanucha Chattakoonpaisarn
	50	PS4-03	Ligand Modification in 2D CuSCN Co-Ligand Complexes	Jetnipat Songkerdthong
	55	PS4-04	Surface Tension Assisted Gilding of Gold Leaf for Electrodes in Thin-Film Electronic Devices	Peemmanut Vareekasem
	79	PS4-05	Consolidation of Mn-Zn ferrite and sintering ceramic by cold sintering process	Areeyaphon Nittayachit
	89	PS4-06	PDMS-based Self-cleaning Nanocomposite Coatings for High Voltage Porcelain Insulators	Anan Saenkhamai
	105	PS4-07	Self-Healing and Electrically Conducting Photopolymer for Tactile Sensors	Khajohnpat Teerasitwaratorn
	115	PS4-08	Fabrication of Cement-rGO Nanocomposite for Enhancing Triboelectric Nanogenerator Performance	Jirapan Sintusiri
	116	PS4-09	Fabrication of Cementitious materials for large scale energy harvesting and sensor application	Wittawat Thongthapthai
	117	PS4-10	Development of Cement Replacement Materials for Energy Harvesting Application	Phitthayathon Thonjune
	122	PS4-11	Effect of ZnO Nanoparticle Fillers on the Energy Generation Efficiency of Triboelectric Nanogenerator Fabricated Natural Rubber.	Bowonrath Bunsaiyang
	123	PS4-12	Modification of Activated Carbon by Acid and Plasma Treatments for Power Output Enhancement of Natural Rubber Based Triboelectric Nanogenerator	Sirima Kongpet
	124	PS4-13	Synthesis of Carbon Nanotubes through Up-Cycling Hemp Waste by Chemical Vapor Deposition Method	Phuwadon Sa-Ngaimmeejaroen
	135	PS4-14	Modification of Polydimethylsiloxane Using Yeast Cells for Enhancing Power Output of Triboelectric Nanogenerators	Pawonpart Luechar
	136	PS4-15	Fabrication of Natural Rubber Films for Particulate Matter Filter and Energy Harvesting Applications	Pongsakorn Mekbuntoon
	137	PS4-16	Fabrication of Cellulose Paper from Sugarcane Leaves Filled with ZnO Nanoparticles/Chlorophyll Nanocomposites for Triboelectric Nanogenerator Application as a Micro/Nano Electronic Power Source	Supisara Piwbang
	166	PS4-17	1,2,3-Triazole-phenanthroimidazole isomeric derivatives as hot exciton emitters for high-efficiency non-doped blue OLEDs	Pattarapapa Janthakit
	167	PS4-18	Efficient non-doped emitter with dual hybridized local and charge-transfer characteristics for organic light-emitting diodes	Thidarat Loythaworn
	172	PS4-19	Nanoscale precision on a budget: lab-constructed super-resolution fluorescence microscopy for particle tracking	Kanoksak Saelee
	184	PS4-20	Experimental Study of Electrowetting on Dielectric Combine with Electrochemical Sensor for Depressive Substance Analysis	Warisara Boonsiri
	186	PS4-21	A Plastic Based Digital Microfluidic Microchip by Screen Printing	Triwit Plurksasukkaseam
	191	PS4-22	Robust, Stretchable, Recyclable and Healable Supramolecular Elastomers via Structural Functional Region Strategy and Metallic Cross-Linking	Rou Han Lai
	195	PS4-23	Aluminum Acetylacetonate-Initiated Metal-Ligand Coordinated Elastomers Exhibiting Stretchability, Self-healing and Flame-Retardancy for Human Motion sensing	Yi-An Chen
	199	PS4-24	High Conductive Fiber based on AgNWs/PEDOT:PSS coated Cotton Yarn for Wearable Textile Heater	Kuntima Pattanarat
	200	PS4-25	Electrical and Sensing Properties of Gold-Decorated Zinc Oxide Nanoflowers	Siwaporn Khemphet
Session 5	14	PS5-01	Development of novel chemistry for the fabrication of GFET	Oh Seok Kwon
	88	PS5-02	SERS- based Biosensor for the Detection of Cortisol in Sweat	Apichaya Chantaraklud
	134	PS5-03	Upconversion nanoparticles for near-infrared photodynamic therapy of cancer	Sukanda Jiansirisomboon
	143	PS5-04	Graphene Oxide-Based Aptasensor for Sensitive Urinary Albumin Detection: A Clinical and Community Study	Wireeya Chawjiraphan
	144	PS5-05	Minimally Invasive Glucose Monitoring with Molecularly Imprinted Polymer-Based Microneedle Biosensors	Harit Pitakjakpipop
	151	PS5-06	Electrochemical sensors for simultaneous sensing of multiple heavy metal ions based on gold nanostars modification on the screen-printed electrode surface.	Nararat Yong
	157	PS5-07	Electrochemical Biosensor for Detecting Aerobic Bacteria in Cow's Milk	Thitirat Putnin
	196	PS5-08	Bifunctional Ternary Conjugated Pdots for simultaneous in situ Hydrogen Therapy and Fluorescence Imaging in NIR-II window	Ying-Rang Zhuang
Session 6	48	PS6-01	Electronic and electrochemical properties of Li2XO3 (X = Mn, Cr and Fe) cathodes: Spin-polarized density functional theory	Waritsara Thajitr
	81	PS6-02	Influence of Sintering Temperatures on the Thermoelectric Properties of Ag2Se	Jariya Lasiw
	85	PS6-03	Study of the thermoelectric efficiency of Ag2Se compound via cold sintering process	Wanida Duangsimma
	107	PS6-04	Tailoring Structural and Electrochemical Properties by Metal-Ion Tuning of Ni/V Layered Double Hydroxide	Farman Ali
	128	PS6-05	Catalytic Hydrothermal Carbonization of Biomass to Porous Carbon for Electrochemical Energy Storage	Sopon Butcha
	131	PS6-06	Unlocking the Mysteries of Metal Dissolution: Understanding Consequences and Pioneering Solutions	Kanruthai Santiyuk
	133	PS6-07	Unlocking the Secrets of Supercapacitor Performance: Acetamide as the Molecular Indicator of Electrolyte Decomposition	Jiraporn Phojaroen
	159	PS6-08	Effect of Cu2+ and Ca2+ on Dielectric Properties Variation in CaCu3Ti4O12 Ceramic	Jirata Prachamon
	163	PS6-09	AC-Driven electroluminescent devices fabricated using Nb5+-doped TiO2 nanostructured ceramics	Suphanut Sotornsak
	164	PS6-10	Nanostructured Na1/2Y1/2Cu3Ti4O12 ceramics with giant dielectric properties	Thanthip Chatputsa
	165	PS6-11	Dielectric Properties of CuO/TiO2 Nanocomposite	Kannika Phuion
	175	PS6-12	Enhanced Dielectric Properties of Nanostructured Ta5+-Doped TiO2 Ceramics through SnF4 Addition and High-Energy Ball Milling	Chotchaya Phianjing

Poster Presentations

Session	Abstract ID	Poster ID	Title	Presenter
Session 7	15	PS7-01	Development of plastic composites with virucidal efficacy for pandemic preparedness	Soomin Park
	23	PS7-02	Mechanical and Dielectric Properties of Fly Ash Geopolymer/Sugarcane Bagasse Ash Composites	Nattapong Chuewangkam
	146	PS7-03	Photocatalytic Degradation Study of Methylene Blue by Dumbbell-liked TiO2 Capped Gold Nanorods under UV and NIR irradiation	Linda Kumalayanti
	198	PS7-04	Microporous Membrane in Preparation from Layered Double Hydroxide on Graphene Oxide Nanosheet for the Efficient Water Decontamination	Kritapas Laohhasurayotin
Session 8	8	PS8-01	Maximizing biodiesel production from waste cooking oil with KI/CaO/Al2O3 catalyst using response surface methodology and artificial neural network application	Achanai Buasri
	126	PS8-02	Kinetic study of converting fructose into 5-HMF using sulfonated watermelon rind biochar as acidic heterogeneous catalyst in aqueous media solvent	Pimlapas Bunwichian
	173	PS8-03	Synthesis and characterization of mixed-metal azolate frameworks via post-synthetic process	Natchaya Phongsuk
	192	PS8-04	Conjugated Polymers Immobilized by Matrix for Photocatalytic Hydrogen Production	Yu-En Sun
Session 9		N/A		
Session 10	194	PS10-01	Interfacial Strengthening of Silicon Carbide Fiber via Electrophretic Deposition of Modified Single-Walled Carbon Nanotube	Zhe-Zhi Liu
	219	PS10-02	Evaluation of AFM and TEM Dimensional Measurement Uncertainty of Nanoparticles Intercomparison Samples	Michael S. Lagmay
Session SS1	71	PS11-01	Synthesis and characterization of copper-based metal-organic frameworks	Amika Chinnajuk
	74	PS11-02	Halloysite Nanotubes in Electrochemical Enantioselective Discrimination	Malinee Niamlaem
	209	PS11-03	Unlocking the Full Potential of Heteroatom-Doped Graphene-Based Supercapacitors through Stacking Models and SHAP-Guided Optimization	Krittamate Payakkachon
	210	PS11-04	Effect of nanosized Cu-MOR zeolite in catalytic dehydrogenation of ethanol to acetaldehyde	Anittha Prasertsab
	211	PS11-05	Effect of Surface Oxygen on the Dehydrogenation of Ethanol to Acetaldehyde over Isolated Zn Sites Supported on Dealuminated BEA Zeolite: A Computational Study	Wachira Jeevapong
	212	PS11-06	Catalytic dehydroisomerization of butane to isobutene over zeolite composites	Peeranat Chaipornchalerm
	213	PS11-07	Tailoring ETL/ERI Zeolite Interfaces using Renewable Silica Source for Bio-Ethylene Production	Krissanapat Yomthong
	214	PS11-08	Effect of zeolite framework on the efficiency of implanted Ti active sites for methyl oleate epoxidation	Sorasak Klinyod
	215	PS11-09	CO2 transformation to MWCNT via chemical vapor deposition using metal-supported on hierarchical zeolite template	Watinee Nunthakitgoson
	216	PS11-10	Insights into the Hydrolysis of Organophosphates from Theoretical Calculations	Araya Putthabal
	217	PS11-11	Density Functional Investigation of the Carbon Dioxide Capture over Glycine-Functionalized Metal-Organic Frameworks	Chomphunuch Wansa
	222	PS11-12	Chiral-induced spin selectivity effect at chiral-encoded Pt-Ir surfaces for enhanced Oxygen Reduction Reaction	Zikkawas Pasom
	223	PS11-13	Can amine ligand atomically disperse Cu atoms on TiO2(110)?: Cu deposition on TiO2(110) premodified with o-anthranilic acid	Cho Rong Kim
Session SS2		N/A		
Session SS3	185	PS13-01	Modification of solid-state nanopore for small nucleotide detection	Kawin Loha
	207	PS13-02	Molecular uptake of antibiotics through SmChiP: Chitooligosaccharide specific channel in the pathogen Serratia marcescens	Piyakamon Bunkum
	220	PS13-03	Advances in Alpha-hemolysin Preparation For Nanopore Sensing of Long Non-Coding RNA From Body Secretions	Poramin Boonbanjong

Exhibitors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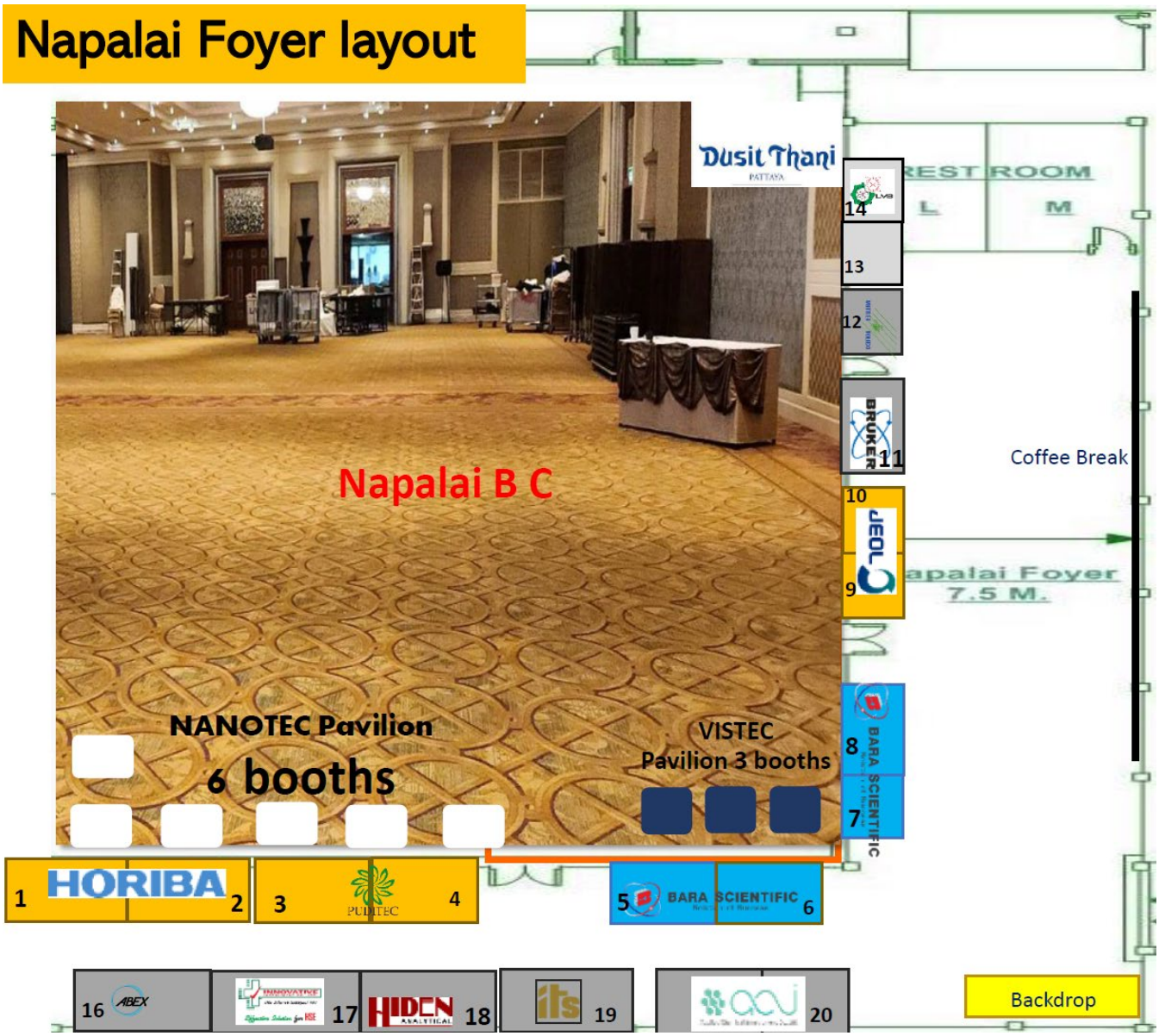
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บริษัท พาราไซแอนติฟิค จำกัด เป็นบริษัทชั้นนำของประเทศ ในการนำเข้าและให้บริการแบบครบวงจร สำหรับเครื่องมือวิทยาศาสตร์ และเครื่องมือทดสอบด้านวิศวกรรม จากผู้ผลิตชั้นนำที่มีชื่อเสียงของโลก โดยเฉพาะอย่างยิ่งบริษัทฯ ได้เป็นตัวแทนจำหน่ายแต่เพียงผู้เดียวในประเทศไทย สำหรับเครื่องมือวิทยาศาสตร์ และเครื่องทดสอบของ **Shimadzu** ซึ่งเป็นบริษัทชั้นนำของประเทศญี่ปุ่น มานานกว่า 30 ปี

เพื่อให้ลูกค้าของบริษัทฯได้รับความพึงพอใจสูงสุด บริษัทฯได้มีการพัฒนาประสิทธิภาพในการให้บริการแก่ลูกค้า โดยได้มีการนำระบบ **คุณภาพมาตรฐาน ISO 9001:2015** มาใช้ในการบริหารงาน และบริษัทฯ ยังสามารถให้ **บริการสอบเทียบเครื่องมือตามมาตรฐาน ISO/IEC 17025 :2005** สำหรับเครื่อง UV-VIS Spectrophotometer และเครื่อง Universal Testing Machine และจะขยายขอบเขตเพื่อให้ ครอบคลุมการสอบเทียบเครื่องมือชนิดอื่นๆต่อไป

และการที่ บริษัท พาราไซแอนติฟิค จำกัด เป็นบริษัทใน **กลุ่มบริษัท พาราวินเซอร์ จำกัด** ซึ่งเป็นองค์กรขนาดใหญ่ชั้นนำของประเทศ ทำให้บริษัทฯ มีศักยภาพสูง สามารถให้บริการลูกค้าได้ทุกระดับ ซึ่งรวมถึงการจัดซื้อ ที่เป็นโครงการขนาดใหญ่

สำหรับลูกค้าของบริษัทฯ ได้ครอบคลุมทั้งกลุ่มลูกค้าราชการและเอกชน เช่น

- มหาวิทยาลัยและสถาบันการศึกษาต่างๆ
- กรม-กองของภาครัฐบาล
- สถาบันค้นคว้าวิจัยด้านวิทยาศาสตร์
- อุตสาหกรรมอาหารและการเกษตร
- อุตสาหกรรมยา
- อุตสาหกรรมปิโตรเคมี/โพลีเมอร์/เคมี
- อุตสาหกรรมยานยนต์
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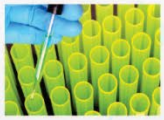

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- UV-VIS Spectrophotometer
- Atomic Absorption Spectrophotometer
- Inductively Coupled Plasma Spectrometer
- Inductively Coupled Plasma Mass Spectrometer
- Spectrofluorophotometer
- Fourier Transform Infrared Spectrophotometer
- Infrared Microscope

Chromatographic
- High Performance Liquid Chromatograph
- Gas Chromatograph

Mass Spectrometer
- LC-MS/MS (Triple Quadrupole)
- LCMS-Q-TOF MS
- LCMS-IT-TOF MS
- LC-MS (Single Quadrupole)
- GC-MS/MS
- GC-MS

Life Science Research
- Imaging Mass Microscope
- MALDI TOF(/TOF) Mass Spectrometer
- Microorganism Identification (MALDI TOFMS)
- Microchip Electrophoresis (DNA/RNA Analysis)
- Functional Near-infrared Spectroscopy System for Research

Physical Properties Analyser
- Thermal Analyzer
- Particle Size Analyzer
- Total Organic Carbon Analyzer

Scientific Equipment

Elemental Analyzer Group
- Energy Dispersive X-Ray Fluorescence Spectrometer
- Optical Emission Spectrometer

Surface Analyzer Group
- Scanning Probe Microscope
- Electron Probe Micro Analyzer
- X-Ray Photoelectron Spectroscopy

Testing Machine
- Universal Testing Machines
- Fatigue Tester Machine
- Hardness Tester
- Viscosity Testers
- Special Purpose Tester

Non-Destructive Testing
- Microfocus X-ray System
- Microfocus X-ray CT System
- Dimensional X-ray CT System

Informatics
- LabSolutions CS
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Solution of Nano for Elemental and Surface analysis

Scanning probe microscope (SPM)

Scanning probe microscope (SPM) is an instrument used for studying surfaces at the nanoscale level. SPMs form images of surfaces using a physical probe that touches the surface of a sample to scan the surface and collect data to display image on the computer.

Application for Hard Materials : · Nanoparticles · Nanofibers
Electronics : · Battery materials · Semiconductors · Recording media

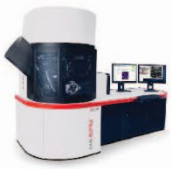
Electron probe microanalysis (EPMA)

Electron probe microanalysis (EPMA) is used for quantitative analysis of the elemental composition of sample at a Nano - micrometer scale. The element detected by using wavelength-dispersive (WDS) spectrometers. EPMA has a broad range of applications in fields as diverse as geology, archeology, materials science, metallurgy, biology, and electronics· Battery materials · Semiconductors.

X-ray photoelectron spectroscopy (XPS)

X-ray photoelectron spectroscopy (XPS) is a quantitative technique for measuring the elemental composition of the surface sensitive of a material can detects all elements except hydrogen and helium, and it also determines the binding states of the elements.

XPS is used to support research on surface-mediated processes such as sorption, catalysis, redox, dissolution/precipitation, corrosion, and evaporation/deposition type reactions. It is almost always the case that the surface composition and chemistry of materials, measured on the order of a few atomic layers (~3-10 nm)



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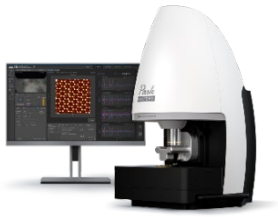

XPS	Mini-SEM	Fluorescence Spectrometer	SPRi

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