

International Symposium on Frontier of Science, Technology and Engineering 2018 (FOSTE 2018)

19th – 22nd November 2018
Northern Science Park,
Chiang Mai, Thailand



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Thai Committees

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- Assoc. Prof. Dr. Sakarindr Bhumiratana (Chair)
- Assoc. Prof. Dr. Paritud Bhandhubanyong
- Assist. Prof. Dr. Tanyanuparb Anantana
- Assist. Prof. Dr. Choncharoen Sawangrat
- Assoc. Prof. Dr. Thamrongrat Moongcharoen
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- Ms. Pantharee Inya (Secretary)
- Ms. Nopparat Wanitsuksombut (Secretary)

Academic Committee

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- Prof. Dr. Navadol Laosiripojana
- Prof. Dr. Suttichai Assabumrungrat
- Assist. Prof. Dr. Worapon Kiatkittipong

Japanese Committees

Steering Committee

- Mr. Mineya Kuno (Chair)
- Dr. Yutaka Kuwahara (Vice Chair)

Organizing Committee

- Prof. Dr. Ichiroh Kanaya (Chair)
- Prof. Dr. Yoshikazu Nakajima (Vice Chair)
- Dr. Yoshisada Nagasaka
- Prof. Dr. Kenji Itaka
- Ms. Kanako Miya (Secretary General)

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Introduction

The International Symposium on Frontier of Science, Technology and Engineering (FOSTE) brings together, through 2½ day meetings, a selected group of emerging science, technology and engineering leaders from the industries, academia and government labs to discuss pioneering technical work and leading edge research in various fields. The goal of the meetings is to introduce these outstanding scientists and engineers (ages 30-45) to each other, and through this interaction facilitate collaboration in science, technology and engineering, the transfer of new techniques and approaches across the fields, and establishment of contacts among the next generation of science, technology and engineering leaders.

The symposium covers four topics that vary from year to year. The 2018 topics will cover Smart Mobility, Climate Change & Mitigation, Smart Water Resource Management and IoT & Big Data. Following each talk, there is a substantial time devoted to discussion. In addition, breakout sessions, poster sessions, and other events offer ample opportunity for informal exchanges among the participants. There is also an alumni program that supports continuing contact among the participants. Attendees will find the programs useful and unique in their ability to bring together a diverse group for the purpose of exchanging information about science, technology and engineering developments and challenges across disciplines.



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What to Expect at FOSTE

The purpose of the Frontier of Science, Technology and Engineering (FOSTE) symposium is *to create useful interactions across disciplines* among outstanding scientists and engineers under age 45. Here are some helpful hints to ensure you get the most out of the symposium.

- **Check out the participant list.** Bring an ample supply of business cards and prepare to meet as many new friends as possible.
- **Leave your laptop at the hotel during the symposium.** If you are working during the breaks, you miss opportunities to develop new contacts. If you are working during the session, you not only miss a great talk and ideas from interesting fellow scientists and engineers but you also distract the speaker and other attendees.
- **Participate fully** in the poster or breakout sessions.
- **Don't miss a session.** Though tempting to skip out on a session outside your field, you never know what you may learn that will be applicable to your own research.
- **Attend the evening events.** The reception and dinners provide informal time to meet attendees and continue conversations started earlier, plus the food is good.
- And to help you pack, dress code is **business casual**. You can leave your suits at home.

Participation in FOSTE programs are by invitation only. **Please be aware that guests are not included at meals or events.**



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Agenda

November 19, 2018		Locations
07.30 PM	Registration and Welcome Party at the Mellowship Restaurant	Ibis Styles Hotel
November 20, 2018		
07.10 AM	Transfer from Ibis Styles Hotel to Northern Science Park	Meet at the Lobby
08.00 AM	Registration	Reception Hall
08.30 AM	Welcome Remarks By Assoc. Prof. Dr. Sakarindr Bhumiratana President, Thai Academy of Science and Technology	Exhibition Hall
	Opening Remarks By Assoc. Prof. Rome Chiranukrom Vice President, Chiang Mai University	
08.40 AM	STeP At A Glance By Assist. Prof. Dr. Choncharoen Sawangrat Assistant Director, Science and Technology Park	
09.00 AM	Orientation to FOSTE By Dr. Yutaka Kuwahara Vice Chair, Japanese Steering Committee Assoc. Prof. Dr. Paritud Bhandhubanyong Chair, Thai Academic Committee	
09.15 AM	Group Photo of All Participants	
09.25 AM	1st Topic: Smart Mobility 4 speakers (10 mins talk + 20mins Q&A / speaker) Title: SMART MOBILITY: Advanced Driver Assistance Systems towards Autonomous Driving Technology Assist. Prof. Dr. Nuksit Noomwongs Chulalongkorn University, Thailand Title: Inter-Airplane Mesh Networking Prof. Dr. Ichiroh Kanaya University of Nagasaki, Japan Title: Future Mobility and Urban Development Assoc. Prof. Dr. Pawinee lamtrakul Thammasat University, Thailand Title: Applying Hybrid System Optimization Method to Air Traffic Management Dr. Daichi Toratani Electronic Navigation Research Institute, Japan	

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November 20, 2018		
11.25 AM	Coffee Talk	Hallway Behind Auditorium
11.35 AM	<p>2nd Topic: Climate Change & Mitigation 2 speakers (10 mins talk + 20mins Q&A / speaker)</p> <p>Title: Monitoring and Modelling of Air pollution in Chiang Mai Province Assoc. Prof. Dr. Sate Sampattagul Chiang Mai University, Thailand</p> <p>Title: Activities for Sustainable Energy in North Japan Area Prof. Dr. Kenji Itaka Hirosaki University, Japan</p>	
12.35 PM	Lunch	Private Food Hall
01.30 PM	<p>2nd Topic: Climate Change & Mitigation 2 speakers (10 mins talk + 20mins Q&A / speaker)</p> <p>Title: Climate Change Impacts and Mitigation Potentials in Thailand's Agriculture with Policy Update Assoc. Prof. Dr. Witsanu Attavanich Kasetsart University, Thailand</p> <p>Title: CC and LCA in Transport Dr. Yuki Kudoh National Institute of Advanced Industrial Science and Technology, Japan</p>	Exhibition Hall
02.30 PM	<p>Flash Poster Presentations : 1-min oral presentation by each participant</p>	Exhibition Hall
04.00 PM	Coffee Talk	Hallway Behind Auditorium
04.20 PM	<p>Poster Session I: Topic of Smart Mobility and Smart Water Resource Management</p>	
05.20 PM	<p>Poster Session II: Topic of Climate Change & Mitigation and IoT & Big Data</p>	
06.20 PM	Khantoke Dinner	<p>Chiang Mai Cultural Center (~ 30 mins from the venue)</p>



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November 21, 2018		
07.40 AM	Transfer from Ibis Styles Hotel to Northern Science Park	Meet at the Lobby
08.30 AM	Registration	Reception Hall
09.00 AM	<p>3rd Topic: Smart Water Resource Management 2 speakers (10 mins talk + 20mins Q&A / speaker)</p> <p>Title: From Practical to Future Research Issues on Water Resources Management Mr. Adisorn Champathong Royal Irrigation Department, Thailand</p> <p>Title: Prevention of Lake Hachiro's water Pollution with GNSS Auto-steer Rice Transplanter Dr. Yoshisada Nagasaka National Agriculture and Food Research Organization, Japan</p>	Exhibition Hall
10.00 AM	Coffee Break	Hallway Behind Auditorium
10.20 AM	<p>3rd Topic: Smart Water Resource Management 2 speakers (10 mins talk + 20mins Q&A / speaker)</p> <p>Title: Smart Water Management and Disaster Operation Dr. Surajate Boonya-aroonnet Hydro and Agro Informatics Institute, Thailand</p> <p>Title: Labor-saving Management for the Resumption of Farming in Disaster Area: Using IoT Prototyping Kit Dr. Yoshimichi Yamashita National Agriculture and Food Research Organization, Japan</p>	Exhibition Hall
11.20 AM	Lunch	Private Food Hall
12.20 PM	Excursion: "The Art and Culture of Chiang Mai"	<p>1. Maesa Elephant Camp (~ 60 mins from the venue)</p> <p>2. Wat Pra That Doi Suthep (~ 60 mins from the venue)</p>



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November 22, 2018		
07.40 AM	Transfer from Ibis Styles Hotel to Northern Science Park	Meet at the Lobby
08.30 AM	Registration	Reception Hall
09.00 AM	4th Topic: IoT & Big Data 2 speakers (10 mins talk + 20 mins Q&A / speaker) Title: AI-Based Logging System for ALICE O2 Facilities Dr. Phond Phunchongharn King Mongkut's University of Technology Thonburi, Thailand Title: Knowledge Sharing and Integration with AI Computers Prof. Dr. Yoshikazu Nakajima Tokyo Medical and Dental University, Japan	Exhibition Hall
10.00 AM	Coffee Break	Hallway Behind Auditorium
10.20 AM	4th Topic: IoT & Big Data 2 speakers (10 mins talk + 20 mins Q&A / speaker) Title: Research Challenges in LoRaWAN Assoc. Prof. Dr. Rardchawadee Silapunt King Mongkut's University of Technology Thonburi, Thailand Title: Internet of Toys (IoT) Assist. Prof. Dr. Keiko Yamamoto Kyoto Institute of Technology, Japan and Prof. Dr. Ichiroh Kanaya University of Nagasaki, Japan	Exhibition Hall
11.20 AM	Wrap-up Session and Closing Ceremony	
12.30 AM	Lunch	Private Food Hall

Ibis Styles Chiang Mai Hotel (~ 45 mins to the venue)



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List of Presentation Titles for Each Topics



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Smart Mobility

Thai Participants

Topic Leader: Assist. Prof. Dr. Pramual Suteecharuwat

Oral Presenters

Academic title	Name	Surname	Title
Assist. Prof. Dr.	Nuksit	Noomwongs	SMART MOBILITY: Advanced Driver Assistance Systems towards Autonomous Driving Technology
Assoc. Prof. Dr.	Pawinee	Iamtrakul	Future Mobility and Urban Development

Flash Poster Presenters

Academic title	Name	Surname	Title	Poster No.
Assist. Prof. Dr.	Gridsada	Phanomchoeng	Real-Time Rollover Warning in Tripped and Un-tripped Rollovers with A Neural Network	1
Dr.	I-soon	Raungratanaamporn	Guidelines for EV Feeder Bus Implementation in Tourist City: Case Study Pattaya Municipality	5
Dr.	Natt	Leelawat	Area-Business Continuity Management Towards Smart City: A Conceptual Plan	9
Assist. Prof. Dr.	Pracha	Yeunyongkul	Geo-polymer Material by Using Waste Powder Coating	13
Assist. Prof. Dr.	Teerayut	Horanont	Taxi Probe Research with Large Scale Data Analysis and Visualisation-exhibition	17
Dr.	Wasaporn	Techapeeraparnich	Improving Rail Mobility for Urban Expansion	21

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Smart Mobility

Japanese Participants

Topic Leader: Prof. Dr. Ichiroh Kanaya

Oral Presenters

Academic title	Name	Surname	Title
Prof. Dr.	Ichiroh	Kanaya	Inter-Airplane Mesh Networking
Dr.	Daichi	Toratani	Applying Hybrid System Optimization Method to Air Traffic Management



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Climate Change & Mitigation

Thai Participants

Topic Leader: Assoc. Prof. Dr. Sate Sampattagul

Oral Presenters

Academic title	Name	Surname	Title
Assoc. Prof. Dr.	Sate	Sampattagul	Monitoring and Modelling of Air pollution in Chiang Mai Province
Assoc. Prof. Dr.	Witsanu	Attavanich	Climate Change Impacts and Mitigation Potentials in Thailand's Agriculture with Policy Update

Flash Poster Presenters

Academic title	Name	Surname	Title	Poster No.
Assoc. Prof. Dr.	Charongpun	Musikavong	Environmental Assessment of Rubber and Oil Palm Products: Climate Change Effects and Mitigation Options	2
Dr.	Jitti	Mungkalasiri	LCA Policy and Country Implementation	6
Dr.	Kritana	Prueksakorn	Assessment of Environmental Impacts and Cost in Phuket, a Tourist Island, using Integrated Techniques	10
Assist. Prof. Dr.	Kullapa	Soratana	Environmental Sustainable Tourism Logistics Activities Criteria as a Tool to Prevent Climate Change	14
Dr.	Nongnuch	Poolsawad	Climate Change and Sustainability Assessment of Food System and Consumption in Thailand	18
Assist. Prof. Dr.	Thapat	Silalertruksa	Nexus Assessment Approach for Integrated Policy Making on Food, Fuel and Climate Change	25
Assist. Prof. Dr.	Trakarn	Prapasongsa	Climate Change Policy Implications from Consequential LCA Applications: Gainers and Losers in a World with Constrained Materials	27
Dr.	Viganda	Varabuntoonvit	Greenhouse Gas Emissions Reduction Potential in Petroleum and Petrochemical Sector	29

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Climate Change & Mitigation

Japanese Participants

Topic Leader: Prof. Dr. Kenji Itaka

Oral Presenters

Academic title	Name	Surname	Title
Prof. Dr.	Kenji	Itaka	Activities for Sustainable Energy in North Japan Area
Dr.	Yuki	Kudoh	Climate Change and LCA in Transport



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Smart Water Resource Management

Thai Participants

Topic Leader: Assist. Prof. Dr. Chaiwat Ekkawatpanit

Oral Presenters

Academic title	Name	Surname	Title
Mr.	Adisorn	Champathong	From Practical to Future Research Issues on Water Resources Management
Dr.	Surajate	Boonya-aroonnet	Smart Water Management and Disaster Operation

Flash Poster Presenters

Academic title	Name	Surname	Title	Poster No.
Assist. Prof. Dr.	Chaiwat	Ekkawatpanit	Climate Change Impact on Water Resources in Klong Yai River Basin, Thailand	3
Dr.	Chanyut	Kalakan	Groundwater Flow and Saltwater Intrusion in the Coastal Aquifer	7
Dr.	Parichat	Wetchayont	A Machine Learning System for Rainfall Estimation Using Himawari-8 Data	11
Dr.	Pariyapat	Nilsalab	Assessing the Impact of Freshwater Use: Methodology Approaches Based on LCA	15
Dr.	Paskorn	Champrasert	ICT for Water Resource Management with the Community Cooperation	19
Dr.	Phayom	Saraphirom	Managed Aquifer Recharge [MAR] Powerful Technique that Embodies the Conjunctive Water Management [CWM]	23
Dr.	Supapap	Patsinghasanee	Smart Water Resources Management in Rainfed Agriculture	26
Dr.	Supattra	Visessri	Applications of remotely-sensed Products for Water Resources Management	28
Assist. Prof. Dr.	Wisuwat	Taesombat	An Areal Rainfall Estimation by Spatial Interpolation Techniques in Thailand Northern and Western River Basin	30

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Smart Water Resource Management

Japanese Participants

Topic Leader: Dr. Yoshisada Nagasaka

Oral Presenters

Academic title	Name	Surname	Title
Dr.	Yoshisada	Nagasaka	Prevention of Lake Hachiro's water Pollution with GNSS Auto-steer Rice Transplanter
Dr.	Yoshimichi	Yamashita	Labor-saving Management for the Resumption of Farming in Disaster Area: Using IoT Prototyping Kit



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IoT & Big Data

Thai Participants

Topic Leader: Dr. Phond Phunchongharn

Oral Presenters

Academic title	Name	Surname	Title
Dr.	Phond	Phunchongharn	AI-Based Logging System for ALICE O2 Facilities
Assoc. Prof. Dr.	Rardchawadee	Silapunt	Research Challenges in LoRaWAN

Flash Poster Presenters

Academic title	Name	Surname	Title	Poster No.
Assist. Prof. Dr.	Anan	Banharnsakun	Large-scale Data Clustering by Using Biologically-inspired Algorithms	4
Dr.	Pimwadee	Chaovalit Awad	Data Analytics in a Breastfeeding Mobile Application	12
Dr.	Pucktada	Treeratpituk	Understanding Thailand Export Data with Network Embedding	16
Dr.	Supiya	Charoensiriwath	KidDiary: a Digital Platform to Revolutionise Children's health and Wellbeing Promotion	20
Dr.	Tassaneewan	Laksanasopin	IoT Platform and Point of Care Device	24

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IoT & Big Data

Japanese Participants

Topic Leader: Prof. Dr. Yoshikazu Nakajima

Oral Presenters

Academic title	Name	Surname	Title
Prof. Dr.	Yoshikazu	Nakajima	Knowledge Sharing and Integration with AI Computers
Assist. Prof. Dr.	Keiko	Yamamoto	Internet of Toys (IoT)
Prof. Dr.	Ichiroh	Kanaya	



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