

Activity Report

For

5th AEARU Energy and Environmental Workshop

Pan-Guan Lecture Hall, Integrate Chemistry Building
Chemistry Department
National Taiwan University
22th (Wed) to 24th (Fri), October, 2014

By

Cheng-Liang Chen, Professor
Secretary of the 5th AEARU-EE Workshop
Department of Chemical Engineering
National Taiwan University
CCL@ntu.edu.tw

Contact information

For inquiries, please contact *Dr. Pu-ti Su*

Tel: (+886) 02- 3366-3997 E-mail: aearu2014@gmail.com

The 5th AEARU Energy and Environmental Workshop was held in Taipei on 23–24 October, 2014 by National Taiwan University. A total of 86 participants from Hong Kong University of Science and Technology, Peking University, Tokyo University, Tsing Hua University – Hsinchu, Tsukuba University, National Taiwan University and some local institutions had taken part in this workshop. It brought leading researchers and students from the AEARU members together to exchange and share their research results and experiences on all aspects of Energy and Environment.

The topics of this year’s workshop were as follows:

- Renewable Energies (Wind, Solar, Ocean, Biomass, etc.)
- Energy Technologies (Battery, Storage of Hydrogen, etc.)
- Energy Policies and Management
- Education and Talent Cultivation
- Other Energy-related Topics

This workshop is an ideal platform for delegates from these leading research-oriented universities in East Asia to discuss the practical challenges encountered with Energy and Environment.

Organization

Chair	Pan-Chyr Yang	President, NTU
Co-Chair	Si-Chen Lee	Distinguished Professor, NTU
Secretary	Cheng-Liang Chen	Professor, Depart of Chem. Eng., NTU
Contact	Pu-ti Su	Post-doctor, NTU

Agenda

Wednesday, October 22, 2014

All day	Airport pick-ups
12:00	Lunch
18:30	Reception Dinner

Thursday, October 23, 2014

09:00 – 09:10	<p>Opening <i>Host: Professor Cheng-Liang Chen, Secretary of the 5th AEARU-EE Workshop</i> Department of Chemical Engineering, National Taiwan University</p> <p>Opening Address by Professor Shu-Ying Luisa Chang, Dean for International Affairs, National</p>
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	Taiwan University	
Oral Session A		
09:10 – 09:30	Nanoparticles sensitized ZnO nanowires-array photoelectrodes for water splitting	<i>Professor Ru-Shi Liu</i> National Taiwan University
09:30 – 09:50	Electrophoretic mobility and turbulent aggregation rate of carboxyl latex particles: experiments and theoretical analysis	<i>Takuya Sugimoto</i> University of Tsukuba
09:50 – 10:10	Enhanced cycle life of lead-acid battery using graphene as a sulfation suppression additive in negative active material	<i>Kan Kan Yeung</i> Hong Kong University of Science and Technology
10:10 – 10:25	Tea Break	
Oral Session B		
10:25 – 10:45	Energy consumption transformation with urbanization in Liangshan region, China	<i>Li Li, Mengqi Yu, Zihan Zhai,</i> Peking University
10:45 – 11:05	Toward the next generation of low emission combustion technology: MILD-Oxy combustion	<i>Jian-Peng Zhang</i> Peking University
11:05 – 11:25	Modelling residential energy behavior under bounded rationality: a fuzzy optimization approach	<i>Constantinos Spandagos</i> Hong Kong University of Science and Technology
11:25 – 11:45	Colloid transport in unsaturated sand	<i>Yosuke Fujita</i> University of Tsukuba
11:45 – 12:05	Network effect of energy trade in South Asia	<i>Aoi Minamisaka</i> University of Tokyo
12:05 – 13:00	Lunch	
13:00 – 13:40	Poster	
Oral Session C		
13:40 – 14:00	Nano-particle printing process for flexible CIGS solar cells	<i>Dr Tung-Po Hsieh</i> Industrial Technology Research Institute of Taiwan
14:00 – 14:20	Wind farm O&M status in Taiwan	<i>Dr Jui-Hung, Liu</i> Industrial Technology Research Institute of Taiwan
14:20 – 14:40	Development of the calcium looping CO ₂ capture process in Taiwan	<i>Dr Ming-Hui Chang</i> Industrial Technology Research Institute of Taiwan
14:40 – 15:00	Organic Rankine cycle for waste heat recovery	<i>Dr Jui-Ching Hsieh</i> Industrial Technology

		Research Institute of Taiwan
15:00 – 15:20	Recovery of industrial thermal radiation.	<i>Dr Yu-Li Lin</i> Industrial Technology Research Institute of Taiwan
15:20 – 15:40	Molecular dynamics study of the thermal conductivity and diffusion dynamics of water adsorption materials	<i>Dr Shih-Kai Chien</i> Industrial Technology Research Institute of Taiwan
15:40 – 15:55	Tea Break	
Oral Session D		
15:55 – 16:15	Energy education in Taiwan	<i>Professor Jiunn-Chi Wu</i> National Central University
16:15 – 16:35	Advancement of plant factory in resource utilization and environmental protection	<i>Professor Wei Fang</i> National Taiwan University
16:35 – 16:55	Taiwan Gas Hydrate investigation program: present status and future prospective	<i>Professor Char-Shine Liu</i> National Taiwan University
16:55 – 17:00	Closing <i>Professor Cheng-Liang Chen, Secretary of the 5th AEARU-EE Workshop</i> Department of Chemical Engineering, National Taiwan University	

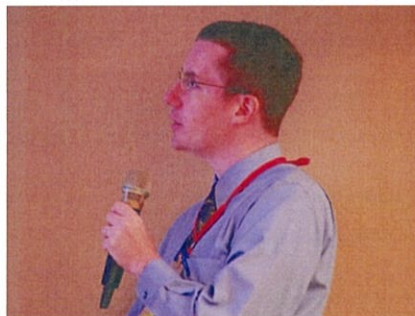
	Posters (13:00 – 13:40, October 23, 2014)	
1	Graphene/Si multilayer as anode materials for lithium ion batteries by electron beam evaporation	<i>Tatsuhiko Mori, Chih-Jung Chen, Tai-Feng Hung, Saad Gomaa Mohamed, Yi-Qiao Lin, Hong-Zheng Lin, James C. Sung, Shu-Fen Hu, and Ru-Shi Liu</i> National Taiwan University
2	Manganese and iron cobaltite ternary mixed-metal Oxides as high performance anode materials for Li ion batteries and supercapacitors	<i>Saad Gomaa Mohamed, Tai-Feng Hung, Chih-Jung Chen, Chih Kai Chen, Shu-Fen Hu, and Ru-Shi Liu</i> National Taiwan University
3	The occurrences and implications of veins and scaling in the Chingshui geothermal field	<i>Yi-Chia Lu, Sheng-Rong Song, Pei-Ling Wang, Chia-Mei Liu and En-Chiao Yeh</i> National Taiwan University
4	3D geological structure and potentials of geothermal power in the Tatun volcano group	<i>Sheng-Rong Song</i> National Taiwan University
5	The geothermal heat source of Ilan area, northeast Taiwan	<i>Sheng-Rong Song</i> National Taiwan University
6	Non-linear response of South-WPWP SST to greenhouse gases forcing changes during the past 360,000 years	<i>Li Lo</i> National Taiwan University
7	Integration of organic Rankine cycle for industrial waste heat recovery	<i>Cheng-Liang Chen, Hui-Chu Chen, and Tzu-Hsiang Chao</i> National Taiwan University

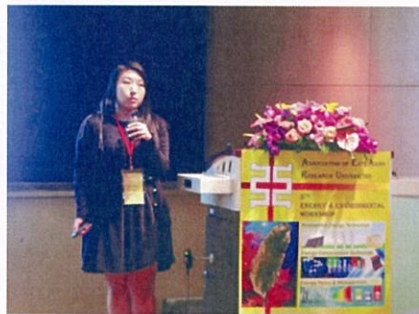
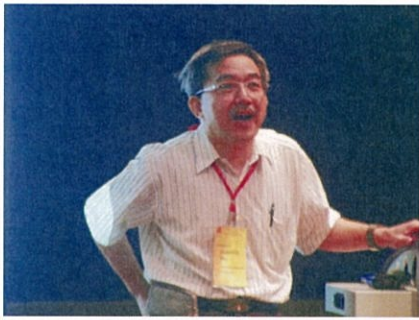
8	Design and control of a reactive distillation process for production of methyl valerate	<i>Y. H. Chung, H. Y. Lee, I. L. Chien and C. L. Chen</i> National Taiwan University
9	Resilient hybrid power system retrofit for a remote island	<i>Cheng-Liang Chen, Hui-Chu Chen, and Ching-Chih Lai</i> National Taiwan University
10	Membrane-assisted extractive distillation to improve energy saving for separating dimethyl carbonate-methanol Azeotrope	<i>San-Jang Wang, Wan-Jung Hsu, and Junghui Chen</i> Chung-Yuan Christian University
11	Dynamic modelling and solution studies on absorption of CO ₂ in rotated packing bed	<i>Jia-Lin Kang, Kai Sun, David Shan-Hill Wong, Shi-Shang Jang, Chung-Sung Tan,</i> National Tsing Hua University
12	On-line scheduling and monitoring for reducing energy consumption of compressed-air systems	<i>Jialin Liu, Jia-Lin Kang, and Ding-Sou Chen</i> National Tsing Hua University
13	Energy expenditure of CO ₂ capture by dilute ammonia	<i>Jialin Liu, Han-Ci Gao, David Shan-Hill Wong, Shi-Shang Jang, and Jui-Fu Shenc,</i> National Tsing Hua University
14	A mysterious coral mortality episode under global warming in the South China Sea, AD 1991	<i>Chung-Che Wu, Ching-Chih Chang, Sun-Lin Chung, John Pallister, Doan Dinh Lam, Kefu Yu, Chuan-Chou Shen</i> National Taiwan University
15	Plasmonic Nanoparticles-decorated p-type Si wire as photocathode for water splitting	<i>Chih-Jung Chen, Ming-Guei Chen, Chih Kai Chen, Shu-Fen Hu, and Ru-Shi Liu</i> National Taiwan University
16	Design and economical evaluation of coal to SNG process	<i>Bor-Yih Yu, I-Lung Chien</i> National Taiwan University
17	Effect of chain length of ionic liquids on the inhibition of methane hydrate formation	<i>Che-Kang CHU, Po-Chun CHEN, Yan-Ping CHEN, Shiang-Tai LIN and Li-Jen CHEN</i> National Taiwan University
18	Enthalpy, entropy, and free energy of structure I methane hydrate from molecular dynamics simulations	<i>Kuan-Yu YEH, Shang-Tai LIN and Li-Jen CHEN</i> National Taiwan University
19	Simulation on Lithium-ion cells by Simple Equivalent Circuit Model	<i>Tzu-Yang Huang, Yun Chu , and Nae-Lih Wu</i> National Taiwan University
20	Fabrication of novel hierarchical hollow manganese oxide nanospheres with large potential window for supercapacitors in aqueous electrolyte	<i>Yu-Ting Weng, Hsiao-An Pan, Rung-Chuan Lee and Nae-Lih Wu</i> National Taiwan University
21	Study on synthesis-phase-morphology-performance relation of MnO _x @carbon composite as conversion anode in lithium ion battery.	<i>Rung-Chuan Lee, Yen-Po Lin, Yu-Ting Weng, Hsiao-An Pan, Jyh-Fu Lee, and Nae-Lih Wu</i> National Taiwan University
22	AMS ¹⁴ C dating at NTU and its applications	<i>Hong-Chun Li</i> National Taiwan University

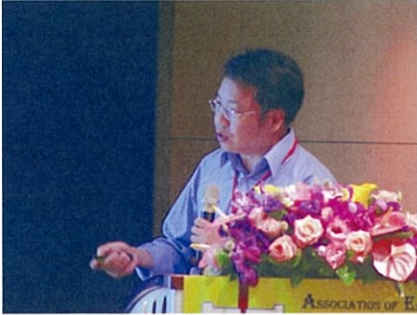
23	Gas venting and appearances of chemosynthesis community in regions with Gas Hydrate, offshore SW Taiwan	<i>Saulwood Lin and WangYen Cheng, Yi-Ting Tseng, Tsanyao Yang</i> National Taiwan University
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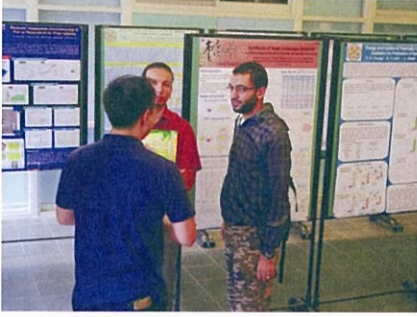
Friday, October 24, 2014

17 of the participants had join the excursion to Juming Museum, Jiufen Town and Gold Mining Museum.









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