

2014 CBEES MELBOURNE CONFERENCES SCHEDULE

2014 4th International Conference on Future Environment and Energy (ICFEE 2014)
2014 3rd International Conference on Climate Change and Humanity (ICCC 2014)
2014 4th International Conference on Bioscience, Biochemistry and Bioinformatics (ICBBB 2014)

Melbourne, Australia

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January 4-5, 2014

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Welcome to CBEES Conferences in Melbourne, Australia, January 4-5, 2014

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

Laptops (with MS-Office & Adobe Reader)
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 Session: about 8 Minutes of Presentation 2 Minutes of Q&A

Keynote Speech: 30 Minutes of Presentation 5 Minutes of Q&A

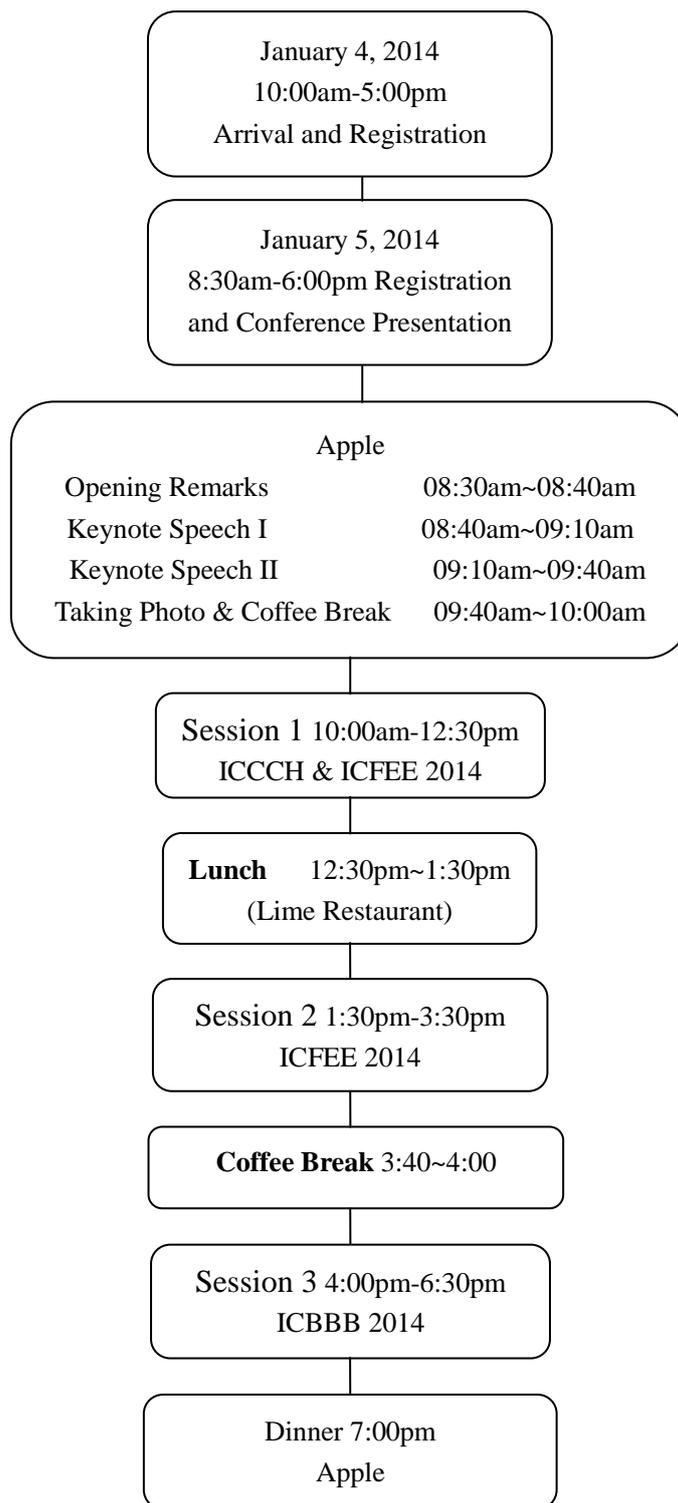
Conference website and Secretariat Contact:

ICCCH 2014: www.iccch.org iccch@cbees.org

ICBBB 2014: www.icbbb.org icbbb@cbees.org

ICFEE 2014: www.icfee.org icfee@cbees.org

Conference Program



Please pay attention:

- (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 session. The Certificate for Excellent Papers will be awarded after each session ends in the venue on January 5, 2014.
- (4) If you want to take notes, please turn to the last page of the program.

Day 1: ----- January 4, 2014 (Saturday) {Registration day}

Lobby

10: 00am – 12: 30pm	Arrival and onsite Registration only
1: 30pm – 5: 00pm	Certificate for Participation can be collected at the registration counter

Day 2: ----- January 5, 2014 (Sunday) {Presentation day}

Venue: Apple

08:30am- 08:40am	Opening Remarks Prof. Richard Haynes The University of Queensland, Australia	
08:40am-09:10am	Keynote Speaker I Dr. Kelvin Kian Loong Wong The University of Western Australia “Hemodynamics Flow Analysis Based on Medical Imaging and Computational Fluid Dynamics”	
09:10am – 09:40am	Keynote Speaker II Prof. Richard Haynes The University of Queensland, Australia “Constructed wetlands: an effective green technology for treating wastewaters”	
09:40am-10:00am	Taking Photo and Coffee Break	

Morning, January 5, 2014**SESSION – 1 (ICCCH&ICFEE 2014)**

Venue: Apple

Session Chair: Prof. Richard Haynes

Time: 10:00am – 12:30pm for 14 presentations

A0001	<p>An Information-Systems Approach to Identifying Flood Risks in Central Japan Ponthip Limlahapun</p> <p>Abstract—This study explored using database environments to develop a tailor-made geospatial web-based system to identify flood risk. This approach can directly target specific needs and has advantages over existing noncommercial systems. We analyzed the river network in the Chubu region, which encompasses nine prefectures in Central Japan, to understand rainfall-water-level relationships. A spatial web-based system was then developed to monitor rainfall and river-water levels in the study area. This database system assesses near-real-time rainfall and water-level data. A map service was configured using OpenLayers, an open-source software package. This proposed system will deliver early-warning flood messages via a scripting mailer system. However, device error could occur, which necessitates human verification before a final decision is made. Self-geolocation helps individual users determine their risk. Improvements in the visualization and recognition of existing data using map-service tools and technology may help reduce tragedies and damage resulting from flooding.</p>
A1001	<p>A Study on Energy Crisis and Social Benefit of Solar Energy Srinivasan Chinnammai</p> <p>Abstract—Growing consumption of energy has also resulted in the country becoming increasingly dependent on fossil fuels such as coal, oil and gas. Rising prices of oil, gas and coal and potential shortages in future lead to concerns about the security of energy supply needed to sustain our economic growth. Increased uses of fossil fuels have also caused environmental problems both locally and globally. Against this background, the country urgently needs to develop a sustainable path of energy development.</p> <p>The ultimate solution for the secure supply of energy will be the discovery of methods of harnessing non-conventional energy sources. The extraction and utilization of non-conventional energy will not only help in meeting energy demands but also help in their development. Since non-conventional energy sources provide environment-friendly, non-polluting energy, they help keep the atmosphere and environment clean and safe. Moreover, such energy sources are available locally; therefore they will reduce the losses due to transmission. Hence this paper examines the short fall of energy and also it is find out the social benefit of the solar energy utilization.</p>
A0005	<p>Mapping potential risk for housing damage from ground movement due to climate change Simone Leao, Deakin University</p> <p>Abstract—The performance of footings in residential construction is influenced by the degree of ground movement, particularly in reactive soils, which is driven by the magnitude of change in soil moisture. New patterns of climate are affecting residential foundations and causing serious and expensive damage. This paper produces a map of potential risk for housing damage from ground movement due to climate change. Using a geographic</p>

	<p>information system, it combines information on (1) soil moisture change related to climate, using TMI as the indicator, and (2) population growth. Preliminary results, having Victoria, Australia, in the last decade as the case study, suggest that effects of climate change on soil, and resulting impacts on house foundations, are not being taken into consideration in current planning strategies for urban development. Most of the urban growth priority zones in the study area are susceptible to medium and high risk for damage. Producing new and renovated buildings that are durable in the long term is essential for the economy, environment and social welfare. The map presented here can assist policies and strategies towards urban resilience in the context of climate change.</p>
A3005	<p>Effects of climate change on heat accumulation and precipitation in Thailand Wanida Jinsart and Sarawut Thepanondh</p> <p>Abstract—The impact of future climate change on heat accumulation and precipitation in Thailand were simulated by the regional circulation model (RCM) in SIMCLIM system. The model was run under four Special Report on Emission Scenarios (SRES) A1B, A1FI, A2 and B1. The temperature variability in regional scales was analyzed using the observed daily data from 1951 to 2011. The year 1992 was used as a base year in this analysis. The heat accumulation, in 2042 was increased 14%, 15%, 12 % and 11% and in 2092 was increased 33%, 49%, 41% and 22% for A1B, A1FI, A2 and B1 scenarios, respectively. The precipitation was simulated using the year 2012 as a base year. The increase precipitation in June, for worst case A1F1 was 3.42% in 50 years and 5.85% in 100 years. In A1B1 with taking care of global warming, the precipitation in June will increase 2.67% in 50 years and 3.93% in 100 years.</p>
A2001	<p>POST EMERGENCE CHEMICAL CONTROL STRATEGIES FOR CORM ROT IN GLADIOLUS COMMUNIS L. UNDER FIELD CONDITIONS Shahbaz Ahmad, Muhammad Ali, Muhammad Saleem Haider</p> <p>Abstract—Corm rot is caused by the fungus <i>Fusarium oxysporum</i> f.sp <i>gladioli</i> cause's remarkable losses to the growers. Experiment was conducted in order to find some viable recommendations for this agronomically as well as economically important problem. Four fungicides namely Carbendazim, Mancozeb, Thiophanate methyl and Chlorothalonil were used to control corm rot in gladiolus field. Fungicides were applied singly as foliar, in irrigation as well as with sulphuric acid in variable doses. The results revealed that application of all fungicides was variably effective to control corm rot in acid mixed irrigation followed by fungicide in irrigation. The application of all fungicides in various combinations was observed to be ineffective at all three doses.</p>
S003	<p>Low Carbon Energy Scenario Development in Vietnam Nguyen Thai Hoa, Kei Gomi and Yuzuru Matsuoka</p> <p>Abstract-In this paper the authors proposed a low carbon energy scenario (2030LCE) to reduce CO₂ emission from energy activities in 2030 in Vietnam. We used a quantification model, namely Extend Snapshot tool (ExSS), to show an inventory of base year CO₂ emission and how much CO₂ emitted and can be reduced in energy sector with introduction of low carbon countermeasures. In business as usual case (2030BaU), primary energy demand and CO₂ emission in 2030 will represent 3.8-time and 6.4-time increases, respectively, from 2005 values, indicating that this is not a sustainable scenario from the viewpoint of either the environment or energy security. In 2030LCE, which introduces low carbon countermeasures will be applying in Vietnam in future, CO₂ emission in 2030</p>

	<p>decrease by 34% from 2030BaU level. In which, 50 MtCO₂ (28%) reduction in industry, 67.7 MtCO₂ (29%) in transportation, 38.7 MtCO₂ (22%) in center power supply, 28.5 MtCO₂ (16%) in residential sector and 10.0 MtCO₂ (6%) in commercial sector. Detail of low carbon countermeasures by sector corresponding to related National Policies contributing to each one is also introduced in this study in order to achieve 2030LCE scenario.</p>
S007	<p>Effects of Sintering Temperature on Water Retention Characteristics of Sewage Sludge Ash-Diatomite Based Porous Ceramics Kae-Long Lin, Ju-Ying Lan, Kang-Wei Luo, Jen-Chieh Chang, and Jheng-Ping Sie Abstract-In this investigation, the following operating conditions are applied to developing porous ceramic products; a constant pressure of 5 MPa, a sintering temperature of 1,000-1,270°C, a sintering time of 2 h, and a percentage of sewage sludge ash in waste diatomite of 0-20%. Decrease of the pore size in temperature range between 1100 and 1270 °C was associated with a different sintering behaviour between diatomite and sewage sludge ash. The porous ceramic samples contained sewage sludge ash showed low thermal conductivity properties (0.28-0.56 W/mK), probably owing to the more pores than those in the concrete (1.5 W/mK). Water release ($t_{1/2}$ value) by the porous ceramic samples was decelerated by porous ceramic samples contained sewage sludge ash, due to the synergy effect of high water absorption by the sewage sludge ash and better than in the foamed glass material (4 h). In summary, porous ceramic samples contained the sewage sludge ash have excellent mechanical properties, making them feasible for use in water absorption and retention of porous ceramic applications.</p>
S008	<p>Modeling habitat suitability for beaver (<i>Castor canadensis</i>) using Geographic Information Systems James T. Anderson and Jerri L. Bonner Abstract-Beaver (<i>Castor canadensis</i>) alter ecosystems and affect vegetative growth patterns in streams and wetlands throughout most of North America. We produced a habitat suitability model and map using a geographic information system, incorporating multiple layers important to beaver use. The map was applied to the Canaan Valley area of West Virginia, USA. Model results were compared to the published habitat suitability index (HSI) for North American beaver. Validation was performed by comparing active beaver locations to randomly selected locations in the study area. Our mean model value for active sites was significantly greater than that of random points. Our model values were higher than those of the HSI model, which lacks validation. We believe this type of model is a viable alternative to intensive surveys, with the ability to classify beaver habitat suitability over a large landscape. We show the usefulness of this type of modeling in identifying areas where beaver activity may be important to rare plant conservation decisions. Local information concerning food preferences and habitat use, which vary regionally, should be incorporated into this model when available. This model is presented as a tool for land and wildlife management where beaver populations are a concern and also as a possible template for developing similar models for other species.</p>
S011	<p>Biodegradation of Grass by a Rot Fungus Isolated from Cattle Faeces Sasikarn Nuchdang, Savitri Vatanyoopaisarn and Chantaraporn Phalakornkule Abstract-In this study, the capability of a rot fungus isolated from cattle rumen was investigated as a means of biodegrading field grass. <i>Coprinopsis cinerea</i>, which is classified</p>

	<p>as an obligate aerobic organism, was isolated under semi-aerobic conditions from cattle rumen. The grass was inoculated with the isolated fungus under aerobic conditions for 30 days. In a microscopic examination of the fungi-treated grass some cavities could be seen. It was found that the amounts of cellulose, hemicellulose and total solids in the fungi-treated grass were lower than those of the untreated grass by 8%, 9%, and 13% respectively. The lower contents of cellulose, hemicellulose and total solids in the fungi-treated grass indicated the biodegradation activity of the isolated <i>C. cinerea</i>. Data from batch biogas production suggested that the initial conversion rate of the fungi-treated grass to methane was more than double that of the untreated grass.</p>
S014	<p>Economic analysis of renewable energy generation technologies in the Northeast of Brazil Pieter de Jong, Ednildo Andrade Torres</p> <p>Abstract-This study compares the economic viability of five renewable energy technologies – wind, solar photovoltaic, concentrated solar thermal, biomass and wave power – to various other technologies including hydroelectricity, nuclear power, coal power and gas power sources. The Levelised cost of Electricity (LCOE) is calculated for 12 different Brazilian case study projects, 9 of which are located in the Northeast region. Initial results found that using a discount rate of 5%, the hydroelectric plants had the lowest LCOE, but were only slightly cheaper than the wind power case studies. Solar photovoltaic (PV) was found to be the most expensive technology followed by wave power and concentrated solar thermal power (CSP).</p>
S015	<p>1-Dimensional Advection-Diffusion Finite Difference Model Due to a Flow under Propagating Solitary Wave Muhammad A. Fauzi, Fauzi A. Zaky</p> <p>Abstract- Advection–diffusion phenomena has been commonly observed in coastal areas. Our aim is to investigate the solitary wave effect to advection–diffusion of a substance in a near shore shallow water with an open channel. Considering that the model is an open channel, one dimensional approach is applied. The model solution is obtained by combining Korteweg – De Vries (KdV) equation with advection – diffusion equation. The KdV equation is numerically solved using semi-implicit Crank-Nicolson scheme while the advection – diffusion equation is numerically solved by using an upwind – Forward Time Central Space (FTCS) scheme. The results show that there is a rapid dispersion of the substance when the solitary wave comes into contact with the source</p>
S025	<p>Thermal Treatment of Paper Sludge Using Torch Plasma Je-Lueng Shie, Yi-Ru Liau, Kae-Long Lin and Ching-Yuan Chang</p> <p>Abstract-The thermal treatment of wet paper sludge (WPS) and forestry wood waste (FWW) blends (WFB) was studied. This process is performed in pilot-scale 10 kW torch plasma and designed to investigate the effects of batch feeding of sample and their results on product yields, gas composition and thermal treatment performance are addressed. From the scanning electron micrograph (SEM) spectra, the raw WFB is displaced as long fiber and the construction is complete, however, it become to broken piece after the plasma thermal treatment with ash and small piece of fiber co-existed. Controlled at 873 K of torch plasma reactor, the higher heating value (HHV) of residue increased to 1.26 time of sample and its maximum value reached to 5288 kcal/kg. The production of syngas (CO and H₂) is the major component, and almost 90% of the gaseous products appear in 2 min of reaction time, with relatively high reaction rates. The maximum instantaneous concentrations and the</p>

	<p>corresponding time of CO and H₂ occur at 195,255 and 227,950 ppmv, respectively, and 0.75 min for 873 K, with 0.5 min sampling interval. For batch operation, the total syngas yield is about 34.32 wt. % (CO of 31.58 and H₂ of 2.74 wt.%) of raw sample, and the mass ratio of residue is 25 wt.%. The residue from the torch plasma thermal treatment is with the inorganic components converted into non-leachable vitrified lava, which is non-hazardous.</p>
S028	<p>Photocatalytic Degradation of Toluene in a Continuous Flow Reactor Using TiO₂ and UV Light Chiu-Hsuan Lee, Je-Lueng Shie, Fang-Ru Kuo and Ching-Yuan Chang</p> <p>Abstract-This study investigated the photocatalytic degradation of volatile organic compounds (VOCs) (taking toluene as target material) from indoor pollution source using a continuous flow reactor with TiO₂ at ultraviolet lamp (254 nm, UVC). From the characteristic analyses, the maximum absorbance wavelength is major at 250 nm from UV/vis spectrum and it proved that UVC is that peak absorbance wavelength of TiO₂. XRD patterns show that the major crystal composition is composed of about 70% anatase, and part of the rutile of 30%. From SEM spectrum, the average particle size of TiO₂ is between 40-50 nm. I-V curve of PECSC of TiO₂ also proved that there is really low photoelectrochemical effect of TiO₂ under the visible light source. Therefore, UVC light is the best light choice. In the continuous flow reactor, the vapor toluene was volatilized from mixing toluene liquid, and the initial concentration was decreased from 3632.81 to 358.06 ppmv with the volatilized temperature of 288 to 275 K, respectively. In the case of air flow rate of 30 mL min⁻¹ and initial concentration of 358.06 ppmv, the toluene maximum removal efficiency with UVC light was more than 72.38%. The photocatalytic degradation efficiency increased with the initial concentration decreased as expected. The removal mass of toluene increased from 44.45 to 151.31 mg g⁻¹-TiO₂ as the initial concentration of 3632.81 to 358.06 ppmv, respectively. This is very useful information and design specifications for scientific researchers.</p>
S032	<p>Thermal Plasma Reforming of CO₂ and Toluene as a Model Compound of Biomass Tar Je-Lueng Shie and Fang-Ru Kuo</p> <p>Abstract-This study investigated the photocatalytic degradation of volatile organic compounds (VOCs) (taking toluene as target material) from indoor pollution source using a continuous flow reactor with TiO₂ at ultraviolet lamp (254 nm, UVC). From the characteristic analyses, the maximum absorbance wavelength is major at 250 nm from UV/vis spectrum and it proved that UVC is that peak absorbance wavelength of TiO₂. XRD patterns show that the major crystal composition is composed of about 70% anatase, and part of the rutile of 30%. From SEM spectrum, the average particle size of TiO₂ is between 40-50 nm. I-V curve of PECSC of TiO₂ also proved that there is really low photoelectrochemical effect of TiO₂ under the visible light source. Therefore, UVC light is the best light choice. In the continuous flow reactor, the vapor toluene was volatilized from mixing toluene liquid, and the initial concentration was decreased from 3632.81 to 358.06 ppmv with the volatilized temperature of 288 to 275 K, respectively. In the case of air flow rate of 30 mL min⁻¹ and initial concentration of 358.06 ppmv, the toluene maximum removal efficiency with UVC light was more than 72.38%. The photocatalytic degradation efficiency increased with the initial concentration decreased as expected. The removal mass of toluene increased from 44.45 to 151.31 mg g⁻¹-TiO₂ as the initial concentration of 3632.81 to 358.06 ppmv, respectively. This is very useful information and design</p>

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12:30pm-1:30pm —Best Paper Awarding and Lunch (Lime Restaurant)

Afternoon, January 5, 2014

SESSION – 2 (ICFEE 2014)

Venue: Apple

Session Chair: Je-Lueng Shie

Time: 1:30pm – 3:40pm for 13 presentations

S027	<p>Competitive degradation of imidacloprid in the presence of humic acids by Fenton process at neutral environment Chihhao Fan and Shih-Jian Li</p> <p>Abstract-This study aimed to investigate the imidacloprid degradation in the presence of humic acid by Fenton process. The Fenton degradation experiments were conducted at various H₂O₂ and Fe²⁺ concentrations to determine the best Fenton reagent dosages. The imidacloprid removal of 87.13% was observed at the Fenton reagent ratio ([H₂O₂]:[Fe²⁺]) of 6mM:6mM. In the presence of humic acid, the imidacloprid removal was found slightly decreased to 73.39% at the Fenton reagent ratio ([H₂O₂]:[Fe²⁺]) of 6mM:6mM. The humic acid was found to compete with imicacloprid for hydroxyl radicals. For the molecular weight variation, the addition of ferrous ions in the humic acid solution initiated the reactions between Fe²⁺/Fe³⁺ redox couples and humic acids, breaking the humic acid (molecular weight of 3578) into smaller fractions (molecular weight of 782). These organic fractions were further oxidized into even smaller molecules by hydroxyl radicals (molecular weight of 383) after H₂O₂ addition.</p>
S029	<p>Analytical Method for Evaluating Output Fluctuation in Distributed Wind Farms Pradeepa Lakmal WEVITA, Ryuji MATSUHASHI and Tsuyoshi YOSHIOKA</p> <p>Abstract-In this study we examine output power of 12 geographically distributed wind farms in Tohoku area in east Japan to understand the nature of wind power fluctuations. The main objectives of this study are to suggest an analytical method to evaluate the output fluctuations of distributed wind power generation and estimate the impacts on the power systems in the event of high penetration levels of wind energy. We analyzed measured wind power data for period of 1 year with the sampling period of 10 seconds, which is converted to frequency domain and correlation characteristics are calculated using frequency components of Power Spectral Diagrams (PSD). The results show that the fluctuations with a time period less than 40 minutes are non-correlated. We were also able to observe seasonal and regional patterns of correlation coefficients. Furthermore, our examination of data shows clearly that the smoothing effect of distributed wind farms can contribute largely to its output fluctuation.</p>

	<p>We also discuss the expected impacts on power system stability, in the event of high level wind power penetration and we recommend the correlation analysis of wind power is essential to utilize the maximum wind power resources into power systems.</p>
S1002	<p>Constructed Wetland with Mixed Mangrove and Non-mangrove Plants for Municipal Sewage Treatment Nora Fung-yee TAM and Yuk-shan WONG</p> <p>Abstract-A constructed wetland wastewater treatment facility with mixed plant species was established successfully in Shenzhen, China. The effluent data indicated that the system was effective in removing pollutants such as COD, $\text{NH}_4^+\text{-N}$, TP and heavy metals. With the good growth of mangrove and non-mangrove wetland plants, the constructed wetland not only played an important role in wastewater treatment, but also provided ecological, recreational and educational functions for the local community. This wastewater treatment facility demonstrated to be a favourable supplement to conventional treatment facilities.</p>
S1003	<p>Energy Use and Consumption of Thailand's Commercial Buildings in 2010 Zhenyi Li, Suapphong Kritsanawonghong, Weijun Gao</p> <p>Abstract-This study is a part of a project that aims at making an energy consumption database for buildings on a national scale in Asia countries. This paper describes the outline of surveyed buildings and the energy consumption in Thailand of 2010. Survey items are the building scale, the proportion of main application, the business hours, the ownership form, the combination of energy usage, the completion year, and so on. 1287 building were surveyed and the energy consumption in 1101 buildings were analyzed. In this paper, the statistical method is applied to process the survey data and the current situation of energy consumption of commercial buildings in Thailand is discussed according to the different survey items.</p>
S1004	<p>The cost performance of Dynamic Pricing and Storage Battery Technology in a Residential House Yao Zhang, Xingzhi Shi, Weijun Gao</p> <p>Abstract-This paper tries to investigate the effect of dynamic pricing system on the residential house use and also tries to analyze the influence of introducing the storage battery technology into the dynamic pricing system. Through the calculation, get the conclusion that it has little economic benefit for residents by using dynamic price. Meanwhile, this study proposed two different situations to solve the contradiction between the improvement of grid and the residential consumers' benefit.</p>
S1005	<p>Solar Energy Benefit to the Corporate Sector Srinivasan Chinnammai</p> <p>Abstract-The use of solar energy as a power source is not a new one. Solar energy technology has different set of dynamics from other renewable energy sources. Solar devices have the heat storage and consequently, generate power even after sunset. In solar energy there is also an added opportunity of locally sourcing raw material at a moderate cost. It has and additional advantage of being able to generate electricity right after the construction of the collector. In other technologies, there is usually a gap between plant construction and production of electricity, which increases the interest cost to investments made. Moreover, the world has plenty of silicon. It is the second most common element in the earth's crust, trailing only oxygen. Therefore it is very much popular among the countries.</p>
S1007	<p>Preliminary Study on Variety Comparison of Germplasm Resources of Vernicia fordii</p>

	<p>Cheng-nan Wang, Xiao-feng Tan, Huai-yun Zhang, Rui-chun Huang and Hong-xu Long</p> <p>Abstract-The Chinese National Forestry Germplasm Library collected the first batch of 54 improved Tung Tree (<i>Vernicia fordii</i>) strains in 2007. This research investigates the tree structure, fruit cluster character and yield in the 3rd year of afforestation. Then, comprehensive evaluation is conducted with fuzzy mathematics. Experiment results indicate Hongyan 3, Luxi 1 and Superior Single Plant 8-504 are the most ideal candidates for industrial scale Tung Oil production.</p>
S2001	<p>Correlations of Light Intensity and Humidity factor on Power Performance for Fixed Flat PV generator. A short term field evaluation in the tropics</p> <p>M. Effendy Ya'acob, Hashim Hizam, M. Amran M. Radzi, Tamer Khatib</p> <p>Abstract-This paper shares some field observations for two environmental factors of humidity (% RH) and light intensity (Lumens) towards the field performance of 1 kW Fixed Flat (FF) PV generator system installed in tropical ground condition. The reliability, energy efficiency and durability of PV generators largely depends on environmental factors due to its locality nature to be installed outside and withstanding extreme weather conditions up to 20 years of thermal cycles. Results from the multiple linear regression (MLR) technique and analysis of variance (ANOVA) shows that light intensity and humidity projects a fairly strong correlation factor of 0.89 within the specified confidence intervals.</p>
S2005	<p>Effect of synthetic antioxidants on emission characteristics of a coconut biodiesel powered diesel engine</p> <p>I. M. Rizwanul Fattah, H. H. Masjuki, M. A. Kalam, and B.M. Masum</p> <p>Abstract-Biodiesel is a green fuel produced from renewable resources. It is a clean-burning alternative fuel which drawn attention of the energy researchers for last two decades. Coconut biodiesel (CME) is one of the promising biodiesels in South East Asian region. This paper presents experimental investigation to determine the ability of antioxidant added coconut biodiesel blends to improve engine exhaust emissions characteristics of a diesel engine. Antioxidants butylated hydroxyanisole (BHA) and butylated hydroxytoluene (BHT) were added at a concentration of 2000 ppm to 20% CME (B20). A 55 kW 2.5L four-cylinder diesel engine was used to carry out tests at constant speed of 3500 rpm at half and full load. BHA added B20 produced 1-1.1% lower NO_x, 8.3-13.9% lower carbon monoxide (CO) but higher hydrocarbon (HC) emissions at the operating condition compared to B20.</p>
S3003	<p>Bio-safety evaluation for biocomposites flocculation purified polluted water of Shenzhen Offshore</p> <p>Zhang Rui, Yang Xiaomao, Zhenye Zhao, Li Guifeng</p> <p>Abstract-The coastal water of Shenzhen western was seriously polluted. In this paper, the polluted water was treated by a series of composite flocculants. By selecting the best composite flocculants companied with bacterium for water treatments, the results have shown better effects. The turbidity of treated water decreased by 93.82%, the NH₃-N level decreased by 86.13%, the TN decreased by 83.41%, the TP decreased by 78.97%, the COD decreased by 81.27%, and the level of harmful marine vibrio decreased by 98.25%. The results showed that selected flocculants companied with bacterium treatment can greatly reduce the mortality of shrimps to 34% from 100%. Our results demonstrate that composite flocculants companied with bacterium can be used for the effective treatment of coastal wastewater, and it was safe to both the marine life and marine environment. This study established solid theoretical and</p>

	practical foundations to control coastal pollution and restore the coastal ecology.
S3005	<p>Green Urban Communities Sustainability & Energy Efficiency</p> <p>I. M. Eldemery</p> <p>Abstract-Sustainability & Energy efficiency nowadays are considered the most challenging agenda in new urban communities. Modernization has led to increased initiatives regarding sustainability, where it became an essential concern in the discourse of architecture and urban planning. Although sustainability has received great attention, it still remains the most glaring challenge in terms of its demand. The article aims at bringing traditional solutions, modern technologies and knowledge in tune with such practices to provide sustainability interacting with natural climatic conditions. The article attempts at highlighting sustainability challenge including its implications for the built environment and consequently the various stakeholders, in order to design more energy efficiently and environmental friendly communities, growing the capability of building industry in the areas of design and operation of green building design.</p>
S3012	<p>An Analysis of Industrial sector Greenhouse gas effects towards Sustainable Economic Development by enhancing Organic Rubber Cultivation in Sri-Lanka</p> <p>L.F.D De Z Gunathilaka, A. Jayatilleka and M. Weerasinghe</p> <p>Abstract-This paper focuses on the Sri Lankan rubber manufacturing & plantation sector in reviewing its influence towards the decrease of CO₂. The objective of this study is to initiate a new strategy - “Agro-Industrial Revolution” through which the Sri Lankan apparel sector merges with Rubber sector to negate the effects of emissions originated from apparel industry. The ultimate objective of this study is to review the Apparel sector organizations in Sri Lanka to determine the extent of fossil fuel burning and pragmatic carbon offsetting steps. Rubber falls under “Cash crop-forest cover” category contributing directly to reducing CO₂. Therefore encouraging Sri Lanka’s biggest export earner, apparel industry, to utilize our own agri - base of rubber to reduce global warming can be a “win- win” situation, enhancing economic benefits to Sri Lanka in the process of reducing global warming. Such a strategic decision truly creates a Revolution by more smallholder land owners wanting to grow rubber and rubber product manufacturers increasing exports. This truly is sustainable development. Currently there are around 270 apparel factories in Sri Lanka and 50 apparel companies were selected for the present study.</p>
S3014	<p>Thermodynamic analysis of radiation induced segregation and nano-precipitation in ferrite steels</p> <p>G. Kaptay, C. Mekler, A. Vegh</p> <p>Abstract-Two effects of radiation on the nano/micro structure of ferritic steels is analyzed using chemical thermodynamics of nano-systems: Segregation of phosphorous to the grain boundaries, which is found to be not a continuous function of bulk P-concentration, due to so called „interface phase transition” Precipitation of Cu-rich nano-particles.</p>

3:40pm- 4:00pm —Best Paper Awarding and Coffee Break

Afternoon, January 5, 2014

SESSION – 3 (ICBBB 2014)

Venue: Apple

Session Chair: Dr. Kelvin Kian Loong Wong

Time: 4:00pm – 6:00pm for 12 Presentations

E0003	<p>Bioinformatical Development of Oligonucleotides for the d Chain Gene of the Giant Extracellular Hemoglobin of <i>Glossoscolex Paulistus</i> Érico M. Polo, Rosiane P. Santos, Leonardo M. Moreira, and Gabriel M. Yazbeck</p> <p>Abstract—Aiming the isolation and molecular characterization of the gene for the d polypeptide chain of giant extracellular hemoglobin of <i>Glossoscolex paulistus</i> (HbGp), we present the design of oligonucleotides to DNA hybridization procedures. From a described amino acid sequence, we performed reverse translation, with an algorithm, which searched for regions with maximum density of non-degenerate codons, focusing minimization of the number of putative oligonucleotide probes. Fourteen different partial oligopeptide sequences six, seven or eight residues long resulted in 64, 256 and 512 possible coding sequences, respectively. Based on the similarity with d chain of the hemoglobin from <i>Lumbricus terrestris</i> (HbLt), we ranked the resulting sequences. This narrowed the candidate sequences to 2, 20 and 24 possible probes 18, 21 and 24 nucleotides long, respectively, from selecting the highest scoring sequences. We filtered the set of putative probes based on the relative frequency of codon usage from <i>L. terrestris</i>. Sequences with the higher scores were chosen, favoring shorter sequences. Thus, five sequences targeting two different regions and possible primer pairs for PCR with the HbGp d chain gene were obtained. These oligonucleotides can be employed in hybridization and PCR essays in <i>G. paulistus</i> genomic DNA.</p>
E0004	<p>Preparation Chitosan Lactate-Hyaluronate Sponges with Unidirectional Porous Structure and Their Potential Use as Wound Dressings Chen Lai</p> <p>Abstract—Sponges were prepared from lactic acid-grafted chitosan (LCH) and hyaluronate (HA) to develop potential materials for wound dressing. Sponges with different microstructures can be obtained in a vertical temperature-controlled device and in an aluminum vessel. The morphology and permeability properties, including porosity, water permeability, gas permeability, water adsorption and in vitro biodegradation of two types of sponges were compared in detail. Sponges with microtubule-oriented structure can be obtained in a vertical temperature-controlled device with TBA (tertiary butyl alcohol). These sponges exhibited an applicable water permeation rate of $577 \text{ g}\cdot\text{m}^{-2}\cdot\text{day}^{-1}$ and higher air permeability tensor of 3×10^{-12}. The sponges with random micropores can be prepared in an aluminum vessel. These sponges exhibited a water permeation rate and an air permeability tensor of $452 \text{ g}\cdot\text{m}^{-2}\cdot\text{day}^{-1}$ and $1.8 \times 10^{-14} \text{ g}\cdot\text{m}^{-2}\cdot\text{day}^{-1}$, respectively. These results also indicated that TBA greatly affected the microstructure of the resulting sponges. A parallel orientation of the pore structure resulted in higher porosity and higher water adsorption capacity than random pores. After lactic acid was grafted, the crystallinity of chitosan decreased and water solubility increased, causing rapid lysozymatic degradation of chitosan lactate-HA sponges. The resulting sponges exhibited high water content, gas permeability and</p>

	appropriate water permeation; such sponges could easily be applied and removed. These properties indicated that these materials are highly applicable as wound dressing.
E0005	<p>Analysis of Epileptic EEG Signals with Simple Random Sampling J48 Algorithm Shuaifang Wang, Guohun Zhu, Yan Li, Peng Wen, and Bo Song</p> <p>Abstract—This paper describes the application of a Simple Random Sampling J48 (SRS-J48) model for classification of electroencephalogram (EEG) signals. Decision making is performed in two stages: feature extraction and classification. Eight statistical features are extracted from a two-level sample set model based on SRS technique and then classified by the J48 decision tree algorithm in Weka. The classification accuracy of the SRS-J48 is 16.35% higher than that of J48 according to the five groups of experiment with only 13% execution time on average. Besides, the proposed SRS-J48 algorithm has competitive or even better results on some of the experimental groups than Siuly's Simple Random Sampling-Least Square-Support Vector Machine (SRS-LS-SVM).</p>
E0008	<p>Fabrication of Tissue Engineering Scaffold from Hydroxyapatite/ Alginate Composite Masoumeh Haghbin Nazarpak and Farzaneh Pourasgari</p> <p>Abstract—Scaffolds for bone tissue engineering must meet the functional requirements, porosity, biocompatibility, and biodegradability. In this study, hydroxyapatite was prepared by wet chemical method and incorporated into the alginate gel solution to improve both the mechanical and cell-attachment properties of the scaffolds. Next, composite scaffolds were fabricated from hydroxyapatite/alginate with different weight ratios by freeze drying method and then some of them coated with triblock copolymer and compared with others. Microstructure observation with SEM suggests the formation of about 50 micrometer size porous structure and interconnected porosity. Then, human mesenchymal stem cells were cultured on the composite scaffolds. Cells adhesion to the scaffolds was observed after three days by DAPI fluorescence microscopy in which more cells adhesion to the coated scaffolds and cells diffusion into the pores are visible. Also, cell adhesion within the structure was observed by SEM in which showed cell attachment was well in depth which confirms DAPI results. These results suggest that the triblock-coated HA/Alg porous scaffolds could provide enhanced cell adhesion and proliferation which may be a promising approach for bone tissue-engineering applications.</p>
E0009	<p>Application of Advanced Spectral Analysis for Rehabilitation Progress Estimation Concerning Patients after Ischemic Brain Stroke Ewaryst Tkacz, Ivo Provaznik, and Paweł Kostka</p> <p>Abstract—It is possible to observe recently that application of the simple, known tools for biomedical signals processing is no longer justified. The problems under analysis frequently require application of more and more sophisticated tools. This is the case in attempt of estimation of rehabilitation progress referring to patients after ischemic brain stroke. Classic approach apply acquisition of EEG signal and following that application of different signal processing tools for analysis and classification of patients after ischemic brain stroke using e.g. Scandinavian scale. In this paper the totally different, indirect approach is discussed. Instead of EEG the application of relatively easier for acquisition signal such as HRV is applied. However, again classic analysis methods well established in Task Force report such as power spectral estimation present several disadvantages like e.g. loss of phase information. The trends turn the attention into more sophisticated methods and one among them concerns application of the second order statistics and following that calculation of both bispectrum</p>

	<p>and bicoherence. The presented considerations are in fact first serious study after years of existing of mentioned tool. However the difficulties in calculations put that tool into the background of signal processing method. The general trend in current analysis of such signal is focused on application of sort of hybrid method taking into account methods from different areas and creating in that way a novel approach by attempt of application of indirect method allowing effective conclusions.</p>
E0010	<p>Study of the Teaching of Biodiversity as a General Undergraduate Course in a University of Taiwan Oi-Tong Mak Abstract—The development of biodiversity has great impact on human society and economical lives recently. It has become an important issue in the 21st century. Cooperating with biotechnology, they have become the strategy of national long term development. However, in Taiwan there are not many studies concerning the biodiversity curriculum, and most of the recent studies involved are of teachers of primary and secondary students for subject evaluation. It is important to promote the concept of biodiversity among the non-biological undergraduate students and provide enough information for them to understand the basic principle of biodiversity. It is also a challenge to develop the program for biodiversity course in university, and necessary to study the conceptual analysis and curriculum development in biodiversity course for the undergraduate students. In this study, biodiversity conceptual analysis for the reference of curriculum development and the tool of course evaluation in National Cheng Kung University were carried out in order to put the course into practice, design the teaching course and prepare the teaching strategy.</p>
E0011	<p>Comparative Study of Different Computational Systems for Analysis of DNA and Protein Sequences Fakiha Shamsi, Zulfiqar A. Memon, Abdul Rehman Soomrani, and Qamar uddin Khand Abstract—Comparison between DNA's and protein structures of human genome is the subject of this paper. We will discuss some basic models static and dynamic for modeling biological systems, different alignment algorithms and issues regarding each. For the rest of paper we will also discuss several issues relating with each approach there advantages and disadvantages and in the end we also will discuss future advancements that may be considered for further development in this area.</p>
E0016	<p>Measurement and Analysis of the Diameter of Appendix based on Ultrasound Images J. Lam, C. Pahl, H. N. Abduljabbar, and E. Supriyanto Abstract—One of the most common cause of emergency surgery of the abdomen is acute appendicitis. Early and accurate diagnosis of appendicitis can decrease the morbidity and hospital cost by reducing the delay in diagnosis of appendicitis and its associated complications. In current clinical practice, the measurement of the outer appendiceal diameter by sonographers has been used as one of the indication to confirm acute appendicitis, where the value greater than 6 mm is considered to be a sign of acute appendicitis. However, since ultrasound image itself is in low quality due to speckle noise, error in manual measurement by the sonographers might occur due to wrong detection of the appendiceal edge or wrong placement of the calliper. Thus, we propose certain image processing techniques to enhance the image quality to help sonographers in performing a better diagnosis. This paper proposed a series of image processing method including image enhancement, image segmentation and edge detection before measuring the appendiceal. Selection of image enhancement method is</p>

	<p>made based on MSE and PSNR values while selection of image segmentation method is made based on the segmented image and execution time. Ten trials of measurement by sonographers using ultrasound and measurement after image processing were gathered. Statistical analyses of both measurements were computed. Mean and standard deviation for the sonographers measurements and measurements after image processing are 4.937 ± 0.14mm and 4.613710 ± 0.08mm respectively. Sonographers measurement showed higher variability compared to measurement after image processing thus measuring the appendiceal diameter after image processing can be helpful for a better diagnosis.</p>
E1005	<p>Quality Characteristics of Smoked Skipjack (<i>Katsuwonuspelamis</i>) Using Different Liquid Smoke</p> <p>Fronthea Swastawati, Y. S. Darmanto, L. Sya'rani, K. RahayuKuswanto, and K. D. Anthony Taylor</p> <p>Abstract—The application of liquid smoke to improve quality of smoked skipjack (<i>Katsuwonuspelamis</i>) was studied in this research. Two different liquid smoke i.e. paddy chaff (PLS) and coconut shell liquid smoke (CLS) were applied to smoked fish. Both liquid smoke (PLS and CLS) were determined their chemical compound such as phenol; pH; and Benzo(α)pyrene, while the smoked skipjack were analysed in terms of sensory, microbiological and chemical aspect. The result showed that total phenolic derivatives found in PLS were 25,1%, lower than that of CLS of 26,31%; The pH value of PLS was 3,2; slightly higher than the CLS of 2,5; Benzo(α)pyrene was not detected in both PLS and CLS; but were found in smoked skipjack 9.55 and 8.72 ppm respectively. Sensory values of smoked fish produced by PLS were 7.7 and CLS was 7.8. Moisture content of the PLS smoked fish was 54.02% lower than CLS smoked fish that was 54.34%; Examination of t-test Independent Sample to the moisture content showed no significantly different ($P > 0.05$); TVC on PLS skipjack was 153 cfu/g very significantly higher ($P < 0.01$) than smoked skipjack using CLS that was 76 cfu/g.</p>
E1007	<p>Comparison of AutoDock and Glide towards the Discovery of PPAR Agonists</p> <p>Rajyalakshmi Gaddipati, Gitesh K Raikundalia, and Michael L Mathai</p> <p>Abstract—Peroxisome Proliferator Activated Receptors are lipid-sensors and regulate energy metabolism. The agonists of PPARs are of interest to the pharmaceutical industry since they regulate the expression of genes associated with diseases like cancer, diabetes, atherosclerosis and obesity. Synthetic agonists are more likely to cause side effects. Hence eight naturally occurring lipid ligands (tocotrienol α, β, γ and δ, DHA, EPA, 2-Arachidonyl Glycerol and Anandamide) were tested for their ability to act as the agonists of PPARs. DHA and EPA were identified as the dual agonists of PPAR α and γ. DHA and EPA have beneficial health effects in the treatment of cancer, obesity and inflammatory diseases. Two different docking methods Autodock and Glide were performed to compare their suitability for PPARs. Interestingly in both the docking programs the ligands have occupied the same binding pocket confirming the selection of active site. Autodock yielded better results than Glide for PPAR α and γ whereas the performance of Glide was better in case of PPAR δ.</p>
E3001	<p>Medium Optimization for Production of <i>Beauveria bassiana</i> BNBCRC Spores from Biohydrogen Effluent of Palm Oil Mill Using Taguchi Design</p> <p>Wanida Petlamul and Poonsuk Prasertsan</p> <p>Abstract—<i>Beauveria bassiana</i> is an efficient entomopathogenic fungus for biological control. Optimization on medium for the production of <i>B. bassiana</i> BNBCRC spores in</p>

	<p>biohydrogen effluent (BHE)-based liquid culture was investigated using Taguchi design. The effects of inorganic and organic nitrogen, trace element as well as the dilution rate of BHE: distilled water were studied in BHE-based composition. The highest spore concentration of <i>B. bassiana</i> BNBCRC was 4.46×10^8 spores mL⁻¹ in the diluted BHE-based medium containing 3.60 g L⁻¹ KNO₃, 4.55 g L⁻¹ yeast extract and 0.50 g L⁻¹ CaCl₂ under the optimal dilution rate of 60: 40. The determination coefficient (R^2) was 0.99, which ensure an adequate credibility of the model.</p>
E3007	<p>Advance Oxidation Protein Products (AOPPs) of Newborn At Risk of Sepsis as Novel Parameter For Early-Onset Neonatal Sepsis Ari Yunanto, Rizky Taufan Firdaus, Triawanti, and Eko Suhartono</p> <p>Abstract—Neonatal sepsis is a clinical syndrome of bacteremia and divided into two different types, early-onset neonatal sepsis and late-onset neonatal sepsis. Sepsis promotes the unbalanced production of oxidant and anti-oxidant substances, causing an excess of free oxygen compounds. Early markers of neonatal sepsis have been studied in recent years, and this study proposed another parameter to detect early-onset neonatal sepsis with the use of advance oxidation protein products (AOPPs). This study was conducted in April - June 2012, saliva and serum specimens were taken from 81 newborns, in which 39 infants were at risk of sepsis and 42 infants were healthy and served as a control group. Data was analyzed by using Mann-Whitney test and Spearman correlation test. This study suggested that there is significant difference between AOPPs level on the case group compare to the control group. This study also found that there is significant difference between salivary AOPPs level compare to serum AOPPs level. As the conclusion, this study proposed that the AOPPs parameter may be used as another marker to detect early-onset neonatal sepsis.</p>

**7:00pm ----- Best Paper Awarding and Dinner
(Apple)**

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	ICFEB 2014	<u>2014 5th International Conference on Food Engineering and Biotechnology (ICFEB 2014)</u> www.icfeb.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618)
	ICBET 2014	<u>2014 4th International Conference on Biomedical Engineering and Technology (ICBET 2014)</u> www.icbet.org/	APCBEE Procedia (Journal under Elsevier, ISSN: 2212-6708)
March 29-30, 2014 Shanghai, China	ICFSN 2014	<u>2014 International Conference on Food Security and Nutrition (ICFSN 2014)</u> www.icfsn.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618)
	ICBCS 2014	<u>2014 International Conference on Biological and Chemical Sciences (ICBCS 2014)</u> www.icbcs.net/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221)
	ICCUE 2014	<u>2014 International Conference on Civil and Urban Engineering (ICCUE 2014)</u> www.iccue.org/	International Journal of Engineering and Technology (IJET, ISSN:1793-8236)
April 3-5, 2014 Dubai, UAE	ICCFE 2014	<u>2014 International Conference on Chemical and Food Engineering (ICCFE 2014)</u> www.iccfe.com/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221)
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	ICCOE 2014	<u>2014 International Conference on Coastal and Ocean Engineering (ICCOE 2014)</u> www.iccoe.net/	Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)
April 24-26, 2014 Erzurum, Turkey	ICBFS 2014	<u>2014 5th International Conference on Biotechnology and Food Science (ICBFS 2014)</u> www.icbfs.org/	International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638)
	ICESE 2014	<u>2014 4th International Conference on Environment Science and Engineering (ICESE 2014)</u> www.icese.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618)

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	ICLST 2014	<u>2014 4th International Conference on Life Science and Technology (ICLST 2014)</u> www.iclst.org/	Journal of Life Sciences and Technologies (JOLST, ISSN: 2301-3672)
May 14-16, 2014 Gdansk, Poland	ICBBT 2014	<u>2014 6th International Conference on Bioinformatics and Biomedical Technology (ICBBT 2014)</u> www.icbbt.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618)
	ICEST 2014	<u>2014 5th International Conference on Environmental Science and Technology (ICEST 2014)</u> www.icest.org/	Volume of Journal (IPCBEE, ISSN: 2010-4618)
	ICPIE 2014	<u>2014 3rd International Conference on Petroleum Industry and Energy (ICPIE 2014)</u> www.icpie.org/	Journal of Industrial and Intelligent Information (JIII, ISSN: 2301-3745)
May 27-28, 2014 Sydney, Australia	ICEED 2014	<u>2014 International Conference on Environmental Engineering and Development (ICEED 2014)</u> www.iceed.net/	JOCET (ISSN: 1793-821X)
	ICBPE 2014	<u>2014 International Conference on Biomedical and Pharmaceutical Engineering (ICBPE 2014)</u> www.icbpe.org/	Journal of Medical and Bioengineering(JOMB, ISSN: 2301-3796)
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