NUSTARC

NUSTARC 2025

The 2025 International Conference on New Unifying in Sustainable Technologies, Advanced Research, and Climate Change

October 27-29, 2025 | Pattaya, Thailand

PROGRAM BOOK


NUSTARC

Table of Contents:

About NUSTARC:

The 2025 International Conference on New Unifying in Sustainable Technologies, Advanced Research, and Climate Change (NUSTARC 2025) is an annual event dedicated to promoting the development of academic research and practical applications of technology. It aims to facilitate the exchange of ideas and research findings, encouraging participants to collaborate on innovative solutions to global challenges. By connecting professionals and organizations worldwide, the conference fosters long-lasting networks that enhance research collaborations, build partnerships, and create an environment of collective learning and discovery.

These networks play a crucial role in addressing local and global challenges by providing insights that shape policies, enhance technologies, and improve practices across various sectors. The inaugural conference will take place in Pattaya, Thailand, in October 2025, bringing together national and international scholars and practitioners to share a common platform for knowledge exchange and collaboration.

Message from the President

Associate Professor Dr. Sarintip Tantanee

It is with great academic distinction and professional regard that we welcome all participants to the 2025 International Conference on ***New Unifying in Sustainable Technologies, Advanced Research, and Climate Change.*** This conference convenes at a critical juncture in global efforts to address the multifaceted challenges posed by climate change, environmental degradation, and the urgent need for sustainable innovation.

The theme of the conference ***"New Unifying"*** reflects a deliberate and strategic emphasis on interdisciplinary integration. By fostering dialogue across scientific domains, technological sectors, and policy frameworks, the conference seeks to advance holistic approaches to sustainability that are both innovative and actionable. This academic forum brings together scholars, researchers, industry experts, and policymakers from diverse backgrounds to engage in rigorous discourse, present empirical findings, and explore transformative pathways toward environmental resilience and sustainable development. Through keynote addresses and peer-reviewed presentations, the conference aims to contribute substantively to the global body of knowledge and inform future research and policy directions.

We extend our sincere appreciation to all contributors, organizing committees, and institutional partners whose commitment and scholarly excellence have made this event possible. It is our hope that the insights generated herein will not only enrich academic inquiry but also inspire practical innovations and enduring collaborations.

On behalf of Naresuan University, we welcome you to this distinguished gathering and look forward to the intellectual exchange that will shape the future of sustainability science and practice.

Associate Professor Sarintip Tantanee, Phd.
President
Naresuan University, Thailand
October 2025

Message from the Dean

Assistant Professor Dr. Kumpon Subsomboon

On behalf of the Faculty of Engineering, Naresuan University, it is my great honor and pleasure to welcome you to the 2025 International Conference on ***New Unifying in Sustainable Technologies, Advanced Research, and Climate Change (NUSTARC 2025).*** This prestigious event serves as a significant platform for scholars, researchers, industry leaders, and policymakers from around the world to exchange knowledge, share innovations, and explore solutions to the pressing challenges of our time.

The Faculty of Engineering is deeply committed to fostering interdisciplinary collaboration and advancing research that supports energy sustainability, environmental resilience, and technological transformation. NUSTARC 2025 embodies this commitment, bringing together diverse expertise to inspire impactful ideas and strengthen global partnerships that will help shape a more sustainable and prosperous future.

I would like to extend my heartfelt appreciation to our keynote speakers, authors, reviewers, organizing committee members, and sponsors whose dedication and contributions have made this conference possible. I am confident that the dialogues and connections formed here will not only enrich academic and professional perspectives but also ignite long-term collaboration across borders and disciplines.

I warmly welcome you to NUSTARC 2025 and wish you a rewarding, inspiring, and memorable experience.

Assistant Professor Dr. Kumpon Subsomboon
Dean, Faculty of Engineering, Naresuan University

Assistant Professor Dr. Korakod Nusit

On behalf of the organizing committee, it is my distinct pleasure to extend a warm welcome to each of you at the NUSTARC 2025, held from 27–29 October 2025 in beautiful Pattaya, Thailand. This event is hosted by the Faculty of Engineering at Naresuan University and marks an important gathering of minds devoted to advancing research in applied physics, sustainable engineering, materials science, and climate resilience.

The conference theme — "Harnessing Applied Physics and Engineering Solutions for Energy Sustainability and Environmental Resilience" — captures the urgency and ambition of addressing global challenges through interdisciplinary collaboration. Over the next few days, you will engage with thoughtful keynote speakers, present cutting-edge research, participate in dynamic discussions, and forge international partnerships that will impact both academia and industry.

We are delighted to host participants from around the world and encourage you to take full advantage of this platform to share your ideas and build networks that transcend borders and disciplines. It is our hope that the knowledge and connections cultivated here will lead to tangible progress toward sustainable technologies and resilient systems for a changing world.

Thank you for joining us. I look forward to insightful exchanges, collaborations, and a truly memorable conference experience.

Warm regards,

Assistant Professor Dr. Korakod Nusit
General Chair
NUSTARC 2025

Organizing Committee:

Honorary Advisory Committee

- Assoc. Prof. Dr. Sarintip Tantanee, President, Naresuan University
- Asst. Prof. Dr. Kumpon Subsomboon, Dean, Faculty of Engineering, Naresuan University

International Advisory Committee

- Emeritus Prof. Dr. Sivanappan Kumar (Thailand)
- Prof. Dodi Wirawan Irawanto, SE., M.Com., Ph.D. (Indonesia)
- Prof. Symeon Christodoulou, Ph.D. (Cyprus)
- Asst. Prof. Dr. Kumpon Subsomboon (Thailand)
- Nur Uddin, Ph.D. (Germany)

General Chair

- Asst. Prof. Dr. Korakod Nusit

General Co-Chairs

- Asst. Prof. Dr. Kwanchai Kraitong
- Asst. Prof. Dr. Akaraphunt Vongkunghae
- Asst. Prof. Dr. Panu Buranajarukorn

Technical Program Chair

- Asst. Prof. Dr. Ananchai Ukaew

Technical Program Committee

(international and national distinguished experts)

- Emeritus Prof. Dr. Sivanappan Kumar (Thailand)
- Assoc. Prof. Dr. Anil Christopher (Thailand)
- Prof. Dr. Nyoman Sudiana (Indonesia)
- Assoc. Prof. Dr. Mohammad Arif Kamal (India)
- Assoc. Prof. Dr. Ir. Wayan Suparta (Indonesia)
- Assoc. Prof. Dr. Thawatchai Mayteevarunyoo (Thailand)
- Nur Uddin, Ph.D. (Germany)
- Asst. Prof. Dr. Jirawadee Polprasert (Thailand)
- Asst. Prof. Dr. Panu Puttawong (Thailand)
- Assoc. Prof. Dr. Mathanee Sanguansermsri (Thailand)
- Assoc. Prof. Dr. Koonlaya Kanokjaruvijit (Thailand)
- Asst. Prof. Dr. Sittichoke Pookpunt (Thailand)
- Asst. Prof. Choopong Chuaypen (Thailand)
- Assoc. Prof. Dr. Piyanun Charoensawan (Thailand)
- Asst. Prof. Dr. Kwanchai Kraitong (Thailand)
- Assoc. Prof. Dr. Patomsok Wilaipon (Thailand)
- Asst. Prof. Dr. Ninnart Rachapradit (Thailand)
- Asst. Prof. Dr. Rattana Karoonboonyanan (Thailand)
- Asst. Prof. Sitphan Kanla (Thailand)
- Dr. Punyawan Lumpaopong (Thailand)
- Dr. Surat Punyakaew (Thailand)
- Asst. Prof. Nopparat Seehawong (Thailand)

- Dr. Pongpun Othaganont (Thailand)
- Dr. Salisa Veerapun (Thailand)
- Asst. Prof. Dr. Sumet Heamawatanachai (Thailand)
- Assoc. Prof. Dr. Suchart Yammen (Thailand)
- Assoc. Prof. Dr. Surachet Kanprachar (Thailand)
- Assoc. Prof. Dr. Tanit Malakorn (Thailand)
- Assoc. Prof. Dr. Panomkhawn Riyamongkol (Thailand)
- Assoc. Prof. Dr. Niphat Jantharamin (Thailand)
- Asst. Prof. Dr. Ponpisut Worrajiran (Thailand)
- Assoc. Prof. Dr. Somporn Ruangsinchaiwanich (Thailand)
- Asst. Prof. Rattapoom Waranusast (Thailand)
- Dr. Phisut Apichayakul (Thailand)
- Asst. Prof. Dr. Supawan Ponpitakchai (Thailand)
- Dr. Woralak Kongdenfha (Thailand)
- Asst. Prof. Dr. Mutita Songjun (Thailand)
- Asst. Prof. Dr. Siriporn Dachasilaruk (Thailand)
- Assoc. Prof. Dr. Panus Nattharith (Thailand)
- Assoc. Prof. Dr. Phongphun Kijsanayothin (Thailand)
- Dr. Suradet Jitprapaikulsarn (Thailand)
- Dr. Jiraporn Pooksook (Thailand)
- Dr. Settha Thangkawanit (Thailand)
- Asst. Prof. Dr. Jirarat Terning (Thailand)
- Asst. Prof. Dr. Taweeksak Taekratok (Thailand)
- Asst. Prof. Dr. Sirichai Tanratanawong (Thailand)
- Asst. Prof. Tipwimol Taekratok (Thailand)
- Assoc. Prof. Dr. Dondej Tungtakanpoung (Thailand)
- Asst. Prof. Dr. Saranagon Hemavibool (Thailand)
- Asst. Prof. Dr. Sasikorn Leungvichcharoen (Thailand)
- Lecturer Warangluck Sonklin (Thailand)
- Lecturer Ampol Techowanich (Thailand)
- Asst. Prof. Dr. Dussadee Satirasetthavee (Thailand)
- Asst. Prof. Boonphol Meechaiyo (Thailand)
- Assoc. Prof. Dr. Tanapon Phenrat (Thailand)
- Assoc. Prof. Dr. Phongthorn Julphunthong (Thailand)
- Dr. Supawan Srirattana (Thailand)
- Dr. Natapat Wongpakdee (Thailand)
- Dr. Atcharaporn Youngwilai (Thailand)
- Lecturer Ketchana Boonrit (Thailand)
- Assoc. Prof. Dr. Pupong Pongcharoen (Thailand)
- Assoc. Prof. Dr. Apichai Ritvirool (Thailand)
- Asst. Prof. Dr. Srisatja Vitayasak (Thailand)
- Asst. Prof. Dr. Po-Ngarm Somkun (Thailand)
- Asst. Prof. Dr. Panu Buranajarukorn (Thailand)
- Dr. Chaitamlong Pongpattanasiri (Thailand)
- Asst. Prof. Sisda Simarak (Thailand)
- Asst. Prof. Saowalak Tongklin (Thailand)
- Asst. Prof. Krisana Poolsawat (Thailand)
- Asst. Prof. Dr. Kwanniti Khammuang (Thailand)
- Asst. Prof. Dr. Suchada Ukaew (Thailand)

- Dr. Sirikarn Kunsumrit (Thailand)
- Dr. Noppawan Motong (Thailand)
- Asst. Prof. Dr. Sutanit Puttapanom (Thailand)
- Asst. Prof. Dr. Tanikan Thongchai (Thailand)
- Asst. Prof. Dr. Piyanan Boonphayak (Thailand)
- Asst. Prof. Dr. Arphaphon Chanpirak (Thailand)
- Dr. Pamornrat Chantam (Thailand)
- Asst. Dr. Panatpong Boonnoun (Thailand)
- Asst. Prof. Dr. Narumon Seeponkai (Thailand)
- Asst. Prof. Dr. Chuleeporn Paa-Rai (Thailand)
- Asst. Prof. Dr. Weerawun Weerachaipichasgul (Thailand)
- Dr. Suttipong Songprawat (Thailand)
- Asst. Dr. Watcharapong Khaodee (Thailand)
- Dr. Saisumpan Sooncharoen (Thailand)

Publication Chair

- Assoc. Prof. Dr. Ir. Wayan Suparta

Co-Chairs

- Emeritus Prof. Dr. Sivanappan Kumar
- Asst. Prof. Dr. Ananchai Ukaew
- Asst. Prof. Dr. Jirawadee Polprasert

Treasurer and Financial Chair

- Asst. Prof. Dr. Korakod Nusit

Co-Chairs

- Dr. Supawan Srirattana
- Dr. Virin Kittithammavong
- Dr. Perapong Kaewpoonsuk
- Ampornrat Mendang
- Phanarat Kitticharukon
- Suphawan Woranuch
- Nichanat Phoromprasit

Registration Chair

- Asst. Prof. Dr. Jirawadee Polprasert

Co-Chairs

- Asst. Prof. Dr. Narumon Seeponkai
- Asst. Prof. Dr. Suchada Ukaew
- Asst. Prof. Dr. Po-Ngarm Somkun
- Dr. Virin Kittithammavong
- Dr. Pornnapa Sutawong
- Chitchanu Wongprasit

Public Relations & Tour Program Chair

- Asst. Prof. Dr. Somlak Wannarumon Kielarova

Co-Chairs

- Tivayo Toopthian
- Chitchanu Wongprasit
- Ratchanok Jangpom
- Chakrit Senhom

Website Arrangement Chair
- Dr. Settha Tungkhawanich

Co-Chairs
- Kantinan Makmee
- Mattareeya Rachbuasri

Local Arrangement Chair
- Lecturer Phakphong Homniam

Co-Chairs
- Chutima Sudprasert
- Phornchet Jansuwan
- Chaiwat Thongporn

Sponsor and Exhibition Chair
- Asst. Prof. Dr. Polpreecha Chidburee

Conference Secretary Chair
- Dr. Pongpun Othaganont

Co-Chairs
- Rungnapa Thuamthaisong
- Nutchanart Kaeodaeng

Long Beach Garden Hotel & Pavilions Pattaya, Thailand

Day 1: 27 October 2025

Time	Agenda	PIC	Room
16.00 p.m. - 18.00 p.m.	**Pre-Registration**		Rachawadee
16.00 p.m. - 21.00 p.m.	**Mockup**	All the Committee	Ball Room

Day 2: 28 October 2025

Time	Agenda	PIC	Room
8.00 a.m. - 9.00 a.m.	**Registration**	The Secretary/Finance	Rachawadee
9.00 a.m. - 10.00 a.m.	**Opening Ceremony**	MC	Ball Room
	Speeches	MC	
9.00 a.m. - 10.00 a.m.	1. Reporting speech by Asst. Prof. Dr.Korakod Nusit 2. Welcoming Remarks by Asst. Prof Dr. Kumpon Subsomboon 3. Opening Remarks by Assoc. Prof. Dr. Sarintip Tantanee 4. Opening Gimmick 5. Cultural Performance 6. Sponsor award 7. Photography Session	1. Asst. Prof. Dr.Jirawadee Polprasert 2. Dr.Virin Kittithammavong	Rachawadee Ball Room
10.00 a.m. - 10.15 a.m.	**Coffee Break**		Lobby Shop

Time	Agenda	PIC	Room
	Plenary Session		
10.15 a.m. - 11.30 a.m. (Minimum 15 min)	**1. Assoc. Prof. Dr. Sarintip Tantanee** Naresuan University, Thailand (Onsite) *"Cross-Border Environmental Governance in Thailand: Pathways to Sustainable Development"* **2. Prof. Dodi Wirawan Irawanto , SE., M.Com., Ph.D.** Brawijaya University, Indonesia (Onsite) *"Promoting Corporate Sustainability Through Green Leadership: Proposed model of green HRM and Environmental Knowledge"* **2. Professor Symeon Christodoulou , Ph.D.** University of Cyprus, Cyprus (Online) *"Harnessing Engineering Intelligence for Environmental and Infrastructure Sustainability and Resilience - From science, to engineering, application, deployment and entrepreneurships"*	Moderator: Prof. Dr. Sivanappan Kumar	Rachawadee Ball Room
11.30 a.m. - 12.30 p.m.	**Lunch**	MC & Committee	Coffee Shop
12.30 p.m. - 14.15 p.m.	**Parallel Session 1**	The Committee	Rachawadee
	• Session A1: Applied Physics in Engineering and Technology		Room: A1
	• Session B1: Environmental Physics and Sustainable Engineering		Room: A2
	• Session C1: Materials Science and Nanotechnology		Room: A3
	• Session Z1: Applied Physics in Engineering and Technology		Online (Zoom) Room B

Time	Agenda	PIC	Room
14.15 p.m. - 14.30 p.m.	**Coffee Break**		Lobby Shop
14.30 p.m. - 16.00 p.m.	**Parallel Session 2**	The Committee	Rachawadee
	• Session A2: Applied Physics in Engineering and Technology		Room: A1
	• Session B2: Environmental Physics and Sustainable Engineering		Room: A2
	• Session C2: Environmental Physics and Sustainable Engineering		Room: A3
	• Session Z2: Environmental Physics and Sustainable Engineering		Online (Zoom) Room B
16.00 p.m. - 16.30 p.m.	**Presentation Evaluation**	The Committee	Rachawadee Ball Room
16.30 p.m. - 17.00 p.m.	**Closing** • Award Presentation • Words Greeting from Participants	MC + The Committee	Rachawadee Ball Room

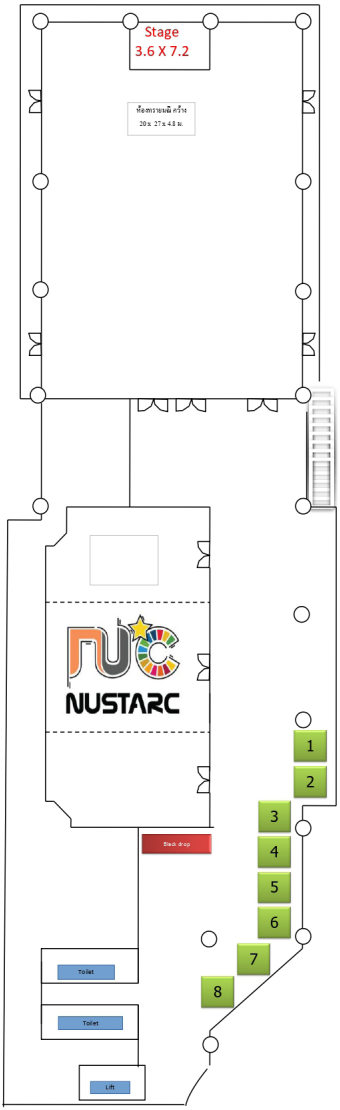
Day 3: 29 October 2025

Excursion Program Details:

Time	Agenda
8.00 a.m.	Shuttle departs from hotel go to NONG NOOCH GARDEN
11.00 a.m.	Visit to House of Benedict
12.00 a.m.	Return to hotel

Total duration of travel and activities: approximately 4 hours
Condition: Participants are responsible for all expenses. (Complimentary shuttle service will be provide.)

Floor plan:

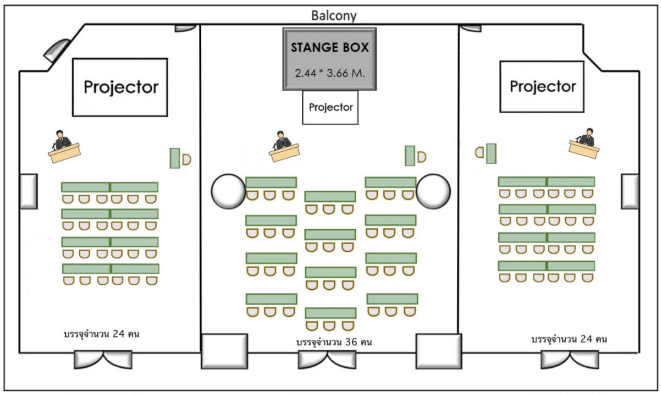


No.	Company Name
1	All Instrument Solution Co.,Ltd.
2	Hitachi Energy (Thailand) Co.,Ltd.
3	Infra Plus Co.,Ltd.
4	P.G.Intergroup Co.,Ltd.
5	Yokogawa (Thailand) Co.,Ltd.
6	MT Studytech Co.,Ltd.
7	Evertech Co.,Ltd.
8	Marigold Technologies Co.,Ltd.

Venue: 2nd floor, Long Beach Hotel

Floor plan:

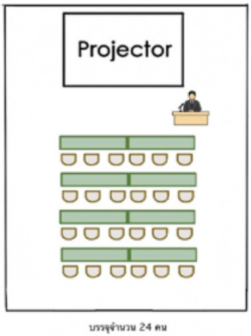
Rachavadee



ROOM C | ROOM B | ROOM A

LEELAVADEE

ONLINE



ROOM Z

KEYNOTE SPEAKER 1

Associate Professor Dr. Sarintip Tantanee

Naresuan University, Thailand

Biography:

Associate Professor Dr. Sarintip Tantanee is the President of Naresuan University (NU) in Thailand. She holds a Ph.D. in Water Resources Engineering, with her research focusing on flood hazard assessment, municipal waste management, and air quality impact assessment. Dr. Tantanee has published extensively in these areas, contributing significantly to environmental impact and infrastructure development. She also works as board of two International Journal indexed in SCOPUS database. Before becoming NU president, she served as the Dean at Faculty of Engineering, NU. Her leadership extends to community engagement, where she advocates for sustainable engineering practices and academic exchanges.

Title:

Cross-Border Environmental Governance in Thailand: Pathways to Sustainable Development

Abstract:

Thailand's cross-border environmental governance is increasingly critical to sustainable development in the Greater Mekong Subregion (GMS), where transboundary ecological challenges are intensifying. Recent data reveal alarming trends: in 2024, Thailand lost 62.6 thousand hectares of natural forest, contributing to 29.5 million metric tons of CO_2 emissions. Meanwhile, arsenic and mercury contamination in the Kok and Sai rivers originating from upstream mining activities in Myanmar has exceeded safe limits, threatening water security for over 1.2 million people in northern Thailand. Air pollution remains a persistent issue, with PM2.5 levels in northern and North-eastern Thailand rising due to seasonal transboundary haze linked to agricultural burning. As environmental problems occur across countries' borders, it is essential to have scientific proof for environmental governance strategies among countries. This presentation shares the analytical framework for cross-border governance for sustainable development as well as case study of transboundary research on preliminary risk assessment of nature related flow over the border area.

Keyword: Sustainable Development, Cross-border Environmental Governance, Transboundary Research

KEYNOTE SPEAKER 2

Professor Dodi Wirawan Irawanto, SE., M.Com., Ph.D.
Brawijaya University, Indonesia

Biography:

Dodi Wirawan Irawanto is a professor in the Department of Management at Brawijaya University, specializing in human resource management and cross-cultural leadership. He has published over 50 journal articles and three books and is the founder of LocalLead.id, a digital startup. A recipient of numerous international awards, including the Marry Mallon HR Award, he is among Brawijaya University's top five social science scholars. Professor Irawanto has held various leadership roles and served as Editor in Chief of Asia-Pacific Management and Business Application Journal since 2013. He is also a sought-after keynote speaker at national and international conferences.

Title:

Promoting Corporate Sustainability Through Green Leadership: Proposed model of green HRM and Environmental Knowledge.

Abstract:

Corporate sustainability has emerged as a critical component of organizational performance in today's environmentally sensitive business climate. Initiatives in Green Human Resources Management (GHRM) encourage green leadership, which is essential for advancing sustainability. In order to promote business sustainability, this article suggests a Green HRM and Environmental Knowledge paradigm. Incorporating green leadership into all facets of business operations will encourage and inspire staff members to embrace eco-friendly behaviors. Leaders that place a high priority on sustainability will set the tone for a culture that values environmental responsibility and inspires staff to come up with eco-friendly solutions, decrease waste, and save resources. In summary, encouraging business sustainability through green leadership necessitates an all-encompassing strategy that incorporates environmental knowledge and green human resource management.

Keywords: CSR, Climate, Green HRM, Green Leadership, Environmental Knowledge

KEYNOTE SPEAKER 3

Professor Symeon Christodoulou, Ph.D.

University of Cyprus, Cyprus

Biography:

Prof. Symeon Christodoulou, born in Cyprus, began his undergraduate studies in 1987 on an academic scholarship awarded by the Agency for International Development (AID), and in 1991 he received a B.Sc. degree in Civil Engineering from Columbia University (New York City, USA). He then went on to complete his graduate studies, all on academic and research scholarships from Columbia University, graduating in succession with a Master's of Science (M.Sc., 1992), a Professional Engineering Degree (1995), a Master's of Philosophy (M.Phil, 1996) and a Doctorate (Ph.D., 1998). Upon completion of his PhD, and after several years of industry experience in the field of construction management, he joined Polytechnic University (Brooklyn, New York) as an Assistant Professor of Civil Engineering and Head of the Construction Management Program of the university (1998 – 2003). In 2004 he joined the University of Cyprus, having also worked for a year in Cyprus (construction industry) and in Greece (Democritus University of Thrace) as an Adjunct Professor. Dr. Christodoulou is the author of several scientific publications, the recipient of significant research funding (including a prestigious award from the National Science Foundation, NSF) and the recipient of an international research award (London, 1999). He is an Associate Member of the American Society of Civil Engineers (ASCE), a reviewer for several scientific journals (ASCE, Elsevier, Taylor and Francis, Springer, IWA, etc.), a Board of Directors' member of the Nireas International Water Research Center, and a member of Polytechnic's Center for Construction Management Technology.

Title:

Harnessing Engineering Intelligence for Environmental and Infrastructure Sustainability and Resilience - From science, to engineering, application, deployment and entrepreunership.

Abstract (Short):

As global challenges from climate change, resource depletion, and urbanization intensify, integrating advanced engineering solutions with data-driven technologies has become essential. This keynote explores how artificial intelligence, machine learning, data science, and information technology can drive environmental sustainability and resilient infrastructure. Drawing from real-world projects, it highlights applications in transport modeling and monitoring, low-cost pavement assessment for emission reduction, water resources management through remote sensing, intelligent leak detection and sustainable water networks, and energy-efficient buildings using Building Information Modeling, digital twins, and AI. Beyond technical innovation, the keynote underscores the importance of entrepreneurship and translational science in bridging research and implementation. By transforming scientific knowledge into accessible, high-value, and scalable solutions, we can foster the next generation of responsive, efficient, and sustainable infrastructure systems—paving the way toward a cleaner, smarter, and more equitable future.

Professor Symeon Christodoulou, Ph.D.
University of Cyprus, Cyprus

Abstract (Extended):

As the world faces escalating challenges from climate change, resource depletion, and urbanization, the integration of advanced engineering solutions with data-driven technologies has become imperative. This keynote will explore how artificial intelligence (AI), machine learning (ML), data science (DS), and information technology (IT) can be harnessed to create sustainable and resilient systems for the environment and our civil infrastructure. Drawing upon real-world projects from personal experience, the presentation will highlight five domains where these technologies are making measurable impact:

1. **Transport modeling and monitoring** – leveraging AI-driven analytics and sensor networks for traffic flow monitoring and management;
2. **Reduction of tailpipe emissions** – through low-cost, data-informed assessment and maintenance of roadway pavements to improve their operations and maintenance and to enhance vehicle efficiency and lifespan;
3. **Water resources management and remote sensing** – using satellite data, bio-sensors and ML algorithms to monitor, predict, and manage hydrological systems;
4. **Water leak detection and sustainable water distribution network management** – deploying data fusion, IoT, and predictive analytics to reduce losses and improve the reliability of urban water distribution systems; and
5. **Energy-efficient and intelligent buildings** – employing Building Information Modeling (BIM), digital twins, and AI to optimize the design of buildings, to reduce energy consumption, optimize operations, and improve occupant comfort.

Beyond technical innovation, this keynote will also emphasize the **critical role of entrepreneurship and translational science**, bridging research and implementation to deliver **low-cost, high-value solutions** that can be scaled globally. By fusing engineering intelligence with entrepreneurial innovation, the keynote advocates that we can build the next generation of resilient infrastructure systems that are responsive, efficient, and sustainable, paving the way toward a cleaner and more equitable future.

Presentation Schecule

28 October 2025

SESSION A1

Track: Applied Physics in Engineering and Technology

Chair: Prof. Dr. Anil Christopher Wijeyewickrema

Co-Chair: Asst. Prof. Dr. Sutanit Puttapanom

Time: 12.30 - 14.15 PM

No.	PID	Title	Presenter
1	5	Design and Implementation of a PM2.5 Air Quality Monitoring System	Wayan Suparta
2	6	Hydrogen Power Generation in Thailand: Opportunities, Barriers, and Policy Implications	Keerthana Kanapathipillai
3	11	An experimental investigation of organic Rankine cycle with scroll expander for low-temperature heat sources	Suppachai Chumnumwat
4	12	Autonomous Dual-Axis Solar Tracker for Concentrated Solar Power Using Solar Position Algorithm	John Kyl Cortez
5	36	Sustainable and Ergonomic Solutions for Improving School Furniture Fit	Jirapon Promngam
6	49	Performance–Efficiency Tradeoffs in Multi-Mode Electric Vehicle Configurations Using MATLAB/Simulink	Suphakorn Yenjit
7	50	Simulation and comparison of energy use between lead-acid batteries and lithium iron phosphate batteries for golf carts using MATLAB/Simulink	Pakron Pimya
8	51	Load Analysis for Motor Sizing Using MATLAB/Simulink Simulation	Aree Sangthong

Presentation Schecule

28 October 2025

SESSION A2

Track: Applied Physics in Engineering and Technology

Chair: Prof. Dr. Anil Christopher Wijeyewickrema

Co-Chair: Asst. Prof. Dr. Sutanit Puttapanom

Time: 14.30 - 16.00 PM

No.	PID	Title	Presenter
1	31	Portable Gate Smart Barrier Using Automatic License Plate Recognition	Akaraphunt Vongkunghae
2	17	Behavior Cloning with Discrete Steering Commands Using CNN and Edge Detection for Autonomous Driving	Teetawad Thongsila
3	38	Experimental Investigation on The Chracteristics of A Phase Change Material Energy Storage (PCM-TES) Using Capillary Tubes as Heat Exchanger for Air Conditioning Application in Buildings	Miftahus Syifa
4	42	Sizing Design of Battery Storage in Solar PV Power Generation: Techno-Economics Analysis	Sithisirin Komkueng
5	58	The Modification of Hybrid Electric Motorcycles for Low-Carbon Tourism: A Case Study of Thung Luang Community, Khiri Mat District, Sukhothai Province	Bandit Bunprasop
6	62	Fuzzy Logic-Assisted Diagnosis of Power Transformers using Roger Ratio Dissolved Gas Analysis	Atipol Rungklin
7	63	Battery Charge Monitoring System for E-Motorcycle	Ponpisut Worrajiran

Presentation Schecule

28 October 2025

SESSION B1

Track: Environmental Physics and Sustainable Engineering

Chair: Asst. Prof. Dr. Jirawadee Polprasert

Co-Chair: Dr. Virin Kittithammavong

Time: 12.30 - 14.15 PM

No.	PID	Title	Presenter
1	18	Xylose Extraction and Separation of Cellulose and Silica from Rice Husks	Teruhisa Hongo
2	13	UAV Payload and Ground Station System for PM2.5 Vertical Profiling	Denise Cecille Armamento
3	15	The Characteristic Investigation of Electricity Generation from Biomass with Redox Couples using Continuous Flow Fuel Cell Technology	Saowarot Chongchitwatthanakun
4	19	Real-Time Water Quality Classification in Koi Ponds Using Neural Networks	Prawit Chumchu
5	35	Google Earth Engine–Based Integration of Remote Sensing and Machine Learning for District-Level Maize Yield Forecasting in Phitsanulok Province, Thailand	Polpreecha Chidburee
6	61	Assessing Upstream Transport Food Loss in the Broiler Supply Chain: A Review of Associated Drivers and Metrics	Somsakul Thongtab
7	64	Full-Scale Validation of Zero Airborne Microplastic Emission and $PM_{2.5}$ Mitigation from Recycled Plastic-Modified Asphalt	Nattanon Khumkud

SESSION B2

Track: Environmental Physics and Sustainable Engineering

Chair: Asst. Prof. Dr. Jirawadee Polprasert

Co-Chair: Dr. Virin Kittithammavong

Time: 14.30 - 16.00 PM

No.	PID	Title	Presenter
1	30	Solar Irradiance Forecasting for Photovoltaic Power Output Prediction Using Seasonal Autoregressive Integrated Moving Average Model	Adri Senen
2	32	The design and Development of a Mobile Application for Supporting the Eradication of Opium Poppy Cultivation	Polpreecha Chidburee
3	33	Geospatial Analysis of Flood Extent Using Google Earth Engine Platform and Sentinel Data	Kamonchat Seejata
4	37	Experimental Performance Analysis of a Solar Air Heater with Combined Hemi-spherical and Semi-Capsule Protrusions for Enhanced Thermo-Hydraulic Performance	Premchand Kumar Mahto
5	40	Application on Integrated AHP and WSM Methods to Select construction Paint Suppliers Based on Sustainability Criteria	Itsariyaporn Luanghan
6	10	Experimental Investigation of the Effects of Baffles on the Performance of a Biomass Cookstove	Wilbert Salcedo

Presentation Schecule

28 October 2025

SESSION C1

Track: Materials Science and Nanotechnology

Chair: Asst. Prof. Dr. Narumon Seeponkai

Co-Chair: Asst. Prof. Dr. Po-Ngarm Somkun

Time: 12.30 - 14.15 PM

No.	PID	Title	Presenter
1	22	Influence of Thermocycling and Acidic Beverages on Surface Hardness, Water Absorption and Occlusal Force of Laboratory-Processed PMMA Dental Composite.	Noppawan Motong
2	25	Development of Liquid Bandage for Antibacterial Applications	Jiranan Puangjumpa
3	26	Development of Chitosan/PVA-Loaded Peppermint (Mentha cordifolia Opiz.)/Tea Tree Oil extracted-based anti-acne hydrogel	Thipawal Naewthong
4	28	Utilization of Stone Dust as a Partial Fine Aggregate Replacement in Concrete Floor Tiles Complying with Thai Industrial Standard 378-2531	Yodchay Singthong
5	29	Evaluation of Engineering Properties of Aged Asphalt Modified with Virgin Asphalt for Pavement Surface Applications	Wannika Kancomnanta
6	39	Microclimate Optimization in Tropical Apiculture: Thermal Performance and Dimensional Stability of Pure Clay	Dilmi Jayathilaka
7	43	Impact of nanoclay incorporation on the wear resistance of bamboo-glass epoxy composites	Syed Mansoor Ahmad
8	44	BaTiO3-Based Ferroelectric Photocatalysts for Oxygen Evolution from Water	Bashir Ahmmad Arima

Presentation Schecule

28 October 2025

SESSION C2

Track: Environmental Physics and Sustainable Engineering

Chair: Asst. Prof. Dr. Narumon Seeponkai

Co-Chair: Asst. Prof. Dr. Po-Ngarm Somkun

Time: 14.30 - 16.00 PM

No.	PID	Title	Presenter
1	23	Sustainable Turning of Ti-6Al-4V Alloy Using Vegetable Oil-Based Cutting Fluids Optimized using SWEI–MEREC Approach	Partha Protim Das
2	24	Sustainable Knock-Down Housing Steel Structural Frame System: Reducing Transport Energy and Material Waste	Anil Christopher Wijeye-wickrema
3	46	Model-Based System Design for an All-Terrain Scooter	Choopong Chuaypen
4	48	Multi-Directional Water Wave Pattern Sensing Using Liquid–Solid Triboelectric Nanogenerator Arrays for Real-Time Aquatic Monitoring	Pee Pocherd
5	57	Modeling Sustainability in Rural Cultural Systems: Insights from the 'Hom Kan Der' Festival, Thailand.	Charatdao Kongmuang
6	59	Advancing Climate-Resilient Urban Drainage through Green Infrastructure: Modeling Insights from Bangkok	Thidarat Komkong
7	60	An Experimental Investigation of Latent Thermal Storage for Radiant Cooling in Tropical Office Buildings	Aung Pyae

Presentation Schecule

28 October 2025

SESSION Z1

Track: Applied Physics in Engineering and Technology

Chair: Asst. Prof. Dr. Kwanchai Kraitong

Co-Chair: Emeritus Prof. Dr. Sivanappan Kumar

Time: 12.30 -

No.	PID	Title	Presenter
1	7	Spatiotemporal Analysis of Urban Heat Island Effects by Land Use Change: A GIS and Remote Sensing Approach	Vanthan Kim
2	20	Optimizing Building-Integrated Photovoltaics Using 3D Digital Twin Modeling: A Bi-hemispheric Case Study	Girish Vishwanathan
3	52	Influence of Tool Rotational Speed on Microstructure and Tensile Strength in Friction Stir Welding of Dissimilar	Chen Chen
4	53	Coffee Bean Defect Classification with Lightweight CNN for Automated Sorting Machine	Shunsei Tsunemori
5	54	Economic Prospects and Environmental Impacts of Sorghum Cultivation as a Renewable Energy Source in the NTT Maumere Region	Editya Hendrawarman
6	56	Synergistic Effects of Biochar and Nitrogen Fertilization on Biomass Production and Carbon Sequestration in Sorghum (Sorghum bicolor)	Dennis Wibowo
7	65	Simulation Analysis of Thermal Runaway Causes of Power Batteries Based on ANSYS	Lu Ban
8	66	Study on the Thermal Profile and Stress Field in Brake Pads of Bullet Trains under Different Working Conditions	Haitao Deng

Presentation Schecule

28 October 2025

SESSION Z2

Track: Environmental Physics and Sustainable Engineering

Chair: Assoc. Prof. Dr. Ir. Wayan Suparta

Co-Chair: Dr. Pongpun Othaganont

Time: 14.30 - 16.00 PM

No.	PID	Title	Presenter
1	3	Estimating Mean Radiant Temperature and PMV from Distributed Sensors Using a Machine Learning Approach	Wipawadee Wongsuwan
2	27	Reduction of PM, CO2, and Temperature from the Flue Gas Using a Double-Stage Absorption System	Md Amin
3	41	Design and Fabrication of Hybrid Operational Modes Magnetorheological Mount	Shuangyi Liang
4	47	Smart Flexible Working Arrangement for Better Optimisation of Renewable Energy in Office Setup	Muwafick Hidayat
5	55	Modeling Information Technology Utilization for Sustainable Workplace Agility	Lia Yulianie
6	9	Development and Analysis of a Shell-And-Tube-Type Molder for Ice Tube Production with NaCl Brine as Refrigerant	April Vincent Daling
7	45	Agricultural Machinery Management for Maize Production: An Engineering Approach to Enhance Efficiency and Sustainability	Thanwamas Phasinam

With Best Compliments:

The organizing committee would like to express our sincere gratitude to all sponsors for their generous support and contribution to the success of this conference.

Platinum Sponsors:

- All Instrument Solution Co.,Ltd.
- Hitachi Energy (Thailand) Co.,Ltd.
- Infra Plus Co.,Ltd.
- P.G.Intergroup Co.,Ltd.
- Yokogawa (Thailand) Co.,Ltd.
- Marigold Technologies Co.,Ltd.
- MT Studytech Co.,Ltd.
- Evertech Co.,Ltd.

Gold Sponsors:

- PTS Combination Co.,Ltd.
- Electricity Generating Authority of Thailand. (EGAT)

Valuable Sponsors:

- S.K. OA Center limited.
- THAI-THAI Tonwa Kamai Co.,Ltd.
- CH.Vanich Furniture limited.
- Klang Kruang Khian Apinya Co.,Ltd.

"Harnessing Applied Physics and Engineering Solutions for Energy Sustainability and Environmental Resilience"

ADDRESS

Faculty of Engineering, Naresuan University
99 Moo 9 Tumbon Thapho Maung , Phitsanulok Thailand

CONTACT INFO

Phone : +66559-6409-2
Email : nustarc2025@nu.ac.th