

2015 APCBEES TAIPEI CONFERENCES SCHEDULE

2015 5th International Conference on Future Environment and Energy (ICFEE 2015)
2015 5th International Conference on Bioscience, Biochemistry and Bioinformatics (ICBBB 2015)
2015 4th International Conference on Climate Change and Humanity (ICCCH 2015)

Taipei, Taiwan

January 24-25, 2015

GIS National Taiwan University Convention Center, Taiwan

(集思臺大會議中心)

Sponsored and Published by



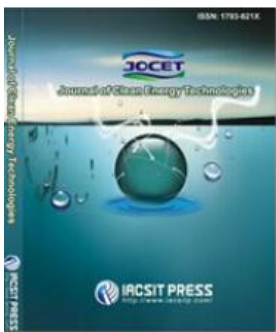
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2015 APCBEES Taipei Conferences

Introduction

Welcome to CBEES 2015 conferences in TAIPEI. The objective of the TAIPEI conferences is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Future Environment and Energy, Bioscience, Biochemistry and Bioinformatics, and Climate Change and Humanity.

2015 5th International Conference on Future Environment and Energy (ICFEE 2015)



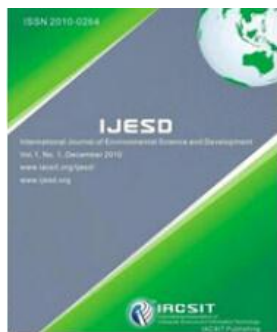
- * **Paper publishing and index: ICFEE 2015** papers will be published in
- * **WIT Transactions on the Built Environment (ISSN: 1743-3509)**, all the papers published by WIT Press which will be indexed by EI Compendex and SCOPUS. (quoted from <http://library.witpress.com/>)
- * **Journal of Clean Energy Technologies (JOCET, ISSN: 1793-821X)**, and all the papers published in JOCET will be included in Engineering & Technology Library, EBSCO, Ulrich's Periodicals Directory, BE Data and Google Scholar, Cross ref, ProQuest and sent to be reviewed by Ei Compendex and ISI Proceedings.
- * **Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)**, and all papers will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, WorldCat, Google Scholar, Cross ref, ProQuest, CABI and sent to be reviewed by EI Compendex and ISI Proceedings.
- * **Conference website and email:** <http://www.icfee.org/>; icfee@cbees.org

2015 5th International Conference on Bioscience, Biochemistry and Bioinformatics (ICBBB 2015)



- * **Paper publishing and index: ICSEE 2015** papers will be published in:
- * **WIT Transactions on Biomedicine and Health (ISSN: 1743-3525)**, all the papers published by WIT Press which will be indexed by EI Compendex and SCOPUS. (quoted from <http://library.witpress.com/>)
- * **International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638)**, and all the papers published in IJBBB will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, WorldCat, Google Scholar, Cross ref, ProQuest.
- * **Lecture Notes on Information Theory (LNIT, ISSN: 2301-3788)**, and all the papers published in LNIT will be included in Engineering & Technology Digital Library, and be indexed by EI(INSPEC, IET), Ulrich's Periodicals Directory, Google Scholar, EBSCO.
- * **Conference website and email:** <http://www.icbbb.org/>; icbbb@cbees.org

2015 4th International Conference on Climate Change and Humanity (ICCCH 2015)



✧ **Paper publishing and index:** All **ICCCH 2015** papers will be published in the **Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)**, and all registered papers will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, WorldCat, Google Scholar, Cross ref, ProQuest, CABI and sent to be reviewed by EI Compendex and ISI Proceedings.

✧ **Conference website and email:** <http://www.iccch.org/>; iccch@cbees.org

Excellent Paper Award

✧ One excellent paper will be selected from each oral presentation sessions, and the Certificate for Excellent Papers will be awarded at the end of each session on January 25, 2015.

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

Laptop Computer (MS Windows Operating System with MS PowerPoint & Adobe Acrobat Reader)
Digital Projectors & Screen
Laser Sticks

Materials Provided by the Presenters:

PowerPoint or PDF files (Files shall be copied to the Conference Computer at the beginning of each Session)

Duration of each Presentation (Tentatively):

Regular Oral Presentation: about 10 Minutes of Presentation and 2 Minutes of Q&A

Keynote Speech: 25 Minutes of Presentation and 5 Minutes of Q&A

Instructions for Poster Presentation

Materials Provided by the Conference Organizer:

The wall to put poster

Materials Provided by the Presenters:

Home-made Posters

Maximum poster size is A1.

Load Capacity: Holds up to 0.5 kg.

Brief Schedule for Conferences

January 24, 2015 10:00am-3:00pm Arrival and Registration 3:00pm-5:00pm Academic visit	
January 25, 2015 9:00am-5:40pm Registration and Conference Presentation	
Conference room 1 (Plato) 09:00am – 10:30am Opening Remarks 09:00-09:30 Keynote Speech I 09:30-10:00 Keynote Speech II 10:00-10:30 Coffee Break & Photo Taking 10:30am-10:50am	
Conference room 1 (Plato) Session 1: 10:50am-12:30pm (7 presenters)---(ICFEE 2015)	Conference room 2 (Archimedes) Session 2: 10:50am-12:30pm (7 presenters)---(ICFEE 2015)
Lunch: 12:30pm~2:00pm (Please arrive on time at “Conference Room” by 1:30pm after lunch.)	
Conference room 2 (Archimedes) Session 3: 2:00pm-3:40pm (7 presenters)---(ICFEE 2015)	Conference room 3 (Locke) Session 4: 2:00pm-3:40pm (7 presenters)---(ICCCH 2015)
Coffee Break: 3:40pm-4:00pm It offers you a great time to communicate with other experts about your study field and research results	
Conference room 2 (Archimedes) Session 5: 4:00pm-5:40pm (7 presenters)---(ICFEE 2015 & ICCCH 2015 & IJESD 2015 1 st)	Conference room 3 (Locke) Session 6: 4:00pm-5:40pm (7 presenters)---(ICBBB 2015)
Dinner 6:00pm	
January 26, 2015 for One day tour	

Presentation Tracking Contents

SESSION-1 (ICFEE 2015) Venue: Conference room 1 (Plato) Session Chair: Wen-Cheng J. Wei Time: 10:50am-12:30pm			SESSION-2 (ICFEE2015) Venue: Conference room 2 (Archimedes) Session Chair: Prof. Je-Lueng Shie Time: 10:50am-12:30pm		
PAGE	PAPER ID	PRESENTER	PAGE	PAPER ID	PRESENTER
7	C0004	Sew Tiep, Ho	10	C0009	Choy Yee Keong
8	C0005	Chung Chia Chiu	11	C0011	Je-Lueng Shie
8	C0006	Tomonobu Senjyu	11	C0012	Je-Lueng Shie
8	C0007	Abdul Motin Howlader	12	C0013	Yongtaek Lee
9	C0008	Tsubasa Shimoji	12	C0014	Kae-Long Lin
9	C1001	Hsiu-Po Kuo	12	C0018	Hee-Je Kim
10	C0020	Keng-Tung Wu	13	C0022	Shu-Hui Hung
SESSION-3 (ICFEE 2015) Venue: Conference room 2 (Archimedes) Session Chair: Prof. Chien-Song Chyang Time: 2:00am-3:40pm			SESSION-4 (ICCC 2015) Venue: Conference room 3 (Locke) Session Chair: Prof. Chin-Tsan Wang Time: 2:00pm-3:40pm		
PAGE	PAPER ID	PRESENTER	PAGE	PAPER ID	PRESENTER
13	C0021	Chia-Chi Chang	16	A0003	Umesh Kulkarni
14	C0028	Tibor Horváth	17	A0004	Yujie Li
14	C0029	Zoltan Pásztor	17	A0006	Aurora C. Gonzales
14	C0030	Rudolf Polgár	18	A0010	An Quach
15	C0032	Sulak Sumitsawan	18	A2002	Jongdae Baek
15	C0034	Rachaneewan Aungkurabrut	18	A2003	Guenhee Lee
16	C0035	Yiyu Wang	19	A2004	Hyejung Hu
SESSION-5 (ICFEE2015 & ICCCH 2015 & IJESD 2015 1 st) Venue: Conference room 2 (Archimedes) Session Chair: Prof. Chun-Han Ko Time: 4:00pm-5:40pm			SESSION-6 (ICBBB 2015) Venue: Conference room 3 (Locke) Session Chair: Prof. Won-Ha Lee Time: 4:00pm-5:40pm		
PAGE	PAPER ID	PRESENTER	PAGE	PAPER ID	PRESENTER
20	CD0205	Kevin Fong-Rey Liu	22	T0002	Nilubon Kurubanjerdjit
20	C3002	Shi Jing	22	T0003	Anand Duraiswamy
20	C3003	Tang Jie	23	T0008	Yao-Huei Huang
20	C3005	C. T. Wang	23	T0009	Kundan Sivashanmugan
21	C3006	Chih-Hsin Cheng	23	T0011	Yufeng Huang
21	C3007	Far-Ching Lin	24	T2001	Qiang ZHANG
22	A0012	Li Hongfen	24	T3001	Won-Ha Lee
<p>Attention Please:</p> <p>1. Each presenter has about ten minutes (including question and answer time), please control your presentation time.</p>					

2. Please kindly prepare your PPT or poster according to your research and the time regulation before the conference and take it to the conference site.
3. Please arrive at the conference room when your session begins.
Hoping you to have a good time during the conference.

Detailed Schedule for Conferences

January 24, 2015 (Saturday)

Venue: Lobby(B1)

10:00am-3:00pm	Arrival and Registration
3:00pm-5:00pm	Academic visit



Note: (1) You can also register at any time during the conference.



(2) The organizer doesn't provide accommodation, and we suggest you make an early reservation.

(3) One excellent paper will be selected from each oral presentation sessions, and the Certificate for Excellent Papers will be awarded at the end of each session on January 25, 2015.

Morning, January 25, 2015 (Sunday)

Venue: Conference Room 1 (Plato)

9:00am-9:30am	<p>Opening Remarks</p> <p>Prof. Dr. Dean Jia-Yush Yen College of Engineering, National Taiwan University, Taiwan</p> 
	<p>Conference General Chair</p> <p>Prof. Dr. Ching-Yuan Chang Graduate Institute of Environmental Engineering, National Taiwan University, Taiwan</p> 

<p>9:30am-10:00am</p>	<p style="text-align: center;">Keynote Speech I Prof. Dr. Hwong-Wen Ma Graduate Institute of Environmental Engineering, National Taiwan University, Taiwan</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Topic: “Beyond waste management and toward resource management”</p>
<p>10:00am–10:30am</p>	<p style="text-align: center;">Keynote Speech II Prof. Dr. Sheng-Shung Cheng Dept. of Environmental Engineering, National Cheng Kung University, Taiwan</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Topic: “Multiple Biorefinery Process Applied on Biodegradation of Oil and Cellulose with Enriched Culture of Bacteria and Fungi Species”</p>
<p>10:30am-10:50am</p>	<p style="text-align: center;">Coffee Break & Taking Photo</p>

Morning, January 25, 2015 (Sunday)

SESSION–1 (ICFEE 2015) (7 presenters)

Venue: Conference room 1 (Plato)

Session Chair: Wen-Cheng J. Wei

Time: 10:50am-12:30pm

<p>C0004</p>	<p>E-waste Management Practices of Households in Melaka Sew Tiep, Ho, David Yoon Kin, Tong, Elsadig Musa Ahmed and Chee Teck, Lee Multimedia University, Malaysia</p> <p><i>Abstract</i>—This study aims to identify current e-waste management practices by households in Melaka. Data were collected from a sample of 345 households in Melaka, Malaysia by means of a self-administered questionnaire survey. Snowball sampling which is part of the non-probability sampling was utilized in this research. The results show that the quantities of electrical and electronic equipment (EEE) in use and the rate of replacements of even functioning EEE are increasing, which in turn increase the generation of e-waste. This study also provides evidence that the level of households’ awareness towards e-waste recycling is still low. Thus, the time has come for the introduction of a recycling programme for these potentially harmful waste materials. The findings of this study also lead to implications for</p>
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	the theory-deficient of e-waste recycling literature and several policy recommendations for policy makers to enhance household e-waste recycling response rate.
C0005	<p>The Water Footprint of Bioethanol Chung Chia Chiu, Wei-Jung Shiang, Chiuhsiang Joe Lin Institute of Nuclear Energy Research, Taiwan (R.O.C.)</p> <p><i>Abstract</i>—Concerns regarding energy security and climate changes have stimulated the development of renewable energy. Various countries have actively invested in research and development programs for renewable energy to reduce the dependence on fossil fuels. Bioethanol is the most commonly used biofuel in transportation. However, the trend of substantially increased transportation biofuel usage has caused competition over freshwater resources to increase. After energy problems, water resources are another critical topic worthy of exploration. This study involved analyzing the results of 150 studies regarding water footprints (WFs) between 2005 and 2013. Among the studies analyzed, only 4 involved discussion of WFs of bioethanol products. The bioethanol WFs in the various studies ranged from 790 L H₂O/L EtOH to 11030.4 L H₂O/L EtOH. The minimal value was observed in sugar beets in a French study, and the maximum was observed in ethanol from molasses in Kanchanaburi, Thailand. WF expressions of bioethanol may vary according to the produce category, climate in which produce is grown, soil characteristics, and various production volumes or consumption methods. In addition, the total WF is not the only criterion for selecting the raw materials of bioethanol production. Produce that possesses a high green WF content and accommodates local climates should be selected with priority. The research results can provide a guideline for following studies in the field of bioethanol WF. Furthermore, the results can be used as a critical reference for selecting raw materials of bioethanol production.</p>
C0006	<p>Optimal Thermal Generator Dynamic Operation with Real-Time Power Market Ryosuke Kyoho, Taiki Ikema, Harun Or Rashid Howlader, Tsubasa Shimoji, Hayato Tahara, and Tomonobu Senjyu University of the Ryukyus, Japan</p> <p><i>Abstract</i>—Cause for the depletion of fossil fuels and the global warming by discharge of environment substance, carbon dioxide emissions and energy consumption should be reduced. For this reason, as the renewable energy source that needs not fossil fuel, power generation facilities using renewable energies such as the photovoltaic system and the wind generator are introducing in many countries. However, renewable energy power sources are changed by weather conditions. Therefore, balance of supply and load powers must be adjusted. Whereby, in order to take advantage of power response capacity of the customer, the introduction of the real-time pricing has been studied in recent years. Therefore, by adjusting the electric prices in accordance with the power usage of the customer, it is possible to induce the proper load power. In this study, in order to consider the real time price of the electric market, and to simulate a function of the customer responses according to the price, and implements load leveling by the bottom-up and the peaks-cut.</p>
C0007	<p>A Fuzzy Adaptive DC-link Voltage Control Based Power Smoothing Approach for MW-Class Wind Energy Conversion System Abdul Motin Howlader, Hiroki Ikema, and Tomonobu Senjyu</p>

	<p>University of the Ryukyus, Japan</p> <p><i>Abstract</i>—Due to the global warming, the world requires pollution free energy. A plenty source of the wind energy can deliver a pollution free energy for the energy thirsty world. But wind energy is an uncertain fluctuating resource and the generated power of wind turbine is cube of the proportional to the wind speed. As a result, the output power of the wind turbine is fluctuated. The output power fluctuation of the wind turbine is created problems in the power grid. For ensuring the stability of the power grid, the generated power of the wind turbine should be smoothed. This paper proposed a power smoothing technique for the wind energy conversion system (WECS). The DC-link voltage utilizes in order to generate a smooth output power of the wind turbine. A fuzzy control method is applied to improve the overall power smoothing qualities. In this method, additional energy storage device is not required to generate a smooth output power of the wind turbine. Hence, the system cost reduces significantly for delivering a smooth output power to the power grid. The proposed method has been compared with the maximum power point tracking (MPPT) control method and the non-fuzzy controller based method. Simulation results confirm the efficacy of the proposed method which are ensured the WECS power smoothing improvement.</p>
C0008	<p>Multi-Objective Optimization for Operational Method of Controllable Loads and Fixed Battery Capacity in Smart House using SPEA2</p> <p>Tsubasa Shimoji, Hiroki Ikema, Hayato Tahara, Howlader Harun Or Rashid, Atsushi Yona, and Tomonobu Senjyu University of the Ryukyus, Japan</p> <p><i>Abstract</i>—Recently, planning of the smart house uses optimal control of a fixed battery in order to minimize operational cost. However, this method of scheduling can be linked to CO₂ emissions, because the power used to charge the fixed battery is purchased from the utility, which uses a thermal power plant for generation. Most often, the charging done at midnight when the price of electricity is cheaper; however, this causes an increase in the power generated by the thermal plant. On the other hand, if the fixed battery is charged by surplus power of the photovoltaic generator (PV) installed to the smart house, CO₂ emissions can be minimized by using a self-supporting control method which considers the load power consumption of the house. However, since these control methods require a trade-off when the customer requests both the minimization of operational cost and of CO₂ emissions simultaneously. The search for such an optimal operational method is difficult. In this paper, the pareto optimal front of the optimization problem is ascertained using the SPEA2 (Strength Pareto Evolutionary Algorithm 2) which is a multi-objective optimization method. Moreover, the multiobjective design for the fixed battery installed in the smart house is similarly performed by using this technique. The simulation results of these multi-objective optimization problems offers an effective operational method for the customer's various requests.</p>
C1001	<p>Production of Rice Husk Bio-oils from the Fluidized Bed Pyrolyzer</p> <p>Ruey-Chi Hsu, Chen-Pei Hsu, An-Ni Huang and Hsiu-Po Kuo Chang Gung University, Taiwan</p> <p><i>Abstract</i>—Oils are produced from rice husk pyrolysis in a fluidized bed pyrolyzer using silica</p>

	<p>sands as the fluidizing media. Bio-oils are collected from the condensation of the gaseous products in the 20 °C water trap first and then from the 0 °C ice trap. When the rice husk feeding rate is 10 g/min, the superficial nitrogen velocity is 0.34 m/s and the pyrolyzing temperature is 500 °C, the mass fraction of the bio-oil in the final product is the highest as 27.3%. The bio-oil is mixture of aromatic compounds and alcohols. The sulphur content of the bio-oil is as low as 0.01% to 0.09%. The acidic bio-oils are with the pH values of 2.62 to 3.74. The HHV of the bio-oils collected from the water trap are 3,143 kcal/kg to 7,375 kcal/kg, which are higher than the HHV of the bio-oils collected from the ice trap, which are in the range of 604 kcal/kg to 3,294 kcal/kg.</p>
C0020	<p>Gasification of Woody Biomass in a Fluidized Bed Kai-Cheng Yang, Keng-Tung Wu, Po-Chang Hu, Yue-Han Chiou and Jung-Ying Shie National Chung Hsing University, Taiwan</p> <p><i>Abstract</i>—All experiments were carried out in a 30 kWth bubbling fluidized bed gasification system with a diameter of 7.6 cm in the bed region, 19.8 cm in the freeboard region, and a total high of 1.9 m. Six wood-based materials, including Cunninghamia lanceolata, Pinus taiwanensis, Acacia confuse, Trema orientalis, Dimocarpus longan, and Swietenia macrophylla were employed as gasification fuels. Oyster shell powder, dolomite, clay brick powder and limestone were employed as gasification tar-cracking additives. The results show that the yields of syngas, CO, H₂ and CH₄, decrease with increasing the air equivalence ratio (ER) respectively, but that of CO₂ shows the contrary results. The effect of holocellulose content on syngas compositions is not obvious. In addition, tar content increases with increasing the lignin content of woody biomass. However, the effect of the lignin content was not obvious for the gasification temperature at 900°C. Moreover, the tar content decreases with increasing the CaO/MgO ratio of Ca-based catalysts.</p>

Morning, January 25, 2015 (Sunday)

SESSION-2 (ICFEE 2015) (7 presenters)

Venue: Conference room 2 (Archimedes)

Session Chair: Prof. Je-Lueng Shie

Time: 10:50am-12:30pm

C0009	<p>Sustainable Resource Management and Ecological Conservation of Mega-biodiversity: the Southeast Asian Big-3 Reality Choy Yee Keong Kyoto University, Japan</p> <p><i>Abstract</i>—This article uses a combination of quantitative and qualitative approaches to assess the effectiveness of local and regional environmental protection laws, declarations and action plans in promoting sustainable resource use and environmental protection in the three most biologically diverse regions in Southeast Asia, namely, Indonesia, Malaysia and the Philippines, collectively called here the Southeast Asian Big-3. The argument is that despite the plethora of multi-protection initiatives and safeguards, the regional environment is in the throes of an unending episode of degradation and depletion. In addressing this paradox, this</p>
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	paper considers the role of environmental ethics in ecological conservation and proposes it as one of the main keys in managing environmental sustainability.
C0011	<p>Solar Cell Characteristics of N- and S-doped TiO₂ with Sensitized Dye of Eosin Y Chiu-Hsuan Lee, Je-Lueng Shie, Ching-Yi Tsai, Yen Li, Ka-Iat Chau and Ching-Yuan Chang National Taiwan University, Taiwan</p> <p><i>Abstract</i>—This study investigated the surface modification of N- and S- doped TiO₂ (TiN_xS_yO_{2-x-y}) and photoelectrochemical characteristics of dye-sensitized TiN_xS_yO_{2-x-y} using visible light sources. TiN_xS_yO_{2-x-y} was prepared by Ti(SO₄)₂ and NH₃ calcined at 400 °C (723 K). TiO₂ and TiN_xS_yO_{2-x-y} films on indium-doping tin oxide (ITO) promoted with nature Eosin Y (C₂₀H₆Br₄Na₂O₅) sensitizers, which were prepared by precipitation method following by calcined at muffle furnace and tested for electricity and photoelectrochemical characteristics. The open-circuited output voltage (V_{oc}), short-circuit output current (I_{sc}) and maximum power (P_m) of TiO₂ solar cell (TSC) and TiN_xO_{2-x}S_y solar cell (TNSSC) dyed with Eosin Y (ETSC and ETNSSC) under the irradiation of VLL, BLED, WLED and RLED were measured. The V_{oc} per gram (V_{oc}/g) of ETNSSC was in the order of BLED (26.7) > WLED (26.1) > RLED (25.8) > VLL (22.0). The maximum value of I_{sc} and P_m were 0.023 mA and 2.51 μW for ETNSSC under BLED, respectively. All the values of V_{oc}, I_{sc} and P_m of ETNSSC are larger than those of TSC and ETSC. This result shows that the TiN_xO_{2-x}S_y solar cell dyed with Eosin Y can largely increase the photoelectrochemical characteristics and change the absorption light wavelength to red shift obviously</p>
C0012	<p>Plasma Gasification Melting of Mixed Paper Sludge Using Plasmatron with Carbon Dioxide as Dehydrogenating Agent Je-Lueng Shie, Yi-Ru Liao, Tian-Hui Liao, Wei-Sheng Yang, Kae-Long Lin and Ching-Yuan Chang National Taiwan University, Taiwan</p> <p><i>Abstract</i>—Plasma Gasification Melting (PGM) process is a system that treats biomass or waste in a plasma reactor to optimum recovery of energy and resource as well as aching the purpose of gasification and melting at the same time. The plasma thermal treatment of blends of wet paper sludge and forestry wood waste (BWF) was studied. The source of BWF was rejected wastes from a paper plant located at east Taiwan.</p> <p>This process was performed in pilot-scale 10 kW plasmatron and designed to investigate the effects of batch and semi-batch feeding of sample and their results on product yields, gas composition and residues analyses. From the heating value (HV) and primate analyses, the HV of BWF is higher than that of the limited value of the design of an incinerator. For the PGM process, BWF is preferred to produce syngas and the volume reduction was effective and extra energy was attended. The maximum instantaneous concentrations and the corresponding time of CO and H₂ occur at 187,208 and 232,193 ppmv, respectively, and 0.75 min for 873 K, with 0.5 min sampling interval. For batch operation, the total syngas ratio is about 81.47 wt. % (CO of 75.94 and H₂ of 5.53 wt.%) of raw sample, and the mass ratio of residue is 0.53 wt.%. In the PGM process, the effect of dehydrogenating (oxidizing) agent using gaseous CO₂ was also evaluated. From the gaseous CO₂ injection in PGM process of BWF, the increases of the highest concentrations of H₂ and CO were 48.74 and 23.55 %, respectively. From the results of accumulated mass percentages, the mass increases of H₂ and</p>

	<p>CO were 55.51 and 14.72 %, respectively. It is proved that gaseous CO₂ injection helps the gasification of BWF in PGM process. In summary, higher H₂ production and CO₂ degradation were appeared in BWF test. From the scanning electron micrograph (SEM) spectra, the raw BWF was displaced as long fiber and the construction completely. Furthermore, WFB became to broken piece after the PGM process with ash and small piece of fiber co-existed.</p> <p>The residue from the PGM process was almost the inorganic components that was converted into 100% non-leachable vitrified lavas, and non-hazardous from the TCLP tests. Finally, this study addressed a novelty PGM modified direction and technology in mixed paper sludge.</p>
C0013	<p>Planar distribution of water in an operating proton exchange membrane fuel cell Yongtaek Lee, Chang-Jun Oh Hannam University, Republic of Korea</p> <p><i>Abstract</i>—Variation of humidity inside a PEMFC was experimentally measure by small channel embedded humidity sensors. In order to observe water transport clearly, external humidification was accomplished at only one side at a time. At low current density region water transport was governed by diffusion which is caused by water concentration difference across membrane. As current density increases, however, electro-osmotic drag and back diffusion coexist inside the PEMFC and show various tendency according to the location of sensor and experimental conditions.</p>
C0014	<p>Recycling TFT-LCD Waste Glass as Raw Material for Geopolymer-based Products Kae-Long Lin, Hau-Shing Shiu, Je-Lueng Shie, and Ju-Ying Lan National ILan University, Taiwan</p> <p><i>Abstract</i>—This investigation presents an explanation of the effect of the solid/liquid ratio (0.4–1.0) on the properties of geopolymers in which certain amounts of metakaolinite are replaced with Thin-film-transistor liquid-crystal display (TFT-LCD) waste glass (0%–40%). The samples underwent a series of tests to determine their quality, including their compressive strength, mercury intrusion porosimetry (MIP), differential thermal and thermogravimetric analyses (DTA/TGA), and ²⁹Si magic-angle spinning nuclear magnetic resonance (NMR). The results demonstrate that the compressive strength of the alkali-activated waste glass-metakaolin-based geopolymer increases as the solid/liquid ratio increases, primarily because of the effect of the Si, Al ions in the geopolymers when the structure of the geopolymers retained the absorbed water following polycondensation. When the solid/liquid ratio was 1.0, the compressive strength of the geopolymers without the TFT-LCD waste glass was 51.7 MPa; however, the compressive strength of geopolymers contained 10% TFT-LCD waste glass was 59.2 MPa. The pore volume of the geopolymers increased with the increasing of the solid/liquid ratio and the most pore volume (>90%) was within the mesopore range The TG/DTG results indicate that the adsorbed water in the small pores and the hydroxyl groups on the gel surface caused a loss of weight. The TFT-LCD waste glass comprises mainly SiO₂ and Al₂O₃ and can be applied in the production of geopolymers.</p>
C0018	<p>High Temperature flexible supercapacitor film from PVP/Aerogel hybrid in [BMIM]+BF₄-electrolyte S.Selvam, K. Balamuralitharan, S.N.Karthick, K.V.Hema latha, Soo-Kyoung Kim, Hee-Je</p>

	<p>Kim Pusan National University, Republic of Korea</p> <p><i>Abstract</i>—A high thermal flexible supercapacitor has been fabricated from Poly-N-vinyl-2-pyrrolidone (PVP) with carbon aerogel hybrid electrodes in 1-Butyl-3-methylimidazolium tetrafluoroborate electrolyte. The carbon aerogel prepared from phenol formaldehyde resin and it was mixed with PVP followed by thermal treatment. The obtained PVP/aerogel was systematically characterized using HRTEM, XRD and CV for their morphology, surface area, crystallinity, chemical composition and electrochemical behaviours, respectively. The distinctive assembly pointedly improves the conductivity of composite films, which is a vital constraint in pseudocapacitors. The hybrid film with optimal carbon content, while realistic as an electrode, showed good capacitive activities in 1% of [BMIM]+BF₄⁻ electrolyte. The fabricated supercapacitor exhibited excellent rate capacity, with 70% of the original capacitance retained when the scan rate was increased from 5mVs⁻¹ to 500 mV s⁻¹. This film maintained 50 % of energy density (0.46mWhcm⁻³) under high power density (184.2Wcm⁻³ up to 150 °C temperature. These types of electrodes could support supercapacitor based energy storage systems to be very attractive for a variety of high thermal storage device and signalling devices in metro train applications.</p>
C0022	<p>Performance Evaluation of Physico-chemical Processes for Recovering Spent Lithium Ion Batteries (LIBs) through 3E Assessment Shu-Hui Hung, Cheng-Fang Lin, Pen-Chi Chiang and Shu-Yuan Pan Graduate Institute of Environmental Engineering, National Taiwan University, Taiwan</p> <p><i>Abstract</i>—In this study, eight different scenarios of spent lithium ion batteries (LIBs) recovery technologies were evaluated from the engineering, environmental and economic (3E) aspects. For the engineering aspect, the recovery efficiency of Li and Co metals was simulated using the response surface model (RSM). For the environmental aspect, the environmental impacts of acidification and human health were determined by the life cycle assessment (LCA). According to the 3E analysis, the optimum operations of physicochemical processes for LIB recovery were proposed.</p>

12:30pm-2:00pm

Lunch

Afternoon, January 25, 2015 (Sunday)**SESSION-3 (ICFEE 2015) (7 presenters)****Venue: Conference Room 2 (Archimedes)****Session Chair: Prof. Chien-Song Chyang****Time: 2:00pm-3:40pm**

C0021	<p>Energy Densification of Waste Bamboo Chopsticks via Hydrothermal Treatment Chia-Chi Chang, Karine Andriamiraho, Mathieu Duval, Cheng-Shiun Yang, Chi-Pai Chen, Ching-Yuan Chang, Je-Lueng Shie Nation Taiwan University, Taiwan</p>
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	<p><i>Abstract</i>—Hydrothermal treatment (HT) of waste bamboo chopsticks (WBC) for producing solid biofuel is investigated in this study. The HT of WBC were carried out in an autoclave at 553, 573, 593, 613, 633 and 653 K for 30 min with H₂O to WBC mass ratio of 20. WBC and solid products were characterized in terms of yield, heating value, proximate analysis, and organic elemental composition. An increasing T enhances the conversion efficiency of solid product (X_S) for HT of WBC, reaching 75.01% at 340 °C. The content of fixed carbon (M_{FC}) of solid product for HT of WBC increases while that of volatile matters (M_{VM}) decreases as T increases. At 613 K, the dry-basis M_{FC} of 62.45 wt.% and heating value (H_D) of 7,451.35 kcal kg⁻¹ of solid product are respectively higher than those of WBC of 13.75 wt.% and 4,582.3 kcal kg⁻¹ before HT. The conversion efficiency of solid (X_S) increases with T, giving 75.6% at 653 K. Some carbons are converted to inorganic by-products. The results indicate the beneficial applicability of HT process to produce value-added liquid organic chemicals and the energy-concentrated solid char.</p>
C0028	<p>Heat Stored in a Solid Block as Source of Heating Energy Tibor Horváth and Zoltán Pásztor Innovation Center, University of West Hungary, Hungary</p> <p><i>Abstract</i>—In present work, the possibility was explored to use a solid block for space heating. The block was placed in a test house with low energy characteristics. Computations revealed that heating period greatly depended on the rate of heat withdrawal. With a rate of 122 W, the required indoor temperature (20 °C) could be maintained for a heating period of 150 days. Larger part of stored energy used for space heating by heat seepage through the block insulation (~48%) and by withdrawing the heat (~38%). Loss to the ground amounted to ~14% of the total energy content of block (~3.5 GJ). This experiment substantiated the viability of space heating by a thermal energy storage system. The heating block had the ability to provide 8.28 kWh/(m²·yr) which is a realistic scenario with regards to the heating demands of passive houses. Finite element method proved to be very useful for simulation scenarios.</p>
C0029	<p>CO₂ balance of wood wall constructions compared to other types of wall structures Zoltan Pásztor, Péter Ródk-Nagy, Zoltán Börcsök Innovation Center, University of West Hungary, Hungary</p> <p><i>Abstract</i>—The atmospheric concentration of carbon dioxide is continuously increasing. The residential sector have high rate of emitted carbon dioxide from the different sectors' emission. This study try to show the beneficial effect of renewable materials compared to other silicon based building materials. 80 different house layouts were involved in the comparison, which were carried out with four wall types. The CO₂ equivalences of the external walls were determined to each wall types and each house layouts. The most unfavorable CO₂ balanced structures were the two silicate based materials, brick and concrete wall. These have surplus CO₂ emission. While the light frame structure and the block house store more carbon (in CO₂ equivalence) than these emitted during theirs production. Based on our analysis - beside sustainable silviculture - the spreading of the wood framed and the block houses would have positive effect on the carbon dioxide concentration located in the air.</p>
C0030	<p>Photo Analytical Method for Solid Wood Content Determination of Wood Stacks</p>

	<p>Zoltán Pásztor, Rudolf Polgár Innovation Center, University of West Hungary, Hungary</p> <p><i>Abstract</i>—The industrial wood assortment is not measured one by one but the whole stack. The stacks could be very different depending from the diameter the length the site quality (the place where the timber have grown) the wood specie even the standards quality of the stacking work. Photo analytical method was developed and implemented for determining the individual solid wood content of each stack. The image processing was done by the methods of statistical image analysis in Hue, Saturation, Value (HSV) colors. The Hue value was classified between 0° to 360° and the distribution was investigated and analyzed. According to the result of this developing project the solid wood volume become measurable. The accuracy of the new photo analytical method is significantly higher than that of the traditional methods.</p>
C0032	<p>The Photocatalytic Oxidation of Toluene using TiO₂/LDPE Composite Film Sulak Sumitsawan, Klanarong Intawong, Kowit Suwannahong School of Energy and Environment, University of Phayao, Thailand</p> <p><i>Abstract</i>—This research focused on the photocatalytic reactivity of highly flexible TiO₂ immobilized on low-density polyethylene (LDPE) film in degrading gaseous toluene. Physical structure of the film was obtained from Scanning Electron Microscope (SEM). TiO₂ particles were well dispersed onto the inner surface of the film. However, a few clusters of TiO₂ particles that caused by aggregation of TiO₂ particles were observed. Photocatalytic oxidation of toluene was conducted in a closed-circulating reactor under UV-C irradiance at specific wavelength of 254 nm with initial concentration of 100 ppm. The photocatalytic activities of the TiO₂/LDPE were analysed by gas chromatography (GC). The film with 15%TiO₂/LDPE+BM3% composite film yielded the highest degradation efficiency of 36%, followed by the removal efficiency of 34% for 15%TiO₂/LDPE+BM1% and 29% for 10%TiO₂/LDPE. The kinetic of reaction all TiO₂/LDPE composite followed the first order reaction.</p>
C0034	<p>The Thermal Conductivity Improvement for Mortar using Water Hyacinth Rachaneewan Aungkurabrut, Nattapong Damrongwiriyanupap University of Phayao, Thailand</p> <p><i>Abstract</i>—Water Hyacinth, aquatic weed, is one of plant species which grows and spread rapidly. Therefore, the water hyacinth has extensively been studied in order to eliminate and make benefits. As an insulator property, water hyacinth was introduced to mortar development to investigate the thermal conductivity property. This research studied an effect of the amount and length of water hyacinth fibers for mortar. In the study, the thermal conductivity was carried out at various amount and length of water hyacinth to replace sand. In addition, compressive test was experimentally investigated 28 days of sample age. As a flow standard test, the maximum amount of water hyacinth was 2 %. The experimental results showed that the increasing amount of water hyacinth reduced the thermal conductivity and compressive strength of modified mortar compared with mortar without water hyacinth. Additionally, the 1% of replacing sand in modified mortar achieves Thai Industrial Standard (TIS) 1776-2542 and improves 27 % of the thermal conductivity reduction.</p>

C0035	<p>Study on the hydrohydrogenated thermal craking of Jatropha curcas oil to produce biofuel Yiyu Wang, Yi-Hung Chen and Ching-Yuan Chang China University of Science and Technology, Taiwan</p> <p><i>Abstract</i>—Biodiesel with biodegradable and non-toxic properties can be directly used with diesel fuel in diesel engines. For biodiesel containing significant amount of unsaturated fatty acids, it will be easily oxidized and decomposed, which renders the biodiesel prone to rancidity and not suitable for long-term storage. To improve the jatropha oil derived fuel (denoted as JODE) quality, this study performs the hydrogenated thermal cracking (HTC) of jatropha oil to produce its derived bio-fuel. The HTC catalysis is a combination of thermal cracking and hydrogenation reactions at different temperatures (T) (say, 350 to 450 °C) retention times (t) (e.g. 40, 60, 80 min) and hydrogen pressures (PH₂). (for example 0, 100, 200, 300 psi). By applying HTC, the oil molecules can be broken down into smaller molecules so that the viscosity of the hydrogen-cracked oil is decreased. Properties of JODE produced from the jatropha oil were measured and blending evaluated according to the oil standards to assess the suitability for fossil diesel. These include acid value (AV), iodine value (IV), kinematic viscosity (KV), density (ρLD) and heating value. (HV) The results indicate that the said, properties decrease with increasing temperature. On the other hand, the AV and ρLD of the JODE increase as PH₂ increases. For the HTC performed at T of 410 °C, t of 60 min and PH₂ of 100 psi, the JODE mainly contains heavy gas oil of 43.78%, heavy naphtha of 29.63 % and light gas oil of 23.92 %. These contents can be fractionated to produce lubricant, gasoline and diesel, respectively.</p>
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Afternoon, January 25, 2015 (Sunday)

SESSION-4 (ICCCH 2015) (7 presenters)

Venue: Conference Room 3 (Locke)

Session Chair: Prof. Chin-Tsan Wang

Time: 2:00pm-3:40pm

A0003	<p>Ecology & Biodiversity of Proposed Residential Project at Village Waddhamna, Nagpur, Maharashtra Dr. Umesh Kulkarni, Rochelle Lobo and Manali Chalke Fine Envirotech Engineers</p> <p><i>Abstract</i>—Fine Envirotech Engineers (FEE), Mumbai, India are environment consultants providing multidisciplinary advice on a wide range of strategic and project specific environmental and sustainable issues. Nagpur Housing & Area development, a state government administrative authority, proposes to develop a residential Township in village Waddhamna, Nagpur, India. FEE has been entrusted the job of conducting EIA and Environment Monitoring Planning (EMP). The project aims at converting the existing land into environmental friendly sustainable township without disturbing the present population and trying to conserve existing ecology and biodiversity. The existing development is spread over a total plot Area of 90,879.89 sq.mt. The proposed scheme consists of 1653 apartments of which 1625 apartments are to be used for residential purpose and 56 apartments are to be</p>
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	<p>used for commercial purpose.</p> <p>Environmental Monitoring Plan for the proposed project involved looking at an array of impacts the project was expected to have at the proposed site. The impacts are listed further on in the paper.</p> <p>This paper will discuss in detail the ecological status for the proposed infrastructure project. The study was commissioned to review the existing natural ecology and biodiversity element in the core area and surrounding region (Buffer Area). The objective was to provide an assessment of present status of flora, fauna and ecological habitat in the site, comment upon the ecological richness, assess the importance of ecologically important or rare variety of floral and faunal species and evaluate possible direct or indirect impact of the project on ecology - biodiversity and suggest relevant mitigation measures.</p>
A0004	<p>Communicating climate change: channels, sources, contents and outreach strategies based on China survey</p> <p>Yujie Li Renmin University of China</p> <p><i>Abstract</i>— Addressing climate change can only succeed if the public realize the reality and seriousness of climate change and adjust their behavior in ways that limit emissions and promote adaptation, whereas the complexity, uncertainty and large temporal and spatial scales of the issue have caused the barriers for public understanding, which imply a strong urge for the strategic climate change communication (CCC).Public’s information seeking and media use condition is a major challenge to overcome for the effective CCC. This research has conducted an initial analysis of public’s information seeking and media use based on a national random survey of public opinion on climate change in mainland China. Results from the survey shows that the Chinese respondents use TV as their most important information seeking channel, consider the science institutes as the most trusted information source, and with low attention to the environmental related news content. Statistically correlations between the aforementioned communication variables and the climate change awareness have also been tested. A number of implications for CCC strategies represented based on the results of this study.</p>
A0006	<p>Understanding the social vulnerability of coastal communities to climate change</p> <p>Regina P. Junio, Aurora C. Gonzales, Teresita G. Montaño</p> <p><i>Abstract</i>—The Philippines ranks as one of the countries most vulnerable to increased severity of tropical storms. Its vulnerability to climate change is amplified by its archipelagic geography and the fact that it is a developing country. This study aims to understand the factors affecting the social vulnerability of fourteen (14) coastal barangays of Zamboanga City to climate-related hazards using participatory and community-based approaches. Results show that coastal communities and coastal resources have been exposed to climate-related hazards like floods, long periods of drought, erratic rainfall patterns, landslide, storm surge, sea-level rise, receding shoreline and warmer seas. Coastal communities’ sensitivity to climate-related hazards relies mainly on their dependence on coastal resources for subsistence, livelihood and socio-cultural activities. Factors that affect their level of capacity to adapt include their local environmental knowledge, financial status, ability to plan and re-organize, livelihood diversity, attachment to place and attachment to</p>

	livelihood.
A0010	<p>Perspectives of farmers and Experts in Ca Mau, Vietnam on the Effects of Climate Change on Shrimp Production An Quach, Frank Murray and Angus Morrison-Saunders Environmental Science at Murdoch University</p> <p><i>Abstract</i>—Shrimp farming production sustains livelihoods for hundreds of thousands of inhabitants. Vietnam is one of the most vulnerable countries in the world to climate change and Ca Mau Province was ranked as one of the most vulnerable province in Vietnam in aquaculture sector and shrimp farming. This paper aims to discover how climate change affects different shrimp farming systems and what climate issues affected shrimp production from the perspectives of shrimp farmers and experts in Ca Mau. The field research mainly focuses on interviewing local experts and surveying farmer households involved in four types of shrimp farming systems: rice-shrimp rotation, integrated shrimp-mangrove, separated shrimp-mangrove, and intensive shrimp farming system in the coastal area. The findings from the study give a detailed understanding of climate change effects in shrimp farming and help local government and inhabitants to gain a better sense of how climate change poses risks to shrimp farmers.</p>
A2002	<p>Estimating Carbon Reductions of Green highway Technologies Jongdae Baek, Hyejung Hu, Guenhee Lee, and Geonho Kim Korea Institute of Civil Engineering and Building Technology(KICT)</p> <p><i>Abstract</i>—There are great activities around developing and applying new green highway technologies to reduce carbon emissions around the world. This study introduces three green highway technologies related to road construction materials and method that are among many other technologies developed by the Carbon Neutral Road Technologies Research Group in Korea. They are (technology A) manufacture and construction of carbon-absorbing road facilities utilizing activated industrial by-products, (technology B) low carbon non-cement soil pavement utilizing industrial by-products and inorganic binder, (technology C) low carbon soil pavement utilizing polymer concrete. Comparative carbon reduction by the three technologies calculated via G-TIES (Green Highway Technology Investment Evaluation System) developed by the research group to evaluate investment benefits of green highway technologies is also included in the study. When technology A are applied to construction and operation of curbs in 1 km road section, it can reduce 2.69 tCO₂ in the construction stage and 24.75 tCO₂ in the operation stage to reach 27.44 tCO₂ in total carbon emissions compared to the existing technology when assuming road operation for 30 years. When technology B and C are applied to 1 km road pavement construction, 598 tCO₂ and 404.97 tCO₂, respectively, will be reduced. Green technologies outlined in this paper, actual reduction of carbon emissions and methodologies used to calculate reduction will hopefully serve as a good reference to researchers and technology developers.</p>
A2003	<p>New and Renewable Energy Applicable to roads and energy intensity Guenhee Lee, Jongdae Baek, Hyejung Hu and Duckyoon Ku Korea Institute of Civil Engineering and Building Technology(KICT)</p> <p><i>Abstract</i>—This study reviews technologies of new and renewable energy applicable to roads</p>

	<p>as part of the effort to reduce emissions of carbon dioxide which is causing global warming and to secure sources of alternative energy. It was found that solar light energy and small wind power energy are most appropriate for roads whose main functions focus on vehicle transport. The key for implementing solar light power generators and wind power generators are to secure maximum hours of sunlight and a consistent wind velocity throughout the year, respectively. The study estimated that solar light energy intensity is 578.2 Wh/m²/d on an average daily basis and wind power intensity at 5.53 kWh/d on an average daily basis for 1kW wind power generator by considering capability of energy generators for the two renewable energy types and the climate conditions of Korea.</p>
A2004	<p>Feasibility Check for Carbon Emissions Estimation Method of G-TIES Hyejung Hu, Jongdae Baek, and Guenhee Lee Korea Institute of Civil Engineering and Building Technology(KICT)</p> <p><i>Abstract</i>—The method for estimating carbon emissions across road life cycle is applied to G-TIES (Green Road Technology Investment Evaluation System) being developed in Korea. G-TIES is an evaluation system that supports activities to gauge applicability of green road technology that reduces carbon emissions and to forecast benefits of application. First of all, the authors selected programs assessed to stand out among those already developed and are in use and qualitatively compared their functions in order to evaluate performance of the methodology adopted by G-TIES to calculate carbon emissions. In addition, G-TIES, ROADEO and Carbon Gauge Tool, which can calculate carbon emissions by entering general information on road projects, were used to calculate carbon amount emitted during construction of a road section in Korea. The values gained from ROADEO and Carbon Gauge Tool differed greatly from the value gained from G-TIES. Although further improvements need to be made in G-TIES in ways to include greater parts of carbon emission source in road works and reflect a wide variety of road construction conditions it is deemed to be more appropriate than other tools in calculating carbon emissions in road construction projects in Korea as its development is based on actual road constructions in the country.</p>

3:40pm-4:00pm

Coffee Break



Afternoon, January 25, 2015 (Sunday)

SESSION-5 (ICFEE 2015 & ICCCH 2015 & IJESD 2015 1st) (7 presenters)

Venue: Conference room 2 (Archimedes)

Session Chair: Prof. Chun-Han Ko

Time: 4:00pm-5:40pm

CD0205	<p>Case Study of Using Life Cycle Impact Assessment in Environmental Impact Assessment Kevin Fong-Rey Liu, Si-Yu Chiu, Po-Chung Yeh, Jong-Yih Kuo Ming Chi University of Technology, Taiwan</p> <p><i>Abstract</i>—Environmental impact assessment (EIA) and strategic environmental assessment (SEA) are procedural tools for environmental management that identify, predict, evaluate and mitigate the environmental impact of development proposals or policies. Life cycle impact assessment (LCIA) is a common analytical tool for environmental management. The use of the LCIA for the preparation of EIA and SEA reports clearly shows the causal linkage for hazard–pathway–receptor–damage and better determines the significance of the impact. Firstly, the use of the LCIA for EIA and SEA is studies. Eco-indicator 99, IMPACT 2002+ and ReCiPe are the LCIA tools used in this study. Finally, a Taiwanese naphtha cracking plant is used as the example for an EIA and the Taiwanese solid waste policy as the case study for a SEA, in order to demonstrate the use of the proposed methodology.</p>
C3002	<p>Crouching Suspicions, Hidden Potential: A Literature Review on U.S.-China Clean Energy Cooperation since 2009 Ding Yinan and SHI Jing Beijing Foreign Studies University, China</p> <p><i>Abstract</i>—Since 2009, China and the U.S. have increased cooperation in clean energy and achieved concrete results, signing a series of agreements and establishing U.S. – China Clean Energy Centre. The paper reviews related scholarship from both countries in terms of research agenda, characteristics and shortcomings. It concludes that concerning current situation, Chinese scholars focus on abstract cooperation mechanism while Americans attend to specific initiatives and new progresses. Chinese scholars attribute intergovernmental frictions to American fear of losing major power status and catering to domestic politics while recognizing Chinese IPR failure and inappropriate government subsidies. American scholars admit the influence of domestic politics but stress the disparity of technology development and deployment and paradox between promoting clean energy and following global trade rules. Additionally, Chinese scholars recommend to improve independent R&D capacity and learn how to “play with” WTO rules when facing trade frictions.</p>
C3003	<p>The Current Development and Debate of the Global Green New Deal Ding Yinan and Tang Jie Beijing Foreign Studies University, China</p> <p><i>Abstract</i>—Global Green New Deal (GGND) is a policy initiative established by United Nations Environmental Programme (UNEP) in 2008, which is aimed to resolve an array of economic, social and ecological problems occurring these years. With reference to the former U.S. President Franklin D. Roosevelt’s New Deal programs in the 1930s, it calls for strong will and actions of government leaderships across the international community, with the main focus on the role of green investment in helping shape a sustainable future development. Nevertheless, since being put forward, GGND has received no less doubts and criticisms than applause. This essay intends to review the GGND in practice and the debate around it-how the current major opinions converge and diverge.</p>
C3005	<p>Effect of Fermentation on the Acetate-dominated Rumen Microbial Fuel Cells</p>

	<p>C. T. Wang, Y. C. Lee, C. M. J. Yang, Z. S. Chen and Y.C. Yang National I Lan University, Taiwan</p> <p><i>Abstract</i>—Converting renewable biomass into electricity by using microbial fuel cells (MFCs) can produce clean and transportable energy. Here, ruminal microorganisms are capable of degrading plant fiber with the production of volatile fatty acids (VFA) and reducing equivalents which could then be transformed into electricity. In this study, fermentation characteristics and electrical properties in microbial fuel cells with rumen microorganisms, using plant fiber as substrate, are investigated. Results show that an acetate-type of fermentation favors the yield of reducing equivalents. When bermudagrass straw and rumen microorganisms were added to the anode chamber of microbial fuel cells, the total VFA concentration increased with time. It seems that the accumulation of VFA interfered with the generation of electricity. These results imply that an acetate-dominated type of ruminal fermentation could lead to the release of electrons. This could be conducive to electrical output by rumen microbial fuel cells (RMFCs). These findings would be useful to improve the power generation of RMFCs.</p>
C3006	<p>Reduction of diuron efficacy with biochar amendments Chih-Hsin Cheng, Zue-Ping Lin, Yu-Sheng Huang, Chih-Peng Chen, Chie-Te Chen, Ren-Shih Chung and Oleg V. Menyailo National Taiwan University, Taiwan</p> <p><i>Abstract</i>—Amending soil with biochar (BC) can change the sorption properties of soil. However, much of this concern is based on studies from BC produced from wood and crop residues. Since BC can be made from a wide range of feedstock, it is important to cover all the aspects of feedstock applied as the soil amendments. Six types of feedstock were examined in this study, including a compost, a papermill waste, a leguminous biomass, two bioenergy crop biomass (switchgrass pellet and 3-years-old shrub willow wood chip), and an oak wood biomass. The raw feedstock was pyrolyzed at 300°C and 500°C, respectively. We investigated how feedstock and pyrolytic temperature affect diuron sorption and used a bioassay of the BC amendments in a loamy soil to test the change of herbicide efficacy. With the pyrolytic temperature increasing, the diuron sorption rate increased. The 300°C BCs developed a slightly higher diuron sorption rate than the raw materials, and a considerable enhancement in diuron sorption rate was observed for all 500°C BCs. Similar to the sorption capacity of the herbicide, the sequence in reducing herbicide efficacy was 500°C BC > 300°C BC > raw material. Hence, our results suggest that the effect of herbicide effectiveness from BC amendments can be reduced when raw material is converted into BC, especially the BC produced at the high temperature (>500 °C).</p>
C3007	<p>The Properties of Torrefied Biomass from Six Major Bamboos in Taiwan Far-Ching Lin and Chun-Te Wu National Chung Hsing University, Taiwan</p> <p><i>Abstract</i>—Torrefaction is a kind of thermal treatment process that carried out at temperatures ranging from 200 to 300 °C to improve its heat value and grindability for substitution of coal. In this process the biomass hemicellulose is degraded, maintaining its cellulose and lignin content. Six kind of major bamboos in Taiwan including Moso bamboo, Makino bamboo, Ma</p>

	<p>bamboo, Green bamboo, Thorny bamboo, and Long shoot bamboo were torrefied in the study. First, bamboos were dried and heated to 250, 270, and 290 °C with 60, 75, and 90 minutes duration. Then the torrefied mass was carried basic property testing including proximate analysis, ultimate analysis, TGA, and heat value in order to understand the difference between raw material and its torrefied products.</p>
A0012	<p>Classifying urban building from Road based on Fuzzy Logic rules using Quick Bird imagery Li Hongfen, Hu Guangdao and Du Jun Institute of geographical Sciences, Henan Academy of Sciences</p> <p><i>Abstract</i>—This article deal with the problem of distinguishing buildings from roads of land cover maps using Very High-resolution Satellites (VHRS). It discusses two methods for improving the result of classifying these two land use types in land cover mapping. A case study of QuickBird Imagery of an area in Chenggong County of Yunnan Province is conducted based on an analysis of QuickBird imagery.</p>

Afternoon, January 25, 2015 (Sunday)

SESSION-6 (ICBBB 2015) (7 presenters)

Venue: Conference room 3 (Locke)

Session Chair: Prof. Won-Ha Lee

Time: 4:00pm-5:40pm

T0002	<p>Identification of lung cancer associated protein by Molecular Complex Detection Analysis NILUBON KURUBANJERDJIT, NATTHAKAN IAM-ON, KA-LOK NG Mae Fah Luang University, Thailand</p> <p><i>Abstract</i>—Discovering cancer-associated proteins is a major challenge in cancer research. Recently various techniques have been developed to identify novel cancer-associated proteins. Protein-protein interaction network and also protein clustering approaches are good predictors for cancer proteins. In this study, we implemented Molecular Complex Detection approach (MCODE) on lung cancer protein-protein interaction network in order to identify novel lung cancer-associated proteins. Enriched biological functions and KEGG pathways are determined, and results strongly suggest that most of predicted proteins involve in lung cancer formation. Also, based on the assumption that cancer proteins tend to interact with cancer proteins, we have identified several putative lung cancer proteins. It is expected that the approach developed in this work should be of value for identifying cancer-associated and cancer proteins.</p>
T0003	<p>Effect of ADJ6, a Polyherbal Formulation upon Glucotoxicity Induced Stress on RIN5F Cells Anand Duraiswamy, Changam Sheela Sasikumar, Sanjay M Cherian and Kooturathu Mammen Cherian Frontier Mediville (Affiliated to University of Madras), India</p> <p><i>Abstract</i>—The current study elucidates the protective effect of ADJ6, a polyherbal formulation upon glucotoxicity induced stress on pancreatic beta cells (RIN5F cells). The</p>

	<p>cells are treated with media containing normal glucose (11.1 mM) and high glucose (40 mM) to induce glucotoxicity. The stress levels are assessed through the occurrence of apoptosis; production of reactive oxygen species (ROS), lipid peroxidation, and mRNA expression of TCF7L2 gene was also assessed. The study demonstrated a protective effect of the formulation by lowering ROS, apoptosis and lipid peroxidation. The expression of TCF7L2 was elevated during the induction of 40 mM glucose but was down-regulated while co-culturing RIN5F cells with 40mM glucose and ADJ6. Thus ADJ6 elucidated a protective effect against glucotoxicity induced oxidative stress on RIN5F cells and down-regulated a key component of the Wnt signaling pathway.</p>
T0008	<p>An Ellipse Method for Classifying Biological Dataset Yao-Huei Huang Southwest Jiaotong University, China</p> <p><i>Abstract</i>—The classification of biological datasets is essential to humanity. This study proposes a hyper ellipse method based on mixed integer nonlinear program for classifying biological datasets. Numerical example also demonstrates the efficacy of the proposed method.</p>
T0009	<p>Recognition of Normal and Abnormal Cells through SERS-Active FIB-Fabricated Au Nanoneedle Array Structure Kundan Sivashanmugan, Jiunn-Der Liao, Pei-Lin Shao Department of Materials Science and Engineering, National Cheng Kung University, Taiwan</p> <p><i>Abstract</i>—Au nanoneedle arrays were fabricated using a focused ion beam (<i>fibAu_NN</i>). With rhodamine 6G used as the probe molecule on the optimized Surface-enhanced Raman scattering (SERS) substrate, an enhancement of 7 orders of magnitude was obtained at low concentration (10^{-5} M). Moreover, a strong electromagnetic field effect is generated in and around these NNs, creating localized surface plasmon resonance. In the biological assessment, the optimized <i>fibAu_NN</i> substrate was able to distinguish cancer and normal cells. The SERS effect was extensively increased at incident laser interacted area of cells and sharp NNs surfaces.</p>
T0011	<p>Non-rigid Registration between Intra-Subject Breath-hold Lung CT Images Yufeng Huang University of Science and Technology of China</p> <p><i>Abstract</i>—In order to improve the accuracy of two phases lung registration, a hybrid non-rigid process is proposed to deform the intra-subject lung images volumes. As the pre-processing, we segment the lung parenchyma from thoracic HRCT slices, using the self-developed serial segmentation algorithm. Then, the left and right lungs are stored separately to generate image volume pairs. For an expiration/inspiration image pair, we consider that the deformation between them can be decomposed into a global alignment and a local deformation. Finally, the non-rigid registration algorithm "Diffeomorphic Demons" is employed to implement deformation. Experiments validate our consideration. The visual images exhibit a good alignment of the shapes and the inner structures. The quantitative criterions indicate that the average volume overlap is 0.9016 after the global alignment and 0.9604 after registration. The changes of RMSE show that the average intensity difference of</p>

	per voxel drops greatly after every step of registration.
T2001	<p>Longitudinal Study of the Growth and Development of Cranio-maxillo-facial Hard Tissues in Deciduous Dentition of Southern Chinese Children Min CHEN, Wei HUANG, Tingting CHEN, Ai JIANG, Qiang ZHANG Affiliated Shenzhen Maternity and Child Healthcare Hospital of South Medical University, Shenzhen, China</p> <p><i>Abstract</i>—Objective: To discuss the characteristics of the growth and development of maxillofacial hard tissues in deciduous dentition of Chinese children. Materials and Methods: 78 cephalometric radiographs of 26 children (16 boys, 10girls) were analyzed with the development landmarks of maxilla and mandible in 3-year program. Results: There was significant increasing of A'-Ptm', N'-ANS', Cd'-Go ', Pog'-Go', RP-FH and MP-FH ($P < 0.05$) in both boys and girls. In boys group, N-S and SNA increased significantly ($P < 0.05$), which was no significant difference in girls group. For FH to SN, PP to SN and PP to FH, there was no significant difference in both groups of boys and girls. Conclusions: For 4-6 year-old southern Chinese children, the sagittal growth and development of jaws in boys and girls are similar. Mandibular ramus and corpus rotate downwards and backwards. The sagittal relationship between maxilla and mandible is relatively stable. The ratio of posterior facial height to anterior facial height of boys decreases while that of girls maintains almost unchanged.</p>
T3001	<p>Regulation of Macrophage Activation by PKC Substrates Sang-Min Lee, Jae-Kwan Kim, and Won-Ha Lee Kyungpook National University, South Korea</p> <p><i>Abstract</i>—Protein kinase C (PKC) is a pivotal player of inflammation through mediating various inflammation-associated processes such as blood vessel remodeling, extravasation of leukocytes, proliferation of lymphocytes, and tissue damage. PKC exerts these effects by phosphorylating its substrates including vinculin, Annexin, MARCKR, MARCKS-related protein (MRP), AHNAK, fascin, gravin, GAP43, PAR-3, etc. These PCK substrates are collectively called substrates that interact with C-kinase (STICKs). In an effort to find out the responsible member of STICKs that mediates the LPS-induced inflammatory activation of macrophages, RNA interference approach was employed to down-regulate the expression of fascin or MRP in human macrophage-like cell line THP-1 and mouse monocytic cell line RAW264.7. As expected by reflecting previous observations on STICKs functions, down-regulation of fascin and MRP resulted in the reduction of cellular migration toward chemotactic agents and invasion through extracellular matrix. Interestingly, suppression of fascin expression resulted in a great decrease in LPS-induced expression of TNF- and IL-6. Further investigation of the molecular mechanism revealed that fascin regulates the LPS-induced translational activation of the TNF- and IL-6 mRNA through up-regulating miR-155 which is involved in activation of various inflammatory mediators and down-regulating MiR-125b which directly interacts with 3'UTR or there mRNA and suppress their translation. The possible function of other members of STICKs in macrophage activation will also be discussed.</p>

6:00pm

Dinner

Suggestion spots and information

1. Visitation of College of Engineering, NTU (1.5hr)

Instrumental Analysis Laboratory and Particulate Technology Laboratory

Brief introduction: National Taiwan University has a long record of teaching and research in the discipline of materials science, with sixty years of history in the study of metallic materials. The Department of Materials Science and Engineering consolidates the relevant equipment in two centralized laboratories: the Instrumental Analysis Laboratory and the Particulate Technology Laboratory. These two laboratories provide services to faculty members and students for their research and/or teaching needs. For the purpose of education and research in particulate techniques, the Particulate Technology Laboratory also offers related courses every semester, and some symposiums and seminars are hosted regularly or irregularly. The Particulate Technology Laboratory also accepts industrial membership to coordinate the industry with the academics and to get support from these enterprises.



College of Engineering, NTU

2. Beitou Refuse Incineration Plant (1.5hr)

Brief introduction: The plant locates at Zhouwei Section, Zhoumei Li, Beitou District, right bank of Keelung River downstream, about 4km away from the converging point of Keelung River and Tamsui River. The incinerator's colorfully painted smokestack building houses an observation deck at an altitude of 116 meters, accessible via a glass-paneled elevator by the ground-floor entrance. Fitted with wall-to-wall panoramic windows, the observation deck provides an amazing open view of distant mountain ranges (Yangming, Guanyin and Datun); the Shezi Islet sandwiched between Danshui and Keelung Rivers; a sprawling Guandu Plain dotted with hills, water bodies and greenery; the renowned "Sunset over Mt. Guanyin"; and a splendid nightscape. It is one of Taipei City's well known sightseeing spots, complete with information signage regarding attractions visible through the window.



Beitou Refuse Incineration Plant

3. Beitou Touch Stars Revolving restaurant (1.5hr) (lunch)

Brief introduction: Touch Star Revolving Restaurant is a first, built on the smoke stack of incinerator, 150 meters high, it takes just 35 seconds to reach in the speedy elevator and the views over Taipei City are magnificent. Serving mostly Chinese food there are some western dishes but choices are limited. Set meals include starters, soup, main course, drink and dessert. The a la carte menu includes pigeon and chicken cooked with Chinese rice wine.



Beitou Touch Stars Revolving restaurant

4. Yangmingshan National Park (3.5-4hr)

a. Xiaoyoukeng

Brief introduction: Xiaoyoukeng is a post-volcanic geological landscape area and is located on Mt. Qixing's northwestern foot. The scenic trail can be reached by turning right on the Xiaoguanyin stop on Yangjin Highway. It is approximately 805 meters above sea level and is famed for the fumaroles, sulfur crystals, hot springs and spectacular 'landslide terrain' formed by post-volcanic activity. In addition to Xiaoyoukeng itself, the viewing platform here also offers views of the volcanic cones of Mt. Zhuzi, Mt. Datun, Mt. Qixing and Mt. Xiaoguanyin, as well as views of the Jinshan coastline. Visitors who enjoy flora are encouraged to spend a few minutes taking a pleasant walk on the Arrow Bamboo Trail and take in the sights of the arrow bamboo, awn and other plants that flourish in volcanic areas. The trail next to the Xiaoyoukeng parking lot offers access to Mt. Qixing, from which it takes about an hour to reach the summit. At 1,120 meters above sea level, it is Taipei City's highest peak. Taking the East Peak path when descending leads to Qixing Park, Menghuan Pond, and Lengshuikeng, offering a bird's-eye view of Mt. Shamao and downtown Taipei. The nursery, Visitor Center, Yangmingshan Second Parking Lot and the Yangmingshan Bus Station are all reachable by the same path.



Xiaoyoukeng

b. Lengshuikeng

Brief introduction: The Lengshuikeng region is a low-lying depression which was created when the lava from Mt. Qixing and Mt. Qigu formed a barrage. Water then accumulated, turning the area into a lake, which eventually leaked out and dried up to expose the lake bottom and form today's landscape. The water temperature of the hot springs in this area only reaches 40 °C (104 °F), far below that of other springs in other areas, hence its name Lengshuikeng, which means "cold water pit".



Lengshuikeng

Conference venue

GIS National Taiwan University Convention Center, Taiwan

(集思臺大會議中心)

TEL: +886 2-23635868, Email: meeting@gisgroup.com

Website: <http://www.meeting.com.tw/index.php/find-venue/convention-center/ntu-venue-guide>

Address: B1, 85, Section 4, Roosevelt Road, Taipei 10617, Taiwan

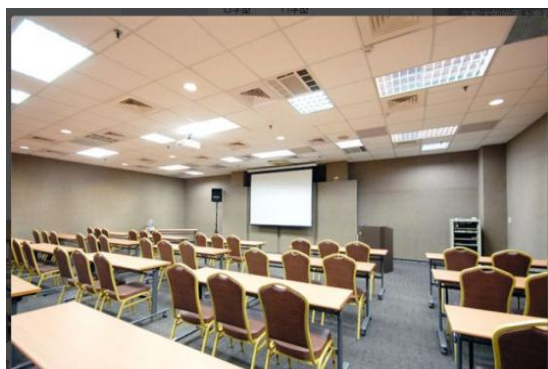
地址：台北市羅斯福路 4 段 85 號 B1



GIS



Plato



Locke



Archimedes



Recommend Hotels near the Conference Venue:

1. Howard Civil Service International House
2. Just Sleep Hotel

APCBEES FORTHCOMING CONFERENCES

<http://www.cbees.org/events/>

CONFERENCE INFORMATION		PUBLICATION
April 6-7, 2015, Kyoto, Japan		
Submission before February 15, 2015		
ICCOE 2015	2015 2nd International Conference on Coastal and Ocean Engineering http://www.iccoe.org/	Journal of Environmental Science and Development (JESD, ISSN:2010-0264)
ICCFE 2015	2015 2nd International Conference on Chemical and Food Engineering http://www.iccfe.org/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221); International Journal of Food Engineering (IJFE , ISSN: 2301-3664)
ICBAE 2015	2015 International Conference on Biotechnology and Agriculture Engineering http://www.icbae.org/	Journal of Advanced Agricultural Technologies (JOAAT, ISSN:2301-3737); Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796)
April 24-25, 2015, Istanbul, Turkey		
Submission before February 5, 2015		
ICESE 2015	2015 5th International Conference on Environment Science and Engineering http://www.icese.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618)
ICLST 2015	2015 5th International Conference on Life Science and Technology http://www.iclst.org/	Journal of Life Sciences and Technologies (JOLST, ISSN: 2301-3672)
ICBFS 2015	2015 5th International Conference on Biotechnology and Food Science http://www.icbfs.org/	International Journal of Food Engineering (IJFE , ISSN: 2301-3664); Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796)
May 12-13, 2015, Warsaw, Poland		
Submission before February 1, 2015		
ICCMP 2015	2015 International Conference on Chemical Materials and Process http://www.iccmp.org/	Advanced Materials Research (ISSN: 1022-6680)
ICBPE 2015	2015 2nd International Conference on Biomedical and Pharmaceutical Engineering http://www.icbpe.org/	The Journal of Medical and Bioengineering(JOMB, ISSN: 2301-3796)
ICFAE 2015	2015 International Conference on Food and Agricultural Engineering http://www.icfae.org/	The Journal of Advanced Agricultural Technologies (JOAAT, ISSN:2301-3737)

2015 APCBEES TAIPEI CONFERENCES

May 23-24, 2015, Singapore**Submission before February 10, 2015**

ICEST 2015	2015 6th International Conference on Environmental Science and Technology http://www.icest.org/	International Journal of Applied Environmental Sciences (ISSN: 0973-6077)
ICBBT 2015	2015 7th International Conference on Bioinformatics and Biomedical Technology http://www.icbbt.org/	Information and Communication Technologies (ISSN: 1743-3517)
ICPIE 2015	2015 4th International Conference on Petroleum Industry and Energy http://www.icpie.org/	the Journal of Industrial and Intelligent Information (JIIE, ISSN: 2301-3745)

June 15-16, 2015, Madrid, Spain**Submission before February 5, 2015**

ICCPE 2015	2015 4th International Conference on Chemical and Process Engineering (ICCPE 2015) http://www.iccpe.org/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221)
ICEEB 2015	2015 4th International Conference on Environment, Energy and Biotechnology (ICEEB 2015) http://www.iceeb.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618)
ICAAA 2015	2015 5th International Conference on Asia Agriculture and Animal (ICAAA 2015) http://www.icaaa.org/	Journal of Advanced Agricultural Technologies (JOAAT ISSN: 2301-3737)

June 25-26, 2015, Bangkok, Thailand**Submission before February 15, 2015**

ICBBS 2015	2015 4th International Conference on Bioinformatics and Biomedical Science http://www.icbbs.org/	International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638); Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796)
ICWT 2015	2015 International Conference on Water Technology http://www.icwt.org/	Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)
ICNFS 2015	2015 4th International Conference on Nutrition and Food Sciences http://www.icnfs.org/	the Volume of Journal (IPCBEE, ISSN: 2010-4618)

July 09-10, 2015, Chengdu, China**Submission before February 20, 2015**

ICEEA 2015	2015 6th International Conference on Environmental Engineering and Applications http://www.iceea.org/	Journal of Clean Energy Technologies (JOCET, ISSN: 1793-821X)
ICBFE 2015	2015 4th International Conference on Biotechnology and Food Engineering http://www.icbfe.org/	WIT Transactions on Biomedicine and Health (ISSN: 1743-3525) or International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638)

2015 APCBEES TAIPEI CONFERENCES

ICEBB 2015	2015 5th International Conference on Environmental, Biomedical and Biotechnology http://www.icebb.org/	International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638) or Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796),
July 29-30, 2015, Jeju Island, Republic of Korea		
Submission before March 10, 2015		
ICFNT 2015	2015 2nd International Conference on Food and Nutrition Technology http://www.icfnt.org/	Volume of International Proceedings of Chemical, Biological and Environmental Engineering Journal (IPCBEE, ISSN: 2010-4618)
ICAER 2015	2015 International Conference on Advances in Environment Research http://www.icaer.org/	WIT Transactions on the Built Environment (ISSN: 1743-3509)
ICABC 2015	2015 2nd International Conference on Advances in Biology and Chemistry http://www.icabc.org/	International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638) or International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221)
Aug. 05-06, 2015, Paris, France		
Submission before April 1, 2015		
ICGES 2015	2015 4th International Conference on Geological and Environmental Sciences http://www.icges.org/	International Journal of Geological Engineering (IJGE)
ICEAE 2015	2015 5th International Conference on Environmental and Agriculture Engineering http://www.iceae.org/	Journal of Advanced Agricultural Technologies (JOAAT ISSN: 2301-3737) or International Journal of Environmental Science and Development (IJESD ISSN: 2010-0264)
ICCCE 2015	2015 6th International Conference on Chemistry and Chemical Engineering http://www.iccce.org/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN: 2010-0221)
Aug. 27-28, 2015, Hong Kong		
Submission before April 20, 2015		
ICSEE 2015	2015 2nd International Conference on Substantial Environmental Engineering http://www.icsee.org/	Volume of International Proceedings of Chemical, Biological and Environmental Engineering Journal (IPCBEE, ISSN: 2010-4618)
ICBBE 2015	2015 2nd International Conference on Biomedical and Bioinformatics Engineering http://www.icbbe.com/	Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796)
CCEA 2015	2015 6th International Conference on Chemical Engineering and Applications http://www.cbees.org/ccea/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN: 2010-0221)
Sep. 14-15, 2015, Paris, France		
Submission before May 5, 2015		

2015 APCBEES TAIPEI CONFERENCES

ICBEE 2015	2015 7th International Conference on Chemical, Biological and Environmental Engineering http://www.icbee.org/	Volume of International Proceedings of Chemical, Biological and Environmental Engineering Journal (IPCBEE, ISSN: 2010-4618)
ICECS 2015	2015 8th International Conference on Environmental and Computer Science http://www.icecs.org/	Journal of Environmental Science and Development (IJESD, ISSN:2010-0264) International Journal of Computer Theory and Engineering (IJCTE, ISSN: 1793-8201),
ICBEM 2015	2015 5th International Conference on Biotechnology and Environment Management http://www.icbem.org/	International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638) Journal of Life Sciences and Technologies (JOLST, ISSN: 2301-3672)

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Note

