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CENTER OF EXCELLENCE ON ENERGY TECHNOLOGY AND ENVIRONMENT



JGSEE Newsletter

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and Planning Office
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Outstanding Achievement

Dr Navadol Laosiripojana, Full Professor of JGSEE



JGSEE is very proud to congratulate Dr Navadol Laosiripojana on the formal announcement of his Professorship. He is currently the youngest Full Professor in Thailand. His research interests at JGSEE are focused on the study of catalytic processes for alternative and renewable fuel productions as well as biorefinery application. This involves the development of new and industrially practical heterogeneous catalysts for hydrogen-rich gas, biodiesel, biomass-to-liquid and value-added chemical production. Over the past decade, with financial support from the industry and government, several reactions related to fuel syntheses (i.e., reforming, transesterification, esterification, hydrolysis/dehydration, aldol-condensation/ hydrogenation) have been investigated aiming at converting local feedstock (e.g. methane, natural gas, liquefied petroleum gas, crude palm oil, lignocellulosic biomass, and industrial-wastes) into clean fuels and high-value chemical products. The investigations include the studies of feedstock purification; catalyst synthesis; reaction activity, stability and selectivity; reaction kinetics in laboratory-scale reactors; and prototype-scale catalytic reactor design and construction.

During his work at JGSEE, Professor Navadol has published over 130 refereed international journal papers with more than 2,000 citations. He has also contributed 2 international book chapters, and 10 patents (including 1 international patent). He has served as principal investigator (PI) in more than 30 research and consultancy projects, with funding from industrial and governmental organizations (e.g. PTT, PTTGC, SCG, NSTDA, TRF). He is on the editorial board of several journals and has been on several national scientific committees, particularly in the areas of applied catalysis for energy and fuel technologies. As part of his academic contributions, he has supervised a total of 54 PhD and Master students out of which 44 students have already graduated and found employment in various academic and industrial organisations.

Professor Navadol has been the recipient of numerous awards. His important rewards include, Young Researcher Award (from the Thailand Research Fund; year 2005); Young Scientist Award (from the Foundation for the Promotion of Science and Technology under Patronage of His Majesty the King; year 2007); Finalist for ASEAN Young Scientist and Technologist Award (from ASEAN National Committee on Science & Technology; year 2008); PTIT Scholar Award (from Petroleum Institute of Thailand; year 2008); Mid-researcher Career Award (from the Thailand Research Fund; year 2008); and the TRF-CHE-Scopus Researcher Award in Engineering and Multidisciplinary Category (from the Thailand Research Fund (TRF), Commission on Higher Education (CHE) and Scopus; year 2010).

Currently, in collaboration with Dr Verawat Champreda from BIOTEC, Professor Navadol is also working at the Integrative Biorefinery Laboratory. The major purpose of the work performed in this laboratory is to convert local biomass feedstock (from Thailand) to fuels and chemicals. Several conversion technologies have been studied, including, biomass pretreatment/fractionation, catalyst and enzyme developments for converting lignocellulosic compounds to several end-products, and process optimization for commercial-scale applications.

Contribution to International Forum

Prof Shabbir H Gheewala in GBEP Activity Group on Water



Prof Shabbir H Gheewala has recently been invited to join the activity group on water of the Global Bioenergy Partnership (GBEP). In this connection he gave a talk on "Implications of biofuels policy mandate in Thailand on water" at the GBEP meeting (3rd Bioenergy Week) during 25-29 May 2015 at Medan, Indonesia. He also chaired the session on "Environmental Sustainability – Mitigation and opportunities". The event was organized by GBEP and the Food and Agriculture Organization of the United Nations (FAO).

Further to this, he was also invited to the activity group meeting in Stockholm during 25-26 August 2015 for contributing experiences to the workshop on "Examples of Positive Bioenergy and Water Relationships".

Plenary Talks on LCA by Prof Shabbir H Gheewala in Indonesia



Recognizing the development of life cycle assessment (LCA) in Thailand and Prof Shabbir H Gheewala's expertise in the area, he was invited to give a plenary talk on "Perspectives on Life Cycle Assessment application and research in Thailand" at the 1st ILCAN Workshop on "LCA research in Indonesia" on 24 November 2015. In the following week, he was once again in Indonesia presenting a talk on "Life Cycle Thinking in Assessing Energy Conversion Systems" at the 2nd Asia Renewable Energy Workshop organised by the Agency for the Assessment and Application of Technology (BPPT),

Indonesia, Natural Resources and Energy, Ministry of Economy, Trade and Industry (ANRE METI), Japan, National Institute of Advanced Industrial Science and Technology (AIST), Japan and New Energy Foundation (NEF), Japan and supported by the Ministry of Energy and Mineral Resources (ESDM), Indonesia and the ASEAN Centre for Energy (ACE).

Contribution to Research Arena

JGSEE and DEDE Seminar on Promotion of Thailand as Ethanol Hub of SEA



JGSEE-CEE in collaboration with the Department of Alternative Energy Development and Efficiency, Ministry of Energy, Thailand, successfully organized a seminar on "The Analysis to Promote Thailand as Ethanol Hub of Southeast Asia and Operation of Thailand Biofuels Center of Excellence" on 28 August 2015 at the Prince Palace Hotel in Bangkok. The meeting aimed at sharing results of the project based on recommendations for improvement that had been given at the occasion of the Stakeholder's Meeting organised on 10 August 2015 in Bangkok. The meeting also aimed at receiving comments from participants on the draft of policies. The meeting gathered over 100 participants from governmental, academic and private organisations.

DEDE and JGSEE Experts visit QIBEBT in China

On 31 July 2015, experts from the Department of Alternative Energy Development and Efficiency (DEDE), Ministry of Energy, Thailand and JGSEE-CEE visited the Qingdao Institute of Bioenergy and Bioprocess Technology (QIBEBT), Chinese Academy of Sciences, China. This visit was led by Mr Yongyuth Sawatdisawanee, Director of the Biofuel Development Bureau at DEDE. The purpose of the visit was to learn more about the establishment of the institute and management of the Bioenergy Research Centre as well as to discuss potential opportunities for research collaborations on biofuels between the two countries. The meeting was hosted by Dr Xin Hongchuan, Deputy Director of the Science and Technology Department of QIBEBT.

At the occasion of the meeting, Dr Boonrod Sajjakulnukit, a renewable energy expert from JGSEE, introduced Thailand's policies on renewable and alternative energy. Mr Yongyuth also took the opportunity of this visit to confirm that DEDE is interested in establishing a Center of Excellence on Biofuels at a national level in Thailand. Prof Zheng Yonghong, Assistant Director General and Director of the Science and Technology Department of QIBEBT, demonstrated the China's "One Belt And One Road" strategy and related energy policies. He also expressed his confidence in the Sino-Thai collaboration with support from the two countries' respective governments. At the end of the meeting both sides reached a preliminary consensus concerning the exchange of academic staff and students in the near future.

International Joint Workshop on Bio-drying MBT for Post-Phitsanulok Model



On 16 October 2015, JGSEE-CEE in collaboration with the Eco-Energy Research Center of the Institute of Urban Science at the University of Seoul, Korea, the Phitsanulok Municipality and Naresuan University, Thailand, and the Center for Material Cycles & Waste Management Research of the National Institute for Environmental Studies (NIES), Japan, hosted the International Joint Workshop on “Bio-drying MBT for Post-Phitsanulok Model” at the Chatrium Hotel Riverside in Bangkok. The workshop focused on “The Regions Proper Sustainable Solid Waste Management in Asia and other Tropical Countries”.

The event was sponsored by the Korea Institute of Energy Technology (KIET) and is part of the Specific Memorandum of Understanding (SMoU) for Joint Project on “Research and System Development Related to Solid Waste Treatment” that was signed by each of the above mentioned organisations. The workshop was a great success, gathering over 60 participants from Japan, Korea and Thailand.

Invited Talk by Prof Fisch on Innovative Green Building

JGSEE-CEE in collaboration with the School of Architecture and Design (SoA+D) at KMUTT and Chulalongkorn University successfully organised the invited talk of Prof Norbert Fisch on “Innovative Green Building: More Value, Quality and Energy Efficiency” on 19 October 2015 in Bangkok. Prof Fisch is a worldwide renowned expert in the area of sustainable building design. At the occasion of this talk, Assoc Prof Dr Sirintornthep Towprayoon (director of JGSEE) delivered a welcome speech and Dr Robert Himmler, a visiting professor of JGSEE, complemented Prof Fisch’s presentation with examples of best practices in Thailand. Dr Acharawan Chutarat (SoA+D) moderated the event and led the Q&A session.

The talk of Prof Fisch along with inputs from Dr Himmler, aimed at contributing to raise awareness among local stakeholders of the importance of the various aspects related to innovative green buildings. It also aimed at promoting networking among the academics and professionals who attended the talk.



Contribution to ASEAN Community

3rd ASEAN Bioenergy Workshop in Vietnam



The National Science Technology and Innovation Policy Office (STI), Thailand, Hanoi University of Science and Technology (HUST), Vietnam, the Vietnam National Foundation for Science and Technology Development (NAFOSTED), Nagaoka University of Technology, Japan, VLIR-UOS, Belgium and JGSEE-CEE successfully organized the 3rd ASEAN Bioenergy Workshop on “Bioenergy Technology for Fuel, Heat Power Generation Current & Future Potential” during 3-4 September 2015 at HUST.

The meeting was held as part of the project on “Bioenergy Science Technology and Innovation Policy in the context of AEC or ASEAN Biomass Project (Phase II)”. It is a collaborative project part of the MOU between JGSEE and the Vietnam Japan International Institute for Science of Technology (VJIIST). During the workshop, Assoc Prof Dr Suneerat Fukuda, a project leader from JGSEE, reported on the project’s past activities, achievements and future steps. Also presentations from invited experts were delivered, including from Prof Masakazu Okazaki of Nagaoka University of Technology to provide some insights on the potentials of rice husk for engineering applications. A large part of the workshop focused on experience sharing and exchange of updated information regarding the status of bioenergy in ASEAN from local speakers. Discussions on possible future collaborations among ASEAN countries were also engaged during the workshop. Assoc Prof Dr Bundit Fungtammasan, Dr Suneerat and representative from STI had an opportunity to meet with Vietnamese representatives from the Ministry of Science and Technology (MOST) to discuss future collaboration options on bioenergy. The workshop was a great success gathering over 70 participants from ASEAN countries.

International Dissemination Workshop and Epilogue Meeting of MECON Project



JGSEE-CEE organised in collaboration with the Demand Side Management and Planning division (DSM office) of the Electricity Generating Authority of Thailand (EGAT), the MECON project's International Dissemination Workshop on "Improving Energy Efficiency amongst Low-income Households in the Greater Mekong Sub-region" on 17 September 2015 in Bangkok, Thailand. The event aimed at disseminating the final results of this two-year research project, identifying possible implementation measures, and stimulating discussions among policy makers, energy experts and other relevant stakeholders from partner countries of this project, i.e. Cambodia, Lao PDR, Myanmar, Thailand, Vietnam and UK.

During the workshop, MECON researchers from each of the 5 countries represented in the project had an opportunity to present the key findings of their investigations as well as policy recommendations. Policy makers of the region had also an opportunity to share their views and discuss the energy efficiency and policy situation of their respective countries. Two panel discussions were held during the event involving a number of stakeholders from the energy sector and aiming at identifying ways of overcoming energy efficiency barriers and promoting future collaboration among GMS countries. There were also parallel sessions during which researchers of the project had an opportunity to present the full details of their research investigations, based on the 6 main tasks of the project, i.e. (1) baseline information energy data analysis, (2) technological perspective, (3) socio-economic perspective, (4) energy efficiency policy analysis, (5) cost-benefit analyses, and (6) institutional conditions.

On 18 September 2015, JGSEE also hosted a MECON Epilogue Meeting for partners of the project, which aside from JGSEE, included representatives from the Hanoi University of Science and Technology (HUST), Vietnam, the National University of Laos (NUOL), Lao PDR, the Royal University of Agriculture (RUA), Cambodia, the Myanmar Engineering Society (MES), Myanmar, and the University College London (UCL), UK. The meeting was held at the Bangkhuntien Campus of KMUTT. In this meeting, MECON researchers discussed about the International Dissemination Workshop and Second stakeholder meetings which are to be held in each partner countries of the project for dissemination of the results to locals. More information about the project is available at: www.meconproject.com

TICA Technical Training on Environmental Pollution Control Engineering and Technology

JGSEE-CEE was selected by the Thailand International Cooperation Agency (TICA) to host the Technical Training on "Environmental Pollution Control Engineering and Technology". The event was held during 1-13 September 2015 at JGSEE for governmental officers from the Ministry of Natural Resources and Environment and Ministry of Science and Technology of Lao PDR.

The training event included lectures on: Air, Water and Soil Pollution, Waste Management and Treatment, Life Cycle Assessment, Sustainability Assessment, and Environmental Pollution Control Technology. Hands-on sessions and technical visits were also organised in order to provide the Loatian trainees with an opportunity to learn from real case-studies and interact with specialised practitioners. The technical excursions included three visits: 1) Automotive Emission Laboratory, Pollution Control Department; 2) EGAT Wang Noi Power Plant; and 3) Pairojsompongpanich Co.,Ltd., a Municipal Solid Waste Landfill equipped with a 2 MW Landfill Gas Power Plant.



Contribution to Industry

SCG Contract Signing Ceremony between JGSEE and CEC



On 20 August 2015, Mr Visut Chongcharoenkit, Managing Director of the Cementhai Energy Conservation Co., Ltd. (CEC) of Siam Cement Group (SCG) and Assoc Prof Dr Sirintomthep Towprayoon, Director of JGSEE-CEE at KMUTT, signed a contract for a Joint Research Project focusing on the environmental effects associated to RDF gasification and its optimisation. The activities of the project will focus on two main aspects: (1) the RDF gasification process and its optimisation, and (2) emissions from the process and assessment of potential extent of contamination. Updates on the progress of the project activities will be given in next issues of the newsletter.

Contribution to Knowledge Transfer

JGSEE-CEE and STI Training Workshops on Biomass Combustion and Gasification Technologies

JGSEE-CEE and the National Science Technology and Innovation Policy Office (STI) successfully organized the following two training workshops (1) "Biomass Combustion Technology for Industrial Sector" and (2) "Biomass Gasification Technology for Industrial Sector" during 24-25 August 2015 at the Bangkhuntien Campus of KMUTT in Bangkok. These training workshops were held as part of the STI activities on "Driving STI Policy for Biomass Thermochemical Conversion Technology in Thailand". Both training events aimed at providing participants with an understanding of biomass combustion and gasification technologies, including, system design and guidelines for technical operating problems solving. Around 100 participants from private companies and public organisations as well as university students attended the workshops.

R Training Workshop at KMUTT

JGSEE-CEE successfully organized the training on "Geospatial-temporal Analysis of Climate Data and Remote Sensing for Vegetation Monitoring with R" during 12-16 October 2015 at KMUTT. The event was attended by 12 participants from academic and private organisations from Myanmar, Thailand and the Philippines. The training aimed at introducing the open source R programming to environmental and climate scientists and showing how the analysis of common climate and satellite data can be carried out using that tool. The training was provided by researchers from JGSEE, namely, Mr Uday Pimple and Ms Asamaporn Sitthi. The event was composed of a combination of theoretical sessions and hands-on sessions during which climate and satellite data were processed. The importance of this course stems from JGSEE's interest in promoting networking with scientists in the region and in this particular case disseminating knowledge related to open source tools, and climate and satellite data analysis.



Awards

Petty Patent no. 9932

JGSEE-CEE is pleased to congratulate Dr Boonrod Sajjakulnukit and his colleagues for the invention of the Petty Patent no. 9932 "Separation of Aluminium and Paper from UHT Fluid Food Package by Solvent Extraction Process" (in Thai: กรรมวิธีการแยกอลูมิเนียมและกระดาษออกจากกล่องบรรจุอาหารเหลว ประเภทยูเอชทีโดยใช้วิธีการสกัดด้วยตัวทำละลาย).



Dr Kasemsan Manomaiphiboon honored at KMUTT Dinner



On 21 August 2015, KMUTT organized the 2015 Annual Dinner for researchers who had received awards or honors in the past year. Assoc Prof Dr Kasemsan Manomaiphiboon of JGSEE-CEE attended the event in relation to his Certificate of Honor received from the Secretariat of the Senate as the advisor of the outstanding PhD dissertation of Dr Chatinai Chusai on the topic "Air Quality Policy for a Large Industrial Complex in Thailand".

Dr Nakorn Worasuwannarak receives Outstanding Researcher Award

JGSEE-CEE is pleased to congratulate Assoc Prof Dr Nakorn Worasuwannarak of the Advanced Fuel Processing Laboratory for receiving the Outstanding Researcher Award from the Office of the Higher Education Commission on 12 November 2015. This award is presented to researchers who have a publication with high impact factor as evaluated by the Web of Science Database. Dr Nakorn's award relates to the publication of his paper entitled "Kinetic Analyses of Biomass Pyrolysis using the Distributed Activation Energy Model" that was published in the journal "Fuel" in 2008. JGSEE is pleased to congratulate Prof Somchai Wongwises and Asst Prof Dr Jaruwan Chontanawat, JGSEE affiliated staffs of KMUTT, for being honored with these awards too.



Dr Janewit Wannapeera receives Best Paper Award in Japan



JGSEE-CEE is pleased to congratulate Dr Janewit Wannapeera for receiving the Best Paper Award for his work on "Effects of Air Oxidation on the Properties of Upgraded Products derived from the Solvent Treatment of Low Rank Coal and Biomass as a Precursor of Carbon Fiber". The paper was presented at the Coal Science Conference of Japan on 28 October 2015.

Recognition

Congratulation to Dr Thapat for his Promotion as Assistant Professor



JGSEE-CEE is very pleased to congratulate Dr Thapat Silalertruksa for his promotion as Assistant Professor. At this point in time, he is the first researcher of JGSEE to have officially achieved this position. Dr Thapat works under the Life Cycle Sustainability Assessment Laboratory that is headed by Prof Shabbir H Gheewala. His expertise is in life cycle assessment and sustainability assessment of bioenergy systems, especially, biofuels. He has published over 15 international journal papers in this particular area. Over the past few years, Dr Thapat has also contributed to several research projects related to sustainability assessment, and implementation of environmental sustainability management systems and tools, e.g. carbon footprint, water footprint, and cleaner technology for policy decision making and environmental performance improvement of Thai industries. In recognition of his outstanding performance, Dr Thapat had also received the KMUTT Young Researcher Award in 2013.

Upcoming Events



2016

6th International Conference on Sustainable Energy and Environment

In conjunction with

6th ICGSI 2016
International Conference on
Green and Sustainable Innovation

and

1st CTI 2016
International Conference on
Climate Technology and Innovation

Energy & Climate Change: Innovating for a Sustainable Future

Energy and Environmental Technologies & Policy • Green and Sustainable Innovation • Climate Change

23-25 November 2016
Bangkok, Thailand

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