2013 APCBEES ROME CONFERENCES SCHEDULE

2013 3rd International Conference on Bioscience, Biochemistry and Bioinformatics (ICBBB 2013)
2013 2nd International Conference on Climate Change and Humanity (ICCCH 2013)
2013 3rd International Conference on Future Environment and Energy (ICFEE 2013)
2013 1st Journal Conference on Environmental Science and Development (JCESD 2013[1st])

Rome, Italy

Starhotels Metropole

February 24-25, 2013

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February 24, 2013 (Sunday)

Starhotels Metropole

10: 00 – 12: 30 13: 30 – 17: 00	Arrival and Registration

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 session. The Certificate for Excellent Papers and will be awarded in the Closing Ceremony on February 25, 2013.

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 10 Minutes of Presentation 5 Minutes of Q&A

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

Conference website and Secretariat Contact:

ICBBB 2013: www.icbbb.org icbbb@cbees.org

ICCCH 2013: www.iccch.org iccch@cbees.org

ICFEE 2013: www.icfee.org icfee@cbees.org

Morning, February 25, 2013 (Monday)

Venue: TREVI

08:30- 08:40	Opening Remarks Saji Baby Environmental Manager (Research and Consultation) & Principal Scientist GEO Environmental Consultation
08:40-09:10	Keynote Speaker I Prof. Dr. Gustavo Graciano Fonseca Federal University of Grande Dourados, Faculty of Engineering Rodovia Dourados-Itahum, Km 12 - Cidade Universitária, Brasil "The yeast Kluyveromyces marxianus as a platform for biotechnological applications"
09:10 – 09:40	Keynote Speaker II Saji Baby Environmental Manager (Research and Consultation) & Principal Scientist GEO Environmental Consultation "DISTRICT COOLING: SUSTAINED AND HIGH-EFFICENT ALTERNATIVE COOLING SYSTEM AND VALUE ADDED RECOMMENDATIONS"
09:40-10:00	Taking Photo and Coffee Break

Morning, February 25, 2013 (Monday)

SESSION – 1 (ICCCH & IJESD)
Venue: TREVI
Session Chair: Piyakarn Teartisup
Time: 10:00 – 12:30

CD0092	Land Suitability Analysis for Policy Making Assistance: A GIS based Land Suitability Comparison between Surface and Drip Irrigation Systems **Ahmed Harb Rabia,** H. Figueredo, T. L. Huong, B. A. A. Lopez, H. W. Solomon, and V. Alessandro *Abstract*—Land suitability assessment for irrigation is a very important tool not only in terms of agriculture development planning, but also to overcome the global problem of water scarcity. The aim of this study is to spatially evaluate land suitability of the study area, Kilte Awulaelo district in Ethiopia, for surface and drip irrigation methods based on GIS and remote sensing approaches. This work has been done as a part of the 29th Course Professional Master in Istituto Agronomico per l'Oltremare, Florence, Italy. Final suitability maps show the irregularity of suitability classes' distribution over the study area. Results show that only 15% of the study area is suitable for surface irrigation. This is due to the limitation of the topography and stoniness factors for surface irrigation suitability. GIS and remote sensing was highly efficient for modeling and developing land suitability maps together with spatially compare land suitability for deferent irrigation methods.
CD0093	Trinitrotoluene and Its Metabolites in Shoots and Roots of *Panicum maximum* in Nano-Phytoremediation Waraporn Jiamjitrpanich, Preeda Parkpian, Chongrak Polprasert and **Rachain Kosanlavit** *Abstract*—Phytoremediation is one of chemical removal methods but this is a long term process. Nanotechnology is a novelty method that can be used for toxic remediation. The objective of this study aimed to determine Trinitrotoluene (TNT), 2-amino-4,6-dinitrotoluene (2-ADNT) and

	4-amino-2,6-dinitrotoluene (4-ADNT) translocation in shoots and roots based on the nano-phytoremediation experiments. For methodology, the transplantation method of *Panicum maximum* (Purple guinea grass) were selected for this study. The plants were transferred and grown in the soil that was spiked with TNT with concentrations of 100 and 500 mg/kg and also added with nanoscale zero valent iron (nZVI) with concentrations of 100, 500, and 1000 mg/kg. The determination of TNT accumulation in *Panicum maximum* was carried out after harvesting at the end of 1st, 2nd, 3rd, and 4th months. The plants were divided into shoots and roots for the measurements of TNT and its metabolite residue concentrations. The present study can be concluded that the TNT uptake by roots in nZVI added soil was more effective than that without nZVI, particularly, the experiments with TNT concentration of 500 mg/kg. The results also showed that TNT was found in roots higher than that in shoots in all experimental groups. The 2-ADNT and 4-ADNT were only found in roots in all sets of the experiments. Both metabolites were undetectable in shoots.
CD0095	Effect of Natural Resin on Strength Parameters of Sandy Soil **H. Suha Aksoy** and Mesut Gor *Abstract*—Nowadays, strength characteristics of soils have more importance due to increasing building loads. In some projects, geotechnical properties of the soils should be improved. Geotechnical engineers generally use waste materials to improve soil properties but most of these materials have toxic substances such as heavy metal slags, fly ash, silica fume and industrial resins. In this study, the effects of the addition of a plant gum, named as astragalus, grown commonly in Central and East Anatolia, Iran, Iraq, Turkmenistan and Transcaucasia, on the stability and strength parameters of cohessionless soil were investigated. Astragalus is a pure natural and environmental friendly material. Ground water directly affected by soil additives which used for soil improvement. In this investigation, properties of a cohessionless soil were stabilized by using astragalus. In order to find out which rate of the additive caused maximum strength parameters of the soil samples which prepared by using four different replacement amounts of 0%, 3%, 5% and 10% by weight of soil. Maximum dry densities and optimum moisture contents were determined for each mixture. Strength parameters of each mixture were also determined. According to experimental study, adding 1% of astragalus content is convenient for sandy soil when considered strength parameters and economical respect of additive material.
CD0097	Introducing a New Parametric Concept for Land Suitability Assessment **Ahmed Harb Rabia** *Abstract*—In an ecosystem, there is need to establish the quantity and quality of resources and their suitability for a certain range of land uses in order to assure its future productivity and sustainability of biodiversity. Parametric methods are widely used for land suitability evaluation. A new parametric concept "equation" of land suitability evaluation has been proposed to improve results of land suitability evaluation. Land suitability assessment for wheat production was conducted in order to compare results of the suggest method with classical parametric methods. Organic matter, CaCO3, pH, Slope, texture, drainage, depth, EC and altitude were recognized as factors affecting land suitability for wheat production in the study area. Comparing results of the three parametric methods used showed that the proposed equation gave higher suitability index values than classical methods. Great correlation has been found between results of the three methods. Organic matter, topology and pH were found to be the limiting factors for wheat production in the study area. Generally, the proposed equation may improve land suitability assessment process and gives better realistic results.
CD0098	Constructed Wetland for Wastewater Treatment and Reuse: A Case Study of Developing Country **Atif Mustafa**

	Abstract—Treatment performance of a pilot-scale constructed wetland (CW) commissioned in a developing country was evaluated for removal efficiency of biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), ammonia-nitrogen (NH4-N), ortho-phosphate (PO4-P), total coliforms (TC) and faecal coliforms (FC) from pretreated domestic wastewater. Monitoring of wetland influent and effluent was carried out for a period of 8 months. Treatment effectiveness was evaluated which indicated good mean removal efficiencies; BOD (50%), COD (44%), TSS (78%), NH4-N (49%), PO4-P (52%), TC (93%) and FC (98%). The studied constructed wetland reduced concentrations of all contaminants present in the pretreated wastewater. The performance of contaminant removal varied throughout the monitoring period. The treated effluent from the constructed wetland can be reused for landscape irrigation. Few samples of BOD and TSS were within the US EPA reuse limits which shows that the constructed wetland can effectively treat the wastewater and fulfill the reuse limits occasionally. Faecal coliforms were not fully removed but the limits for reuse were achieved occasionally. For developing countries like Pakistan with limited technological advancement and energy problems, constructed wetlands which have a zero or very low energy requirement can be used in the treatment trains.
CD0099	Effects of Strain Type and Water Quality on Soil-Associated *Escherichia coli* **Daniel L. Gallagher**, Kate Lago, Charles Hagedorn, Andrea M. Dietrich *Abstract*—Escherichia coli strains from gulls, chickens, humans, Canada geese, horses, deer, and swine exhibited nearly 25-fold differences in adhesion to kaolinite particles. Hydrophobicity and zeta potential were not correlated with adhesion. There were significant differences in adhesion patterns between avian strains and most mammalian strains, while there were no differences in adhesion patterns between domestic animal strains and wild strains, or between ruminant and non-ruminant mammals. Selected strains exhibited varying responses to changes in pH, sorbent type, ionic strength, and generational cell age. The results indicate that adhesion by different strains under varying environmental conditions is more variable than previously recognized and that sediment-adhered bacteria can represent a significant population. Such wide variation in adhesion behavior could affect the assessment of bacterial contamination in receiving waters, and has implications for field sampling techniques, laboratory culture conditions, and experimental design of water quality projects, including TMDL protocols.
CD0100	Odour Nuisance near Semi-Aerobic Landfill: A Distance-Based Study in Malaysia **Tengku Nuraiti Tengku Izhar,** Nor Azam Ramli, and Ahmad Shukri Yahaya *Abstract*—The decomposition of biodegradable waste in landfills is known to produce odour emissions that cause discomfort to nearby residents. Therefore, the aim of this study is to investigate perception of odour as a nuisance among residents in relation to their distance from a landfill. A survey is conducted, and 507 respondents living within a 7.0 kilometre radius from the landfill participated. Questionnaires are sent out to the respondents to investigate their background, socioeconomic status, and perception on odour. The selected landfill is semi-aerobic and is used for the disposal of non-hazardous domestic and industrial wastes. Respondents for radius < 0.9 km are employees of the landfill. Based on survey results, almost 26 % of the respondents strongly agree that ‘odour is a nuisance’. The level of agreement on ‘odour is a nuisance’ decreases with distance; that is, even respondents (1 %) who live within 6.0 – 6.9 km agree to this perception. A possible reason is that odour concentration is not only high at the origin/source, but also emanates from waste collection and transportation. Respondent perception on ‘odour is a nuisance’ is investigated in terms of race, age, type of house, education, occupation, and income.
CD0102	Quantifying Bioavailability and Toxicity of Copper to *Americamysis bahia* - Mysid Shrimp **Andrea M. Dietrich**, Niel Postlethwait, Daniel Gallagher *Abstract*—Reliable methods are needed to measure and correlate bioavailable metals with aquatic toxicity.

	This research develops a method to measure bioavailable copper in estuarine waters using the cation exchange resin Chelex 100®. The Chelex 100® method performed consistently at copper concentrations from 195-495 μg/L when organic matter, pH and salinity were held constant. Varying salinity from 15-30 ppt did not affect measured bioavailable copper. As expected, an increase in pH from 4 to 8.5 and increase in NOM from 0 to 12.5 mg/L reduced measured bioavailable copper. Acute toxicity bioassays were performed with mysid shrimp (Americamysis bahia) and copper in the presence of NOM. At 20 ppt salinity, 48-hour LC50 dissolved copper concentrations were 200, 340, and 495 μg/L at 0, 12, and 24 mg/L NOM, respectively. The corresponding 48-hour LC50 values for bioavailable copper were nearly constant: 94, 98, and 105 μg/L Cu at 0, 12, and 24 mg/L NOM respectively. The consistency of the mysid shrimp LC50 values for bioavailable copper measured using the Chelex-100® method indicates that this method is appropriate for evaluating metal bioavailability in saline waters.
CD0103	Temporal Partitioning by Animals Visiting Salt Licks **Jason Hon** and Shozo Shibata *Abstract*—Temporal partitioning of resources according to feeding period occurs in situation of food type specialization, such as for the use of salt licks by ecologically similar animal species. Camera traps placed at salt licks can be used to determine animal activity patterns. This study was carried in a logging concession area in central Sarawak, Malaysian Borneo. Sampling was carried from September 2010 to January 2011, and May to September 2011. Activity data at salt lick sites showed that sambar deer Rusa unicolor was mostly nocturnal, with high number of records occurring after dark from 20:00hrs onwards, peaking after midnight before slowly decreasing until early morning at 08:00hrs. Bornean yellow muntjac's Muntiacus antherodes activity was restricted to during the day, which peaked at 11:00 to 12:00hrs. There was no clear pattern observable in mousedeer Tragulus spp. and bearded pig Sus barbatus activity data. Significant differences between the proportion of daily activity were observed between Bornean yellow muntjac and bearded pig (Mann-Whitney-Wilcoxon test, W=165.5, p=0.004), followed by sambar deer (W=195.5, p=0.053) and mousedeer (W=213, p=0.074). Human presence and hunting pressure may affect the behaviour of some game species, such as the Bornean yellow muntjac which showed peak activity periods during the earlier part of the day, and over a much shorter time span in more human accessible salt lick sites.
H0001	Climate change in Brazilian cities: policy strategies and responses to global warming **FABIANA BARBI**, LEILA DA COSTA FERREIRA *Abstract*—Local governments play a key role developing and implementing public policies to mitigate and to adapt to climate change. This paper aims to analyze how Brazilian cities are responding to climate change in terms of policy strategies and instruments. The methodological steps cover five characteristics of these policies: 1. Mitigation goals; 2. Adaptation actions; 3. Participation of different segments of society; 4. Multi-sectorial policy implementation; 5. Government participation in networks related to climate change. Our findings suggest that local climate policies in Brazil are isolated initiatives within the national context. The strongest Brazilian policies with both mitigation and adaptation actions counted on a previous mobilization for the climate issue involving different actors from several segments of the society. These cities have also participated in transnational cooperation networks related to climate change. Certainly these factors favored the adoption of laws by those governments. Most laws have multi-sectorial nature of implementation, an important factor considering the climate issue that is related to different sectors of government action.
H0004	Management Plan Optimization And Application of Public Spots For Increasing Widespread Usage of Public Transportation: Istanbul Case Ummugulsum Alyuz, **H. Handan Demir**, H.Eser Okten, Oktay Yilmaz, Goksel Demir

	Abstract—Increasing the widespread usage of the public transportation has a vital importance for reducing environmental pollution originated from the transport sector which is one of the biggest causes of the global warming. In this study, first of all the factors affecting a management plan on increasing the public interest in public transport were investigated, then Istanbul case was explained for each of these factors, the success of the applications were discussed and suggestions were provided for improvement through the application of the short informative audiovisual advertisements. Finally, a management plan was optimised for the usage of public transportation dissemination, which can be adapted by decision-makers in accordance with the internal dynamics of their own countries and recommendations were included to increase demand by usage of public spots.
H0012	Statistical Modelling of Recent Changes in Extreme Rainfall in Taiwan **Lan-Fen Chu**, Michael McAleer and Szu-Hua Wang *Abstract*—This paper has two primary purposes. First, we fit the annual maximum daily rainfall data for 6 rainfall stations, both with stationary and non-stationary generalized extreme value (GEV) distributions for the periods 1911-2010 and 1960-2010 in Taiwan, and detect changes between the two phases for extreme rainfall. The non-stationary model means that the location parameter in the GEV distribution is a linear function of time to detect temporal trends in maximum rainfall. Second, we compute the future behavior of stationary models for the return levels of 10, 20, 50 and 100-years based on the period 1960-2010. In addition, the 95% confidence intervals of the return levels are provided. This is the first investigation to use generalized extreme value distributions to model extreme rainfall in Taiwan.
H1001	Modeling of Sediment Behaviour on Urban Watersheds and Determination of Climate Change Effects **Burcu ŞİMŞEK UYGUN**, Mine ALBEK *Abstract*—Technological advances which accelerated after the industrial revolution, extensive fossil fuel usage, land use changes and emissions of greenhouse gases from various sources contribute to global warming and consequently climate change. Climate change affects hydrological and ecological processes significantly. In this study, effects of impervious areas of Eskişehir, a city in the Porsuk Stream Watershed in Western Inner Anatolia of Turkey, to the Porsuk Stream pollution between 1975 and 2010 have been studied. For the determination of these effects the HSPF model (Hydrological Simulation Program-Fortran) developed by United States Environment Protection Agency-EPA has been used. Since sediment concentration is very important to investigate the modeling, behavior sediment has been modeled. In the impervious land segments, sediment concentration is high and so impervious land segments have been found to be affecting sediment parameter concentrations meaningfully. The parameter values have been set to their extreme values to investigate the resulting effects on the concentrations. It has been determined that the maximum sediment concentration in outflow becomes 570 mg/L in the Porsuk Stream based on monthly averages respectively. In addition, with using climate scenarios simulated until 2100, sediment concentration is increasing significantly. By this way, urban centers effects on watershed hydrology and water quality in response to climate change have been investigated.
H1002	Land Subsidence Prediction in Central Plain of Thailand Prapeut Kerdsueb and **Piyakarn Teartisup** *Abstract*—The aim of this research was to analyze risk areas of land subsidence. Risk factors were selected from related research on the problem of land subsidence. There were six factors selected: geological, hydrogeological, number of wells, groundwater used, land use and amount of population. The factors were analyzed by weighting and rating scores from twelve governmental officers from concerned agencies. The total score of each factor was employed to assess risk area of land subsidence by GIS and PCA method. The output in this study is a map of risk area of land subsidence in Nakhon Pathom Province, representative central plain area. In this study, the risk area of land subsidence was classified into 3 levels.

	Most of the land consisted of areas at a moderate risk of subsidence and these areas were scattered throughout the study area, covering 1,905.93 km2, while a high level to at risk areas was found in parts of the west and south of the study area, covering 251.02 km2. The low level of land subsidence risk covered the least area, at only 14 km2, mainly in the northwestern and eastern parts of the study area. Furthermore, the results showed land subsidence is most heavily influenced by excessive utilization of groundwater. The second most influential factor is the number of wells. A comparison of bench marks from the Royal Thai Survey Department, ground checks of the real situation and the assessments made in this study showed all.
H2001	Climate Change and Global Warming: Signs, Impact and Solutions. Matawal, D.S PhD, **Dafang John Maton** *Abstract*—There is no gain saying our Planet has changed fundamentally. Our World is undergoing a catastrophic climatic drift and is hotter today than it has been in two thousand years. Global temperatures are believed to be on an ever increasing high, with its attendant consequences and it is feared that the trend will continued if not controlled. Some of the causative agents/ indicators of this menace are human propelled and induced and can be curtailed to the barest minimum. The consequences of not attending to these variables are dire, affecting global temperatures, weather patterns, sea acidity and aquatic life, prevalence of pests and diseases, poor agricultural yield, to mention but a few. This paper is an expose on the imperativeness of, inter-relationship between, and negative impacts of climate change and global warming, on the entire ecosystem. Comparative excerpts are highlighted and solutions proffered.

Morning, February 25, 2013 (Monday)

SESSION – 2 (ICBBB & ICFEE)
Venue: VENEZIA
Session Chair: İsmail Ozmen & Saji Baby
Time: 10:00 – 12:30

ICBBB	**10:00-11:00**
F00004	Differential Analysis of Neurodegenerative Aging-Related Mitochondrial Genes for Long-Lived Naked Mole-Rat **Layal Abo Khayal**, Ivo Provaznik, and Ewaryst Tkacz *Abstract*—Analyzing the differential genetic traits related to senescence of the long-lived naked mole-rat and various species that are convergent phylogenetically, by a combination of bioinformatic algorithms with nucleotide genomic signal processing, and hierarchical cluster methods. Since the naked mole-rat has distinctive aging resistance, comparing the aging-related genes may guide to essential differences in pathological incidences of aging diseases among the species concerned.
F00007	Association between capnogram and respiratory flow rate waveforms during invasive mechanical ventilation **Carmen Caroline Rasera** and Pedro Miguel Gewehr *Abstract*—Capnography refers to the continuous and noninvasive measurement of carbon dioxide (CO_2) concentration in respiratory gases and it provides a real-time assessment of ventilatory status. The aim of this paper is to demarcate the inspiratory and expiratory segments of a time capnogram using data from respiratory flow rate waveforms. The measurements were obtained from 38 infants under mechanical ventilation in intensive care unit. A comparison was made between CO_2 and respiratory flow waveforms to determine the inspiratory segment (phase 0) and the expiratory segment and its subdivisions (phases I, II,

	and III). The coefficients of determination were 0.83 ($p < 0.001$) for end-tidal CO_2 pressure and inspiratory flow during rebreathing; and 0.97 ($p < 0.001$) during the weaning process. The end of expiration almost coincides with the downslope of the CO_2 waveform in the capnograms when there is no rebreathing, during the weaning process. However, in the presence of rebreathing, the alveolar plateau is prolonged and includes a part of inspiration, in addition to the expiratory alveolar plateau.
F00008	Onset and Peak Detection over Pulse Wave Using Supervised SOM Network **Alvaro D. Orjuela-Cañón**, Hugo F. Posada-Quintero, Denis Delisle Rodríguez, A R. Ramón Fernández de la Vara Prieto, Alberto Lopez Delis, Manuel B. Cuadra Sanz *Abstract*—Traditional methodologies use electrocardiographic (ECG) signals to develop automatic methods for onset and peak detection on the arterial pulse wave. An alternative method using pattern recognition is implemented to detect onset and peak fiducial points, using Self Organizing Maps (SOM). In the present work SOM neural networks were trained with a dataset of signals with information about localization of onset and peak points. Later on, the trained network was used to make the detection on a validation dataset. This was developed using a shifting temporal windowing, which is presented to the network to decide whether the window corresponds to an onset or peak in the pulse wave. Results of the classification reach 97.93% over the validation dataset. Sensitivity and positive predictivity measures were used to assess the proposed method, reaching 100% for sensitivity and 99.84% for the positive predictivity detecting peaks in the signals. This proposal takes advantages from SOM neural networks for pattern classification and detection. Additionally, ECG signal is not necessary in the presented methodology.
F00010	A Comparison of Several Feature Encoding Techniques for MHC Class I Binding Prediction **Murat Gök** *Abstract*—Deciphering the understanding of T cell epitopes is critical for vaccine development. As recognition of specific peptides bound to Major Histocompatibility Complex (MHC) class I molecules, cytotoxic T cells are activated. This is the major step to initiate of immune system response. Knowledge of the MHC specificity will enlighten the way of diagnosis, treatment of pathogens as well as peptide vaccine development. So far, a number of methods have been developed to predict MHC/peptide binding. In this paper, several encoding schemes were performed to predict MHC/peptide complexes. The tests have been carried out on comparatively large HLA-A and HLA-B allele peptide three binding datasets extracted from the Immune Epitope Database and Analysis resource (IEDB). Experimental results show OETMAP encoding technique leads to better classification performance than other amino acid encoding schemes on a standalone classifier.
F00012	Antioxidant Status in Normal Pregnancy and Preeclampsia upon Multivitamin-mineral Supplementation in the Region of Vojvodina **Tatjana Ćebović**, Daniela Marić, Aleksandra Nikolić and Aleksandra Novakov-Mikić *Abstract*—Normal pregnancy is associated with oxidative stress and this is even increased during preeclampsia (PE). The decrease in total antioxidant capacity is the pathophysiological basis for vitamin supplementation during pregnancy, but the beneficial effect of this approach is still unclear. Levels of creatinine, urea, cystatin, malondialdehyde (MDA), superoxide dysmutase activity (SOD), glutathione peroxidase (GSH-Px) activity and acidum ascorbicum were measured in the serums of all women. Mean MDA level in maternal plasma in normal pregnancies was significantly lower than in PE pregnancies (2,78 ±0.78 pmol/mg vs 3.20±0.91 pmol/mg, $p< 0.05$), as well as mean GSH-Px levels (811 ±206 U/l vs 1350±575 U/l, $p< 0.05$. Mean ascorbic acid values were significantly higher in normal than in PE pregnancies (9,85 ±2,43 mg/L vs 5.54±1.81 mg/L, $p< 0.001$), as well as mean SOD values (26.8 ±18.45% vs 12.3±10.3%, $p< 0.001$). There were no significant differences in normal pregnancy group with and without multivitamin supplementation. MDA levels were significantly lower in PE pregnancies with

	vitamin supplementation (2.99 ± 0.81 pmol/mg vs 3.42 ± 1.01 pmol/mg, p< 0.05), as well as GSC-Px levels (1200 ± 500 U/l vs 1500 ± 650 U/l, p< 0.05). Ascorbic acid values were significantly higher in the PE group with vitamin supplementation (6.16 ± 1.66 mg/L vs 4.92 ± 1.96 mg/L, p< 0.05), as well as SOD levels (13 ± 11.4 % vs 11.6 ± 9.2%, p< 0.001).
F00014	The identification of significant chromosomal regions correlated with oral tongue cancer progression **Ki-Yeol Kim** *Abstract*—Purpose: Oral squamous cell carcinoma (OSCC) is associated with substantial mortality and morbidity and oral tongue squamous cell carcinoma (SCC) is representative in OSCC. Early detection of oral premalignant lesions (OPLs) that will develop into invasive tumors is necessary to improve the poor prognosis of this cancer. Methods: To identify potential biomarkers that could be used for early detection, we compared the gene expression of incident primary oral tongue SCC, severe dysplasia, mild and moderate dysplasia. For this, we used three expression datasets obtained from a public database and selected chromosomal locations related with the progress of oral tongue cancer from a dataset. We then evaluated the gene set, which is included in the selected chromosomal locations, using out of bag (OOB) error and plots in two validation datasets. Results: Sixty-two chromosomal locations were detected and most genomic aberrations were shown in chromosome 3. We identified 62 genes included in those locations and three precancerous and SCC groups were well classified with low OOB error rates. These were also discriminative in the two validation datasets. Conclusions: The selected probes with genomic alteration in low grade dysplasia can be used as an effective predictor for disease progression.
F00018	Biotransformation of Pequi and Guavira Fruit Wastes Via Solid State Bioprocess Using *Pleurotus sajor-caju* Cinthia Aparecida de Andrade Silva, Maria Priscila Franco Lacerda, and **Gustavo Graciano Fonseca** *Abstract*—Fungal microorganisms are widely studied in the bioconversion of substrates. Among them, *Pleurotus sajor-caju* is well recognized for its known ability to colonize and degrade wastes through solid state bioprocess (SSB). Fruit residues are inexpensive substrates that present characteristics favorable for microorganisms' colonization. The aim of this work was to investigate the mycelial growth of *P. sajor-caju* on pequi and guavira fruit wastes through SSB, in order to valorize these residues by their biotransformation. Cultivations were carried out with the substrates at pH 5 and with 60% moisture in an incubator at 30 ℃ for 25 days. Microbiological analyzes for fungi and bacteria beyond proximate composition of the substrates were evaluated every 5 days. It was observed that *P. sajor-caju* reached maximum growth at the 15th day in guavira waste and at the 25th day in pequi waste. The protein enrichments obtained were 30.31% and 37.20% for guavira and pequi wastes, respectively. It was concluded that guavira favored microbial growth and protein concentration, presenting a final product very rich in protein with potential application for animal nutrition.
ICFEE	**11:00-12:30**
I020	A Study on the Synchronization Characteristics of Thermoacoustic Laser **Sung Seek Park**, Seung Jin Oh, Won Gee Chun, Kuan Chen, Nam Jin Kim *Abstract*—Thermoacoustic lasers convert heat from a high temperature heat source into acoustic power while rejecting waste heat to a low temperature sink. Recent research mainly focuses on using thermoacoustic engine arrays. Therefore, this study mainly focuses on coupling two thermoacoustic lasers. The coupling between the two lasers was started at 0o crossing angle, where the openings of the lasers were parallel to each other and separated by a distance of 1 m. The next configuration was to focus the sound waves using two different crossing angles (30^o & 90^o) between the two lasers, with their opening ends placed very close to each other. As a result, we conclude from all the measurements made for both the 30^o and 90^o crossing experiments that synchronization between two lasers is possible when their open ends

	were placed close to each other.
I021	Thermochemical Conversion of Waste Papers to Fuel Gas in a Microwave Plasma Reactor Parin Khongkrapan, **Nakorn Tippayawong**, and Tanongkiat Kiatsiriroat *Abstract*—In this work, a microwave plasma reactor for conversion of waste papers to generate fuel gas was developed and presented. Experiments were carried out with different air flow rates, focusing on product gas yield and composition. From the results obtained, it was shown that, at a constant input power of 800 W, average gas yield and maximum carbon conversion obtained were 2.10 m^3/kg and 59%, respectively. On a nitrogen free basis, total content of CO and H_2 in the gas product was 31-43%, which can be used as synthetic gas.
I024	Influence of Organic Loading Rates on Aerobic Granulation Process for the Treatment of Wastewater **B.K.Bindhu** and G.Madhu *Abstract*—Treatment of synthetic wastewater was studied with aerobic granulation technology in sequencing batch reactor under various organic loading rates (OLRs). Three trials (trial 1, 2, and 3) were conducted with OLRs of 3, 6, and 9 kg chemical oxygen demand (COD)/(m^3.d) respectively. Aerobic granules could be developed in all cases, but the best performance was observed with trial 2. A COD removal efficiency of 97.9% and sludge with good sludge volume index (SVI) of 25.1 ml/g could be achieved in trial 2 with OLR of 6 kg COD/(m^3.d). The maximum COD removal efficiency observed in trial 1 and trial 3 were 96% and 95% respectively. The minimum SVI obtained in trial 1 and trial 3 were 31 and 30.6 ml/g respectively. During trial 3, the reactor showed unhealthy conditions in terms of COD removal efficiency and SVI after 5 weeks of operation. This study contributes to a better understanding of the role of OLR in aerobic granulation
I025	An Investigation of Cooling and Heating Degree-Hours in Thailand **Kriengkrai Assawamartbunlue** *Abstract*—The simplest well-known method that can be used to preliminarily estimate energy consumption of buildings is the degree-days method that usually requires the knowledge of either annual or monthly cooling and heating degree-days. In this paper, annual and monthly degree-days of 4 major cities in Thailand are investigated based on hourly temperature data in term of "degree-hours." Long-term hourly temperature data for 15 years (1994-2008) are used to calculate degree-hours at various base temperatures. The Sandia method is used to make annual hourly temperature dataset that can represent a typical hourly temperature year instead of using long-term average hourly temperature. The results show that Bangkok has the highest annual and monthly cooling degree-hours followed by Songkla, Ubonratchathani, and Chiangmai. In all cities, the number of cooling degree-hours is much more than one of heating degree-hours which implies that energy consumption of buildings is used for space cooling much more than space heating. Regression models are also developed for determining annual cooling and heating degree-hours at any base temperature.
I027	Technology Needs Assessment for Climate Change in Energy Management Sector: The Case of Thailand **Wongkot Wongsapai** *Abstract*—In developing countries, the technology needs assessment (TNA) is very important in defining the country development, especially in infrastructure issue. From UNEP RISØ Center approach, TNA with technology action plan in energy management sector in Thailand have been developed. By using the Multi-Criteria Decision Approach (MCDA) method, there are 29 energy technologies from four main area-based targets, i.e. (i) energy supply and transformation, (ii) renewable energy technologies (RETs), (iii) energy efficiency improvement in demand side, and, (iv) other energy technologies, which related to climate change impact mitigation are identified and assess the mitigation the effects of climate change technology. The ten factors consist of eight "readiness" and two "impact" factors have been applied and

	weighted to prioritize to all 29 energy technologies to find out the final technologies. The results of technology prioritization are concluded as all possible options as follows; i.e. (i) smart grid, (ii) waste to power generation, (iii) second and third generation of biofuels (iv) energy efficient in combustion in industry sector, and (v) carbon capture and storage (CCS). The technology action plans (TAP) of these five prioritized technologies have then been developed by using the mapping technique. The major barriers of TNA have also been analyzed with solution finding and diffusion preparation. All of the five selected technologies are vital mitigation technologies in the increasing of the capacity and efficiency of energy development and management in Thailand.
I029	A LEED Environmental Performance Certificate Application In Terms Of Recyclable Content **Goksel Demir**, Ummugulsum Alyuz, Eser Okten and Hanefi Ozgoren *Abstract*— Sustainable construction technologies, which are necessary for sustainable environment are important to minimize environmental impacts of urbanization and for the maximum efficiency of the structure. For this purpose, construction of sustainable/green buildings is a growing trend in Turkey and the world. Solid waste management at green buildings is one of the important parameters for sustainability of the building. In this study, solid waste management in green buildings and the potential use of waste as construction material are investigated within the context of one of the most used certificates in Turkey; LEED NC 2009 environmental performance certificate. First of all, literature about how to use industrial value of the waste as construction material is reviewed and then two buildings which were entitled to get 'gold' category LEED NC 2009 certificate and a building which was not applied for any green building certificate are evaluated in terms of calculation practices. The results show that, usage of waste as a construction material is applicable with little effort in green buildings.
I031	Financial, Environmental and Energy Analysis ofvarious micro-CHP Systems within the UK Domestic Market **T. S. Doyle**, Z. Dehouche, A. Harries and I. Rizos *Abstract*—Widespread uptake of decentralized energy production has the potential to reduce carbon emissions whilst making the energy market more affordable, sustainable and robust. The application of micro-CHP systems in the domestic market has the potential to alleviate pressure on the national grid by displacing electrical and heating demands, and also through the export of excess electricity. Initial market support for this has been shown by the UK's Feed-in-tariff scheme which is currently incentivizing efficient micro-CHP systems (<2kW) by providing a financial return for every unit of electrical energy produced and further reward for every unit exported to the grid. It is the aim of this research to attempt to identify those m-CHP systems available on the market and to quantify the expected benefits in terms of cost, CO_2 savings and overall energy efficiency when feeding a typical domestic property in the UK.In an attempt to maximize financial income from the FIT scheme an operating strategy of constant supply, at the maximum rated output, is compared against the conventional heat led approach most often used in CHP applications. Overall results indicate that the heat-to-power ratio for a given m-CHP has a direct impact on all of the performance factors being measured and also determines the preferred operating strategy that should be followed.
I033	Regional Energy Integration – A System Modeling Approach Hosam E. Emara-Shabaik, **Gulnur Kalimuldina** and Sarim Al-Zubaidy *Abstract*—Energy integration aims at achieving sustainable self-sufficiency among countries in a geographical region. The challenges of integrating the energy resources of a group of countries are addressed in this paper using a system modeling approach. As a starting point, the model accounts for the energy needs, production, and interactive cooperation between the countries in a region. Different case

	scenarios are simulated and their results are analyzed. The model shows that countries in a specific region can effectively manage their energy resources to the benefit of all and every country in the considered region.
I034	Non-thermal plasma reactor for decomposition of propane to generate CO_x free hydrogen **I. Aleknaviciute**, T. G. Karayiannis and M. W. Collins *Abstract*— Non-thermal plasma reforming unit operating at atmospheric pressure has been developed for converting propane to CO_x free hydrogen. Argon was used to provide additional electrons and photons for higher reaction rates. A series of experiments have been performed for positive corona discharge at 15 mm inter-electrode distance to study the effects discharge power and residence time. A range of each test parameter was covered, namely, the effect of discharge power in the range of 19 – 35 W and residence time of 60 to 303 seconds. The results analysis shows that both, the discharge power and the residence time, have a positive influence on propane conversion, hydrogen selectivity and energy conversion efficiency. Propane conversion and hydrogen selectivity are both highest at the largest discharge power of 35 W and the longest residence time of 303 s.

12:30 – 13:30	**Lunch**

Afternoon, February 25, 2013 (Monday)

SESSION – 3 (ICFEE)
Venue: TREVI
Session Chair: Nakorn Tippayawong
Time: 13:30 – 15:30

I036	Growth Performance of Microalgae Exposed to CO_2 Alessandro Minillo, Hania Cardamoni Godoy, and **Gustavo Graciano Fonseca** *Abstract*—The increase of CO_2 emission and other gases of greenhouse effect have caused global debates concerning climatic alterations, stimulating the development of mitigative strategies. Researches in this area include CO_2 kidnapping through aquatic microalgae production, as well as their use in the production of biofuels. The aim of this work was to determine the growth kinetics of microalgae (Chlorella sp, Scenedesmus spinosus, Scenedesmus acuminatus and Coelastrum sp.) exposed directly to CO_2. Measurements of microalgae growth and pH from medium were taken weekly. The results showed that carbon dioxide promoted growth inhibition in most microalgae. This condition should be considered for the developing of operational strategies and in projects of photobioreactors for the biological conversion of CO_2.
I037	Photocatalytic decomposition of indoor air pollution using dye-sensitized TiO_2 induced by anthocyanin and Ru complexes Chiu-Hsuan Lee, **Je-Lueng Shie**, Ching-Yi Tsai, Yong-Ting Yang and Ching- Yuan Chang *Abstract*—This study investigated the characteristics of dye-sensitized TiO_2 (DST) using dyes of anthocyanin and Ru complexes, including nature dyes (raspberry, blueberry, cranberry) and artificial dyes (N3 ($RuL_2(NCS)_2$•$2H_2O$), N719($C_{58}H_{86}O_8N_8S_2Ru$)), prepared by precipitation method following by calcined at muffle furnace and discussed the feasibility of the applications of DST in the removal of volatile organic compounds (VOCs) from the indoor pollution sources using blue, white, red and ultra-violet light emitting diode. UV/Vis absorption spectra, High-resolution scan electron microscopy,

	Elemental analyses and BET surface area were performed for the characteristic analysis. The results showed that the diluted concentration of dyes affected the decomposition efficiencies (η). In the case of diluted solution of 30 times raw raspberry juice, η was more than 80% and it was higher than that of commercial TiO_2. For N3 and N719-sensitized TiO_2, their values of η were all in the order of UVLED> BLED> WLED> RLED. Under RLED irradiation, the removal mass of N719DST was 11 times of that of TiO_2, showing the optimal special effect on light wavelength. With the irradiation of UVLED, its η increased to 95% with the maximum removal mass of 720 mg/g. Visible light intensity for the photocatalytic reaction is still the major factor.
I038	Preparation and Photoelectrochemical characterization of Ce, N and S co-doped TiO_2 microspheres under LED visible light Je-Lueng Shie, **Yong-Ting Yang**, Chiu-Hsuan Lee, Yi-Ru Liau and Ching-Yuan Chang *Abstract*—Cerium, nitrogen and sulfur co-doped TiO_2 was used as a photoanode to fabricate a photoelectrochemical solar cell (PECSC) and the photoelectrochemical characteristics of PECSC using visible light sources of LEDs were investigated. Nitrogen and sulfur co-doped TiO_2 ($TiN_xS_yO_{2-x-y}$, TNST) was prepared by $Ti(SO_4)_2$ and NH_3 calcined at 400 ^oC (673 K). Ce/TiO_2 and Ce/TNST films on indium-doping tin oxide (ITO) were prepared by precipitation method following by calcined at muffle furnace and tested for electricity and photoelectrochemical characteristics. An Energy Dispersive Spectrometer (EDS), scanning electron microscope (SEM), X-ray single crystal diffractometer (XRD), ultraviolet-visible (UV/vis) spectroscopy and Brunauer Emmett Teller (BET) surface measurement device were used for the characteristic analyses of these catalysts. The absorption intensity of 6 wt% Ce/ $TiN_xS_yO_{2-x-y}$ (6Ce/TNST) was the highest, with an absorption wavelength between 500 – 510 nm and so near the green light wavelength. The open-circuited output voltage (V_{oc}), short-circuit output current (I_{sc}) and maximum power (P_m) of TiO_2 solar cell (TSC), TNST solar cell (TNSSC), Ce/TiO_2 solar cell (Ce/TSC) and Ce/TNST solar cell (Ce/TNSSC) under the irradiation of BLED, WLED and RLED were measured. The maximum V_{oc} and I_{sc} were 43.99 V/g and 25.36 mA/g of 6Ce/TNSSC and 10Ce/TNSSC at WLED, respectively. However, the maximum value of P_m was 43.67 μW for 10Ce/TNSSC at WLED and the values are 35.5 and 174.68 times of TNSSC and TSC, respectively. It is the evidence that N, S and Ce co-doping are the key factors for PECSC to improve their photoelectrical efficiency under the optimum doping mass percentage.
I039	Steam Gasification of Cryptomeria Waste and Torrefied Cryptomeria Using Thermal Plasmatron Je-Lueng Shie, **Yi-Fan Yang**, Yi-Ru Liau, Ching-Yuan Chang *Abstract*—Torrefaction is a way to treat biomass before transportation or thermochemical conversion. It can be used to increase the energy content of wood or to facilitate hardgrove grindability index (HGI) useable to mix with coal powder for combustion. This work is to study the feasibility and operational performance of plasmatron (thermal plasma) gasification of torrefied Cryptomeria (TC) and Cryptomeria waste (CW), as the target materials. A 10 kW plasmatron reactor was used for gasification of the TC. From the Thermogravimetric Analysis (TGA) curve, the decrease mass from pyrolysis or gasification of TC and CW at 873 K were 65 and 90 wt.%, respectively. Controlled at 873 K of plasmatron reactor, the carbon percentage of TC and CW in residues increased from 57.79 and 48.42 wt.% to 90.84 and 67.74 wt.%, respectively. After plasmatron gasification, the higher heating value (HHV) of residues increased to 1.28-1.3 times of samples and its maximum value reached to 7391 kcal/kg. Furthermore, the syngas yield of TC increased from 37.61 to 64.98 wt.% and the residue decreased from 18.7 to 6.4 wt.% after the steam injection. Under steam condition, Water-gas reaction/ Coke gasification reaction, Boudouard reaction and Steam methane reforming reaction take place prefer as TC than CW clearly. Tofferation after steam gasification in a plasmatron reactor will enhance the syngas yields. Therefore, tofferation is a key

	technique in pretreatment of Cryptomeria in steam plasmatron gasification reaction.
I044	Disinfection By-Products Removal by Nanoparticles Sintered in Zeolite **Kubra ULUCAN**, Cansu NOBERI, Tamer COSKUN, Cem Bulent USTUNDAG, Eyup DEBİK, Cengiz KAYA *Abstract*—Disinfection process by chlorine has been applying effectively in drinking water treatment processes; nevertheless it causes the formation of THMs which are thought to be carcinogen. Restrictions of THMs had been imposed by organizations in most of the countries. In Istanbul, these limit values were not exceeded in present time, but organic content of drinking water supplies is accreted by the increment pollution on occasion of population growth. This will lead to investigate and apply an extra treatment unit for THM removals. In this study, application of nanoparticle was researched in THM removal from tap water. Nanoparticle used in the process was sintered into zeolite in coin form. The results were promising. It was observed that unsintered form was more effective on removal of THMs than sintered form of α-Fe_2O_3. Furthermore, nanoparticles in zeolite form advanced the adsorption capacity of zeolite.
I045	Effect of Ozonation on Anaerobic Organic Removal From Membrane Concentrate **F. Büşra YAMAN**, Mehmet ÇAKMAKCI, Bestamin ÖZKAYA, Doğan KARADAĞ,Billur DORA, Vesile ÇELEBİ, *Abstract*—This study was focused on anaerobic treatment of textile wastewater. In this research, treatability of concentratefrom nanofiltration of textile wastewater.Results indicated that membrane concentrate could be effectively treated with bacterial treatment. Moreover it can be said that both fermantorswere approximately the same in terms of removal efficiencies. According to the experiment of resultschemical oxygen demand (COD) and and biochemical oxygen demand (BOD_5) removal efficiency were around 65% and 80%, respectively. Methane and cumulative biogas production almost the same both for ozonated and non ozonated concentrate.
I046	Nonlinear Modeling & Simulation of a Four-phase Switched Reluctance Generator for Wind Energy Applications **F. Messai,** M. Makhlouf, A. Messai, K.Nabti, and H. Benalla *Abstract*—Thesubject of this paper is a modeling method of switched reluctance generator (SRG) based on the nonlinear inductance model and electromagnetic field finite element analysis (FEA) to be used in wind energy applications. SRG and its behavior, modeling and Simulations results are presented. It was analyzed the characteristics ofthe SRG under different conditions. The nonlinear inductance model allows us to develop a control strategy that gives high performance controller with a closed loop was designed on PI controller.
I049	Progress of Resources and Environmental Carrying Capacity **Tian Y.N**, Wang H.Q. *Abstract*—Resources and environmental carrying capacity as the basis of sustain development has been paid more and more attention. This paper aims to discuss the major concepts of resources and environmental carrying capacity and the problem in this area. Based on thorough analysis of the concept and evaluation methods of resources and environmental carrying capacity, it has been concluded that the conceptual model deserves more attention, and the development direction of resources and environmental carrying capacity has been pointed out.
I050	A primary master plan of Gardens' City- A new city in Egyptian Western Desert (EGCWD) **Somaya T. Abouelfadl**, Khaled A. Ouda, Assmaa A. Atia, Nada Al-Amir *Abstract*— this paper discusses the primary master plan of the gardens' city, which is planned to depend on renewable energy. Gardens' city lies in the Egyptian's western desert in newly discovered to be developed areas, namely in the new Farafra oases. The general master plan of the city is designed for 117,000

	inhabitants, with a final target of settling of 1 Million inhabitants in the oasis. The city has agricultural and industrial based economy, depend on renewable energy (solar and wind energy), and has the first Egyptian college of renewable energy.
I051	Critical temperature for fabrication of Ti metal electrode produced by alkali, acid and heat treatment in N_2 gas **A. Valanezhad**, S. Yamaguchi, R. Khanna, T. Matsushita, T. Kokubo, T. Ohta, Y. Naruta and H. Takadama *Abstract*— It is important for the fuel cell electrodes to show high total surface area, electrical conductivity and ability for catalyst fixation on the surface. On the other hand titanium oxide is useful as an electrode for fuel cell, solar cell, or electrolysis of water, since it can fix catalyst, dye and enzyme on its surface. In the present study, titanium (Ti) metal was chemically and thermally treated to form nano structure with high specific surface area, conductivity, scratch resistance and ability for catalyst fixation on its surface. Ti metal electrode with nano-network structure composed of titanium nitrides, titanium oxynitride and titanium oxide on its surface was prepared by NaOH and HCl solution treatments and subsequent heat treatments in N_2 gas. The effect of the temperature of heat treatment in N_2 gas on the structure, total surface area and conductivity of the Ti metal surface were studied. The fine network structure with high total surface area was formed on the surfaces of the Ti metal heated at 600 ℃ to 1000 ℃. However, it was partially densified over 900 ℃. The electrical conductivity became higher with increasing temperature of the heat treatment because of the formation of the highly conductive titanium nitrides and oxygen deficient titanium oxide. Consequently, the highly conductive Ti metal electrode without reducing its total surface area could be prepared, when it was heated at 850 ℃. A redox catalyst could be fixed on the treated titanium metal surface.
I055	Numerical Simulations of Nitric oxide (NO) Formation in Methane, Methanol and Methyl Formate in different Flow Configurations P. N. Kioni, **J. K. Tanui**, and A. Gitahi *Abstract*—Methane/air, methanol /air and methyl formate /air have been numerically simulated in three different flow configurations: homogeneous system; freely propagating flame; and diffusion flame. These simulations have been done with an aim of establishing the influence of fuel oxygenation on generation of pollutant. Various chemical kinetic mechanisms have been employed and extensively tested so as to ensure validity of the results. For each of the three configurations, a comparison of temperature, NO and its immediate dominant precursor species (CH and N) concentration profiles in the three fuels have been done. It has been established that, under the different flow configurations considered, CH_4 has high amount of total NO present in the flame region as compared to the oxygenated fuels (CH_3OH and CH_3OCHO). The temperatures attained in freely propagating and diffusion flames are relatively low (approximately ≤ 2000 K). This temperature favours prompt-NO formation, and therefore, a significant difference of the amount of NO (one order of magnitude higher) is observed in CH_4 as compared to oxygenated fuels due to low values of CH and N observed in these fuels (CH_3OH and CH_3OCHO). High flame temperatures (approximately 2900 K) due to high initial temperatures are observed in the homogeneous system. Therefore, in homogeneous system it was observed that the amount of NO produced by the three fuels is within the same order of magnitude due to availability of the O atoms and nitrogen molecules (important species in thermal NO mechanism (Zel'dovich mechanism)).
I059	Assessment of Magnetite Nanoparticles Effect on Bio-Hydrogen Production from Pretreated Rice Straw in a Mesophillic Anaerobic Baffled Reactor **H. El-Bery**, A. Tawfik, Y. Matsushita *Abstract*—Two mesophillic anaerobic baffled reactors (ABR_1 and ABR_2) were used for continuous H_2 production from alkali hydrolyzed rice straw. HRT of 20 h and OLR of 1.2 gCOD/l.d were kept constant

	for both ABR reactors. ABR_1 and ABR_2 were inoculated with thermal pre-treated activated sludge, while the inoculated sludge in ABR_2 was immobilized on Magnetite nanoparticles. The results obtained showed that ABR_2 achieved a relatively higher H_2 production and H_2 yield as compared to those obtained by ABR_1. The H_2 yield in ABR_2 was 1.18 molH_2/gCOD removed. d. as compared to 0.847 molH_2/gCOD removed .d. for ABR_1. Likely, ABR_2 provided higher removal efficiencies in terms of COD and carbohydrate. ABR_1 and ABR_2 achieved removal efficiencies of 53 and 69% for total COD and 46 and 49% for carbohydrate respectively. Volatile fatty acids (VFAs) generation in two reactors was mainly in the form of acetate (HAc) and Butyrate (HBu) while propionate (PrH) was not detected. Based on these results, it is recommended to use anaerobic sludge immobilized on the Magnetite (Fe_3O_4) nanoparticles for enhancement of bio-Hydrogen production from alkali hydrolyzed rice straw
I061	The Perception of Community on Coastal Erosion Issue in Selangor, Malaysia **M. Zainora Asmawi** and AinaaNawwarah Ibrahim *Abstract*—Malaysia is a maritime nation blessed with invaluable coastlines. Hence it is important to preserve its precious coastal areas in a sustainable manner. However, coastal areas are continuously facing tremendous development pressures both from natural and anthropogenic factors. These include tsunami event, rapid urbanization process, aquaculture sector, oil and others. Consequently these situations create problems to coastal areas. For instance, the issues of erosion and loss of habitats are significant in many maritime nations. Thus, this research was initiated by the global phenomenon on coastal areas, particularly erosion problem. The research addresses the issue of coastal erosion as one of the key coastal problems in Selangor. The coastlines of Selangor were selected as it experienced erosion problem relatively significant due to continuous development growth. The objectives of the research were: to comprehend the perception of the coastal community in relation to the issue of coastal erosion in Selangor; to analyze the causal factors contributing to coastal erosion in Selangor; and to analyze the severity of coastal erosion issues in Selangor. Research methods applied was mainly by conducting questionnaire survey to a total of 377 coastal residents and site-observation. This analysis demonstrates that Selangor is currently experiencing severe erosion problems at some stretches of its coastlines, which were considered as Rank 1 (extremely dangerous). These areas involved 33 km of coastal areas. Among the areas are Bagan Beting, Sungai Besar, Bagan Sekinchan, Jeram and Sungai Sembilang. Results from questionnaire survey also indicated that coastal erosion was significant in Selangor with 77% of respondents agreed to that statement. In addition, 75% of them felt that their coastlines were considered as 'seriously affected'. Overall, this research managed to achieve its outlined objectives.
I062	The impacts of tsunami on the well-being of the affected community in Kuala Muda, Kedah,Malaysia M. Zainora Asmawi and **Aisyah Nadhrah Ibrahim** *Abstract*—The tsunami of 26 December 2004 was one of the most devastating tragedy ever occurred to men in the history of human civilization. Approximately 250,000 lives perished, millions injured and suffered, while the destruction of property loss of opportunities cannot be accurately estimated. The impact of the tsunami on environmental destruction shows that damage was inflicted on natural resources such as coral reefs, mangroves, sand dunes and other coastal ecosystem that acted as wave defense barriers. Moreover, inlands, wetlands and agricultural land were salinated and natural resources for livelihood and for source of income were badly affected, especially for coastal communities who were involve in fisheries. The situation worsened as basic facilities were also destroyed. As such, this research focuses on assessing and identifying on how the impacts of the tsunami on the infrastructure and environmental resources affected the community well-being inKuala Muda,Kedah, Malaysia. This study focuses on the impacts of tsunami on the affected community well-being in the coastal zone on the basis of available primary and secondary sources. Primary sources included questionnaires, interviews and observations

	while the secondary resources included books, government and international reports, scientific journals, maps and articles that highlighted tsunami related issues. The study tries to seek for both qualitative and quantitative impacts and also tries to find out some solutions that would help to minimize the impact of the tsunami on the community well-being. The information gained from this study can be used to help the community as well as the agencies involve in order to minimize the impacts of the tsunami on the community and develop a more effective mitigation measures for other environmental disasters such as tsunami. Besides, the research may help to create awareness on the community to be prepared in facing disastrous situation such as the tsunami. Through community preparedness, the impact can be minimized and reduced. As for the authority, this research may be of great assistance by allowing them to make better decision.

Afternoon, February 25, 2013 (Monday)

SESSION – 4 (ICBBB)
Venue: VENEZIA
Session Chair: Gustavo Graciano Fonseca
Time: 13:30 – 15:30

F00023	Ensemble-Based Classification Approach for Micro-RNA Mining Applied on Diverse Metagenomic Sequences **Sherin Elgokhy**, Mahmoud Elhefnawi and Amin Shoukry *Abstract*—MicroRNAs (miRNAs) are endogenous ~22 nt RNAs that are identified in many species as powerful regulators of gene expressions. Experimental identification of miRNAs is still slow since miRNAs are difficult to isolate by cloning due to their low expression, low stability, tissue specificity and the high cost of the cloning procedure. Thus, computational identification of miRNAs from genomic sequences provide a valuable com- plement to cloning. Different approaches for identification of miRNAs have been proposed based on homology, thermodynamic parameters, and cross-species comparisons. The present paper focuses on the integration of miRNA classifiers in a meta-classifier and the identification of miRNAs from metagenomic sequences collected from different environments. An ensemble of classifiers is proposed for miRNA hairpin prediction based on four well- known classifiers (Triplet SVM, Virgo, Eumir and Mipred), with non-identical features, and which have been trained on different data. Their decisions are combined using a single hidden layer neural network to increase the accuracy of the predictions. Our ensemble classifier achieved 70.4% sensitivity, 96.7% specificity and 93.6% precision when tested on real miRNA and pseudo sequence data. Next, the developed ensemble classifier is used for miRNA prediction in mine drainage, groundwater and marine metagenomic sequences downloaded from the NCBI sequence reed archive. By consulting the miRBase repository, 179 miRNAs have been identified as highly probable miRNAs. Our new approach could thus be used for mining metagenomic sequences and finding new and homologous miRNAs.
F00024	Mutational and Structural Analysis Of HCV Non Structural Protein 2 (NS2) Revealed Genotype Specific Motif In TMD3 Of The Protein **Sadia Anjum**, Faryal Mahwish, Tahir Ahmad and Muhammad sohail Afzal *Abstract*—Hepatitis C virus (HCV) nonstructural protein 2 (NS2) is a transmembranal protein with a hydrophobic amino-terminal subdomain containing up to three putative transmembrane segments and a carboxyterminal cytoplasmic domain. It is believed that NS2 plays a crucial role in major processes

	during the propagation of virus such as viral replication, assembly, regulation of cellular gene expression and in the induction of apoptosis. The present study describes the sequence and mutational analysis of NS2 from Pakistani isolates of 3a genotype (3a GT). A total of 18 amino acid changes were observed out of which fourteen were frequently reported in other genotypes. Our data however revealed 4 rare mutations in NS2. The effects of these mutations were then examined in the secondary and tertiary structures. At secondary structure level, a significant difference in the transmembrane segment 3 helix1 was noticed which is critically involve in viral assembly on the other hand the protease domain was fully conserved. This study revealed that though NS2 is relatively conserved its N terminal transmembranal part exhibit genotype specific variations and need further investigations across all genotypes.
F00026	Prostate Cancer Classification from Mass Spectrometry Data by Using Wavelet Analysis and Kernel Partial Least Squares Algorithm Vedat Taşkın, **Berat Doğan**, Tamer Ölmez *Abstract*—In this study, a three stage dimension reduction strategy is proposed for early detection of prostate cancer by using mass spectrometry data. In the initial stage, a filtering method is used. While in the second stage, two different methods namely, the wavelet analysis and statistical moments are used for comparison. The last stage includes a feature transformation method which is called kernel partial least squares algorithm. After dimension reduction stages, prostate mass spectrometry data are classified with k-nearest neighbor, support vector machines and linear discriminant analysis. The classification process is handled in two phases. In the first phase, the prostate mass spectrometry data are classified as the normal and cancerous samples with an accuracy of 95.8%. While in the second phase, the cancerous samples are classified as benign and malign samples with an accuracy of 87.2%. For each cases it is shown that, the combination of the wavelet analysis and kernel partial least squares methods is sufficient for prostate cancer identification.
F10005	Cloning and characterization of protein phosphatase 2C (*PP2C*) like promoter from *Arabidopsis thaliana* **Purva Bhalothia**, Sandhya Mehrotra and Rajesh Mehrotra *Abstract*—PP2C is a negative regulator of ABA dependent abiotic stress pathway. Genome wide analysis of *Arabidopsis thaliana* revealed that *PP2C* like promoter (AT5G59220) has both biotic and abiotic responsive *cis* elements in the upstream of the TATA box. In this study, full length and deletion variants of *PP2C* like promoter were cloned upstream of the *egfp* reporter gene and bombarded on to the tobacco leaves. The -400 bp deleted construct showed maximal expression of the reporter gene.
F10008	Effect of Fabric Structure and Degumming Conditions on the Properties of PLA/silk Blend **Jantip Suesat** and Suchada Ujjin *Abstract*—The current research studied the effect of degumming conditions on the properties of PLA and silk yarns aiming to get the actual influence of the process on each fiber which would later be combined together into a blended fabric. The degumming conditions with 10 g/l wetting agent were employed at pH 5, 7 and 10 at various temperatures of 70, 80 and 90^{o}C for 15 min. The most effective degumming was recommended at 70^{o}C and pH 10. Too high temperature (90^{o}C) brought about an eroded fiber surface and deteriorated the fabric strength. The PLA/silk blended fabrics were prepared into different fabric structures and their properties i.e. strength, density and stiffness, were investigated. The fabric properties before and after degumming under a recommended conditions were compared.
F10009	Isolation of Banana Volatiles Compounds by HS-SPME: Optimization for the Whole Fruit and Pulp **Heliofábia Virgínia de V. Facundo**, Deborah S. Garruti, Beatriz R. Cordenunsi, and Franco M. Lajolo *Abstract*—The best conditions for the isolation of banana volatiles by headspace solid phase microextraction (HS-SPME) were determined for the intact whole fruit (with peel) and for the pulp only. Optimization of isolation conditions was carried out using a Central Composite Rotational Design based

	on Response Surface Methodology with two factors: time needed to reach equilibrium in the headspace and the fiber exposure time. Samples were analyzed by GC-MS. The criteria were higher number of peaks and greater total area of the chromatogram. The best conditions for isolating volatiles from the headspace of whole fruits were 140 min headspace equilibrium and 120 min fiber exposure, while for the banana pulp the best conditions were 15 and 60 min for equilibrium and exposure times, respectively. The results suggest that the whole fruit and pulp have very similar qualitative volatile profile in ripe banana.
F10011	Antioxidant Activities in Methanolic Extracts of *Olea ferruginea* Royle fruits **R. K. Sharma**, N. Sharma, S.S. Samant, S.K. Nandi, and L.M.S. Palni *Abstract*—*Olea ferruginea* Royle is an important multipurpose tree and an underutilized fruit tree crop of Himachal Pradesh, India. The antioxidant potential of fruits of this species has not been properly investigated; therefore, in the present study, total phenolic content and antioxidant capacity of methanolic extracts of fruits of *O. ferruginea* from five populations were investigated. Mature fruits from three different trees of approximately same height and age from various populations (Thalaut, Sapangi, Suind, Kolibehar and Kais) were collected. One gram of fresh fruits was homogenized with 10 ml of 80% (v/v) methanol and extracts were analyzed for total phenolic content (mg tannic acid equivalent (TAE)/g fw) and antioxidant capacity [mM of ascorbic acid equivalent (AAE)/g fw of fruit] using 3 *in-vitro* assays, namely, 1, 1-diphenyl-2-pycrylhydrazyl (DPPH), 2,2'–azinobis, 3-ethylbenzothiazoline-6-sulphonic acid radical scavenging (ABTS) and ferric reducing antioxidant power (FRAP). The total phenolic content in the methanolic fruit extracts among different populations varied between 2.30-3.41 TAE/g fw, and their antioxidant activities using DPPH, FRAP and ABTS assayes among the populations ranged from 0.15 - 0.24, 28.02 - 31.4 and 0.0019 - 0.0138 AAE/g fw. The study further showed that ripe fruits of *O. ferruginea* possess significantly higher phenolic content, DPPH and ABTS radical scavenging potential as compared to the raw fruits. On the other hand, raw fruits have significantly higher FRAP activity in comparison to ripe fruits. The study reveals that the ripe fruits of *O. ferruginea* are a rich source of natural antioxidants and can be used as nutraceuticals and should be exploited for commercial purposes.
F20003	Three-dimension Stress and Strain Distributions across Five-layer Human Aortic Wall **P. Khamdaengyodtai**, P. Terdtoon, P. Sakulchangsatjatai *Abstract*—One of the implications of the structural changes in biomedical aspects is the change in stress and strain of the blood vessel. This research, therefore, aims to predict three-dimension stress and strain distributions across five-layer human aortic wall. In experiments, local aortic diameters can be obtained from cross-correlation technique on the ultrasound signal. Continuum mechanics is used as an approach to the results. The multilayer arterial wall is considered to be composed of five different layers. The three-dimensional effects are incorporated within the five-concentric axisymmetric layers while incorporating the nonlinear elastic characteristics under combined extension and inflation. Constitutive equation of fiber-reinforced material is employed for three major layers of intima, media and adventitia and constitutive equation of isotropic material is employed for other two layers of endothelium and internal elastic lamina. Relevant parameters for each layer are obtained by using nonlinear least square method fitted to *in vivo* experimental data on human aorta. Results from mechanical modeling, parameters could be precisely obtained with root of minimizes function of mean square error of pressures of 0.5631 kPa. Local stresses and strains distribution across deformed arterial wall could be illustrated and has been interpreted.
F20004	The Comparison of Plant Regeneration Between Jerusalem Artichoke and Purple Potato Cultured on MS Medium with Different Concentrations and Combinations of Plant Growth Regulators **Karadag, B. N.** and Yildirim, E. C. *Abstract*—A deeper understanding of the influence of culture media and different germplasm is crucial to

	propagate the plants *in vitro* conditions. To focus this, two tuberous plant species; Jerusalem artichoke (*Helianthus tuberosus)* and Purple potato (*Solanum tuberosum)* were selected. In the present study, stem segments from two species selected as explant source were cultured on Murashige and Skoog's media containing various concentrations (0.2 and 0.5 mg L^{-1} NAA) (0.2 and 0.5 mg L^{-1} IAA) of auxin and (0.2 and 0.5 mg L^{-1} BA) (0.2 and 0.5 mg L^{-1} KIN) of cytokinins. Callus induction from stem segments of Jerusalem artichoke occured on most of the media tested, but the most callus formation (100%) took place on MS media containing only NAA for explants of purple potato. When the level of NAA increased in the medium, bulblet formation and shoot proliferation decreased for both species. On the other hand, lower concentrations of KIN induced shoot formation for the explants of both species. The present study reports on the effective regeneration protocol in tuberous plants tested and the outcome provides for further genetic research on Jerusalem artichoke and purple potato.
F20005	Cigarette Smoke Induce Alteration of Structure and Function in Alveolar Macrophages Yuriko Hirono, Ayaka Kawazoe, Masahiko Nose, Masaaki Sakura and **Minoru Takeuchi** *Abstract*—Cigarette smoke (CS) is released into the atmosphere, and impact lung health in non-smoker but not smoker. CS is inhaled into the lung by respiration and affects alveolar macrophages (AM). AM play an important role of immune system in the lung. In this study, we investigated the effect of CS on DNA damage and immune function in AM. The number of AM was significantly increased in CS exposed mice compared with non CS-exposed mice. Expressions of CD11b, TLR-2 and CD14 on AM were significantly inhibited in CS exposed mice but not CD16. Phagocytic activity of AM was significantly inhibited in CS exposed mice. Both of tail moment and tail length of AM as indicator of DNA damage were significantly increased in CS exposed mice. CS was a risk factor for DNA damage of AM and induced inhibition of immunological functions in AM mediated with DNA damage. These results suggest that changes of intracellular structure, inhibition of phagocytosis and TLR expression and induced-DNA damage of AM by CS may result in easily infection of bacteria or virus and carcinogenesis.
F20006	Detection of Polio Virus in Municipal Water Bodies of Lahore, Pakistan **Tahir Ahmad**, Sadia Zahid and Muhammad Ashraf *Abstract*—The enterovirus and Poliovirus are frequently transmitted through contaminated water or food and encompass a serious threat to public health. The risk of infection is directly allied to inadequate vaccination, poor sanitation and overcrowding. Developing countries like Pakistan are at greater risk because of thickly populated communities along with unplanned sanitation system. Isolation of viruses from large water samples and their subsequent detection has always been challenging. PCR based detection of environmental samples is in frequent use. Major drawback of RT-PCR for direct amplification of the environmental samples is its reduced detection sensitivity due to presence of different naturally occurring organic and inorganic ions which interfere or inhibit the process of amplification. Current methods applied for the removal of these naturally occurring inhibitors involve multistep procedures that are not only costly; they may also result in the loss of virus for subsequent detection procedure. The present study primarily focused on the detection of polio virus in municipal water samples taken from highly populated areas of Lahore. The detection was based on a one step filtration procedure for the concentration of poliovirus from the drinking water and its subsequent application in RT-PCR based assay.
F20009	Purification and Characterization of Endo-β-1,4-Glucanase from Local Isolate *Trichoderma Ouroviride* **Selmihan Şahin**, **İsmail Ozmen**, Hacı H. Bıyık *Abstract*—Cellulose is major source of plant biomass and β-1,4-glucosidic bonds in its structure are hydrolyzed by cellulases. These enzymes can be produced by microorganisms including fungi, bacteria and actinomycetes and are used today for the industrial applications in the pulp and paper, food and textile industries and in the conversion of plant biomass materials into industrially useful products such as sugars

	and bio-ethanol. The cost of production and low yields of these enzymes are the major problems for industrial applications. For this reason, there is a requirement that new microbial enzyme sources are investigated with the aim of improving cellulase production. In this study, the endo-β-1, 4 glucanase from local isolate *Trichoderma ouroviride* was produced in submerged fermentation using carboxymethylcellulose as a carbon source. The enzyme was purified by ammonium sulphate precipitation and gel chromatography with 7, 2-fold in a yield of 4, 1%. The optimal pH and temperature of purified enzyme was determined. In conclusion, the optimal pH and temperature for hydrolytic activity toward CMC was 50 ℃ and pH 5, 0, respectively. It was understood that the purified enzyme has adequate activity and properties for industrial applications.
F20010 Poster only	Novel Systemically Active Galanin Receptor Subtype Specific Ligands in Depression-like Behavior **Indrek Saar** *Abstract*—Neuropeptide galanin and its three G-protein coupled receptors, GalR1-GalR3, are involved in the regulation of numerous physiological and disease processes, and thus represent tremendous potential in neuroscience research and novel drug lead development. One of the areas where galanin is involved is depression. Previous studies have suggested that activation of GalR2 leads to attenuation of depression-like behavior. Unfortunately, there is a lack of in vivo usable subtype specific ligands in the galanin field. In the current paper we utilize an approach of increasing in vivo usability of peptide-based ligands, acting upon CNS. In addition, we demonstrate a series of novel systemically active GalR ligands with preferential binding towards GalR2 and show in side by side comparison with common clinically used antidepressant medication imipramine their ability to attenuate depression-like behavior.
F30004	Approximate String Matching for Searching DNA Sequences **Jolanta Kawulok** *Abstract*—This paper presents a new algorithm for searching short fragments of sequences in long DNA sequences. A short sequence (pattern) is searched in both DNA strands with a given maximal value of errors. Each DNA sequence (T) is preprocessed by compressing it using Burrows-Wheeler transform and wavelet tree. First, the pattern is divided into short words which overlap themselves, and then their positions in T are determined using FM-index. Connections between the words are searched under the assumption of an acceptable maximal error allowed. Experimental results indicate that the algorithm is highly effective and it outperforms a popular Basic Local Alignment Search Tool (BLAST) in case of searching for short sequences.

15：30 - 15：50	**Coffee Break**

Afternoon, February 25, 2013 (Monday)

SESSION – 5 (ICFEE)
Venue: TREVI
Session Chair: Je-Lueng Shie
Time: 15:50 – 18:30

I064	Automated measurement and monitoring of the electromagnetic fields from GSM systems **Eduard Lunca**, Alexandru Salceanu, and Silviu Ursache *Abstract*—The main objective of the present study is to introduce a virtual instrumentation system for automated characterization of the electromagnetic fields generated by GSM systems. The system consists

	of calibrated antennas, remotely controlled spectrum analyzer with USB connectivity and dedicated LabVIEW software for data transfer, processing, analysis and monitoring. Primarily intended to determine the RF fields from GSM base stations, it can also be used for investigating the RF exposure from other communication technologies.
I10002	Dynamic Modeling a of Phosphoric Acid Fuel Cell (PAFC) and its Power Conditioning System **M. A. Tanni**, Md Arifujjaman *Abstract*—This paper presents the dynamics of a phosphoric acid fuel cell (PAFC) and its associated power electronics. The modeling of the power conditioning system for phosphoric acid fuel cell is discussed here. This model is based on empirical equations. The simulation is done using Matlab/Simulink and its Power System Blockset (PSB). This model mathematically calculates cell output voltages and their consequent losses. It also calculates the ac output from the system by simulating an inverter dc input from the fuel stacks. The V-I curves and dynamics can be observed. The effects of variation in outputs for different inputs can also be observed. This model is easy to understand and it requires less computational time.
I10006	Carbon Dioxide Capture: Absorption of Carbon Dioxide in Piperazine Activated Concentrated Aqueous 2-Amino-2-Methyl-1-Propanol Sukanta K. Dash , **Syamalendu S. Bandyopadhyay** *Abstract*-In this work new experimental data on the rate of absorption of CO_2 into PZ activated concentrated aqueous AMP in the temperature range of (323–333) K are presented. Rate activator PZ is used with a concentration of (2–8) wt%, keeping the total amine concentration in the solution at 50 wt%. The vapour-liquid equilibrium (VLE) of CO_2 into aqueous solutions of (AMP+PZ) have also been measured and modeled in order to determine the liquid phase speciation of (AMP+PZ+CO_2+H_2O) system and equilibrium CO_2 loading. The theoretical absorption-rate model used to interpret the experimental kinetic data is based on all possible chemical reactions in the liquid phase. The average absolute deviation between the experimental and model results is about 6.8 %.
I10009	Steady State Performance of a Bioreactor for Production of Near Zero Sulfur Diesel (NZSD) and Bio-surfactant **Sujaya. Bandyopadhyay**, Ranjana.Chowdhury, Chiranjib.Bhattacharjee *Abstract*—Diesel oil contains an array of refractory organo sulfur compounds like substituted benzothiophenes (BTs) and dibenzothiophenes (DBTs) which are difficult to remove by conventional hydrodesulfurization process. Due to strict environmental regulation and different health hazards it is mandatory to reduce the sulfur content in diesel to near zero level to mitigate SO_2 emission .Bio-desulfurization is one of the challenging and economical route through which hydrotreated diesel can be desulfurized to near zero level, simultaneously with the production of bio-surfactant namely 2-hydroxy biphenyl (2-HBP) and alkylated HBPs.Other bio-surfactants like glyco- and phospho- lipids are also produced during this process.For commercialization of biodesulfurization of hydrotreated diesel more studies should be conducted systematically to generate data on the characteristics of this process both from the perspective of removal of sulfur of diesel as well as the production of biosurfactant. Under the present investigation, kinetics of biodesulfurization of hydrotreated diesel using Rhodococcus sp has been studied with special reference to removal of organo-sulfur compounds in diesel and production of 2-hydroxy biphenyl. The identification of 2-HBP in treated diesel has been made using HPLC,FTIR and GC-MS .The sulfur concentration of feed diesel was in the range of 200-540 mg/L. Aqueous phase to diesel ratios were varied in the range of 9:1 to1:9. The optimum ratio was found to be 1:4 and the maximum conversion of sulfur was determined to be 95%. The values of Monod kinetic parameters namely, $\mu_{max,}$ maximum specific growth rate and $K_{s,}$ saturation constant of the microbial growth and

	Yield coefficient of surfactant have been measured to be $0.096h^{-1}$, 71mg/L , and 17 μmol/g dry cell weights respectively by conducting batch type experiments. A continuous chemostat was studied using different hydrodynamic and physico-chemical parameters like dilution rate, initial concentration of organo-sulfur compounds in diesel, stirring rate and aeration rate. Surfactant part was characterized by determination of surface tension (Ring method), E24, TLC, HPLC and GC-MS. The interfacial tension of the supernatant fermented by Rhodococcus sp decreased from 28 dynes/cm to 9 dynes/cm .
I10010	Relevance of Branding of Green IT for Sustainable Development of IT Companies **Prof. Dr. Meenakshi Sharma**, Anamica Singh, BIT Mesra *Abstract*— Green IT is a buzzword, doing the rounds all over the world these days. Considering today's scenario, we can easily make out the growing awareness of organizations' ecological responsibilities and sustainability. Also management depicts that sustainability is literally taking a leap to develop environment friendly technologies, also it has been noticed that to solve the sustainability concern, together organizations' green competitive positioning and sustainability less work has been done. Although, not much of researches' has been conducted to explore how Greening Technologies (Green IT), can help organizations attain competitive advantage with branding of Green IT and develop sustainability. The main motive of this paper is to propose a framework with regard to the roles of branding of Green IT in the quest of sustainable development of IT companies. The major objectives of the paper are to find the relevance of Green IT in IT companies and to find an answer for the following questions – What is the relevance of Branding of Green IT? How Green IT can help IT companies in their sustainable development?
I10012	Development of Eco-adsorbent Based on Solid Waste of Paper Industry to Adsorb Cadmium Ion in Water **Eko Siswoyo**, Shunitz Tanaka *Abstract*— Eco-adsorbent prepared from paper sludge, a solid waste of paper industry, was studied to adsorb cadmium ion in water. Some parameters such as mass of the adsorbent, pH of solution, and shaking time were investigated in order to know the adsorption ability of the adsorbent. The presence of carboxyl and phenolic hydroxyl functional groups in this adsorbent were important in the process of adsorption. It was found that pH 6 to 8 of solution and 60 minutes of shaking time was a suitable condition for this adsorbent in adsorbing cadmium ion. Langmuir isotherm adsorption model was fit for this adsorbent and the adsorption capacity for Cd(II) was 5.21 mg/g.
I10014	Saving on Energy of and Determining the Best Location of Water Treatment Plant along Rivers Depending On the Effect of Broad Crested Weir On Dissolved Oxygen Concentrations in Water **Sherine Ahmed El Baradei** *Abstract*—This research is concerned with studying the effect of installing a weir on dissolved oxygen (DO) concentrations in water at different water depths. The study was done using a laboratory flume to be under controlled conditions; i.e constant temperature and no pollution sources. Then a mathematical simulation part is done – using Streeter-Phelps equation- to the study to relate it to real life conditions and thus determine where is the best location to install a water treatment plant on a river. Although many studies were done on examining the effect of hydraulic structures on air entrainment in water, bubbles captures in water, rate of transfer of oxygen to the water, rarely was the direct effect of hydraulic structures on dissolved oxygen concentration values in water investigated. This study will be investigating the effect of broad crested trapezoidal weirs on the dissolved oxygen (DO) in water at different longitudinal stations along the same water streamline; as well as, at different water depths. The study was done on a flume in the hydraulics laboratory at the American University in Cairo. It was found that installing the weir increased the values of the DO in water (comparing its upstream side with the downstream side) by an average of 5.3% comparing all depths. It was also found that installing a weir on a

	river will result in shortening the time the DO takes to recover after a pollutant was dropped in a river by 39.5%.
I10015	Electrode Material of Carbon Nanotube/Polyaniline Carbon Paper Applied in Microbial Fuel Cells **Chin-Tsan Wang**, Ruei-Yao Huang, Yao-Cheng Lee and Chong-Da Zhang *Abstract*—Microbial fuel cells (MFCs) are promising clean energy sources for simultaneous recycling of organic waste while harvesting electricity. As for the different effects of electrode materials on the power performance of MFCs, a new material of electrode, carbon nanotube/polyaniline carbon paper (CNT/PANI carbon paper) was utilized and compared with other traditional carbon paper/cloth in this study. Results show that a lower ohmic loss and a better power performance were executed by using CNT/PANI carbon paper. These findings further exhibit its feasibility to improvement of power performance in MFCs.
I10017	Water Retention Characteristics of Porous Ceramics Produced from Waste Diatomite and Coal Fly Ash **Kae-Long Lin**, Ju-Ying Lan *Abstract*—This study examines potential waste diatomite and coal fly ash reuse to prepare water absorption and retain porous ceramics. The operating conditions are constant pressure (5 MPa), sintering temperature (1000-1270℃), sintering time (2 h), waste diatomite containing coal fly ash at different proportions (0-20%), respectively. The porous ceramic samples containing coal fly ash show low thermal conductivity properties (0.278-0.349 W/mK), probably owing to the more pores than those in the concrete (1.458 W/mK). Water release (t1/2 value) by the porous ceramic samples is decelerated by porous ceramic samples containing coal fly ash, due to the synergy effect of high water absorption by the coal fly ash and better than in the foamed glass material (4 h). Porous ceramic samples containing coal fly ash is highly promising for use in water absorption and retention applications.
I10018	Ground Source Heat Pumps **Lale Valizade** *Abstract*— A heat pump is a device that is able to transfer heat from one fluid at a lower temperature to another at a higher temperature. Ground source heat pumps are generally classified by the type of ground loop. The coefficient of performance (COP) is used to define the heating performance of heat pumps. Both the COP and EER values are valid only at the specific test conditions used in the rating. a ground source pump could reach 450%, compared with an efficient gas boiler of 90% obviously this is a big difference. The cost of equipment, material and installation can be expensive, depending on the type of heat pump installation planned.
I20007	Efficiency of nanoscale zero valent iron in soil washing system for removal of trinitrotoluene Rachain Kosanlavit and **Waraporn Jiamjitrpanich** *Abstract*— This research aimed to investigate the applications of nanoscale zero valent iron particles (nZVI) in soil washing method to remediate or degrade TNT in the contaminated soil sample. The soil washing reactor was used in this study to determine TNT remediation in slurry soil with nZVI. TNT contaminated soil was divided into two sets. The first one was only washed with milli-Q water (1:2 w/v) and the other one was added with nZVI particles (250/1 nZVI/TNT ratio) before washing with milli-Q water. The reaction times in this experiment were varied between 0-100 minutes. The results of the experiment without added nZVI particles demonstrated that TNT removal efficiency was slightly increased with a maximal value of 11.89% at the time point of 100 minutes. In comparison, it was considerably increased up to 78.86% TNT removal efficiency of slurry soil in the experiment with added nZVI particles at the time point of 50 minutes before it was relatively constant afterward. In this study, the concentrations (mg/kg) of 2-ADNT and 4-ADNT as TNT metabolites in soil and wash water were also analyzed and presented. The results showed that the concentrations of 2-ADNT and 4-ADNT were found

	in washed soil in the system with added nZVI higher than those without added nZVI. It was possibly due to degradability of nZVI. The highest concentration was about 2 mg/kg of 2-ADNT in soil of washing system with nZVI at 40 minutes. Overall, the TNT metabolite formation showed quite fluctuation with a rapid increase in the first 40 minutes after that it was dropped. Meanwhile, there was no detection of 2-ADNT and 4-ADNT concentrations in wash water in both with and without added nZVI particles.
I20011	Enhancement of benzine combustion behavior in exposure to the magnetic field **Mahsa Jalali**, Mehdi Sadegh Ahmadi, Farzaneh Yadaei, Mehdi Heidar Zadeh Azimi and Hamidreza Madaah Hoseyni *Abstract*—Reduction of fuel consumption, especially hydrocarbons which are the main sources of energy, is one of the most serious concerns of scientific and also industrial societies. Magnetic field is found to be a potential candidate to enhance the combustion behavior of hydrocarbons. The current study is an effort to investigate the effects of magnetic field on n-hexane and benzine in molecular and electronical scales using UV-Visible and also FT-IR techniques. It is observed that molecules of hydrocarbons modifies by activating new vibrational modes in exposure to strong enough magnetic fields, leading to increase in average kinetic energy and then free energy of fuel. In other words, applying strong enough magnetic field could increase the combustion enthalpy and the reduction the rate of combustion.
I30001	Comparative analyses of primary and secondary amines for CO_2 chemical process capture in a CFBC pilot installation **Cristian DINCA** *Abstract*—The aim of this paper is to optimize the integration of post-combustion CO_2 capture by chemical absorption in the technology of circulating fluidized bed combustion of coal, by comparing the effects of the usage of primary amines (MEA) and of secondary amines (DEA). The validation of the results obtained after the HYSYS 3.2 modeling of the CFBC technology with post-combustion CO_2 capture by chemical absorption was based on experimental results. The minimum quantity of required energy (2.65 GJ/tCO_2) was obtained in the case when DEA (40 wt.%) was used, for the following values of process parameters: the CO_2 capture process efficiency of 85%; the ratio L/G = 1, lean loading solvent was of 0.22 mol_CO_2/mol_DEA, the rich solvent loading was of 0.45 mol_CO_2/mol_DEA; the stripper inlet solvent temperature was of approximately 85 ^oC, while the optimal number of stages in the absorber was 8.
I30003	Methane fermentation of nigh soil and food waste mixture **Assadawut Khanto** and Peerakarn Banjerdkij *Abstract*—Ranges of environmental problem from human activities have become a global problem. Therefore, reducing volume of waste such as a nigh soil and food wastes to use as resource materials were considered. The anaerobic batch reactor experiments were conducted to investigate the COD removal and biogas production from night soil and night soil with additional 10% food waste. The 4 batch reactors experiment were conducted, night soil were contained as a fermentation materials for reactor 1-3 and for reactor 4 the night soil with additional 10% food waste were investigated to compare. The experiments were operated at room temperature varies from 25-37 ^oC within 3 months experiment. The results show 90% COD removal and about 50% methane production occurred in this experiment. sTKN and sTP have also investigated in this experiment. sTKN concentration remain constant during experiment period and slightly increase of sTP concentration were appeared.

February 25, 2013 19:00	**Dinner and Closing Ceremony**

Conference Venue

Starhotels Metropole

(http://www.starhotels.com/hotels/metropole/en/home.aspx)

Contact person: Christian Battisti
E-mail Address: meeting.metropole.rm@starhotels.it

APCBEES FORCOMING CONFERENCES

Call for Papers

The 2013 4th International Conference on Chemistry and Chemical Engineering (ICCCE 2013) is the premier forum for the presentation of technological advances and research results in the fields of Chemistry and Chemical Engineering.

All papers of ICCCE 2013 will be published in the IJCEA (ISSN: 2010-0221) as one volume, and will be included in Engineering & Technology Library, EBSCO, Ulrich's Periodicals Directory, BE Data, Google Scholar, Cross ref, ProQuest and sent to be reviewed by Ei Compendex and ISI Proceedings

Important Date

Paper Submission (Full Paper)	Before May 1, 2013
Notification of Acceptance	On May 20, 2013
Authors' Registration	Before June 5, 2013
Final Paper Submission	Before June 5, 2013
ICCCE 2013 Conference Dates	July 6-7, 2013

SUBMISSION METHODS:

Conference Template (DOC)

Conference Website: www.iccce.org

1. **Electronic Submission System**; (.pdf)

If you can't login the submission system, please try to submit through method 2.

2. Email: **iccce@cbees.org** (.pdf and .doc)

Call for Papers

The 2013 3rd International Conference on Environmental and Agriculture Engineering (ICEAE 2013) is the premier forum for the presentation of technological advances and research results in the fields of Environmental and Agriculture Engineering.

All papers of ICEAE 2013 will be published in IJESD (ISSN: 2010-0264) as one volume, and all papers will be included in the Engineering & Technology Digital Library, and indexed by Ulrich's Periodicals Directory, EBSCO, WorldCat, Google Scholar, Cross ref, ProQuest and sent to be reviewed by Compendex and ISI Proceedings.

Important Date

Paper Submission (Full Paper)	Before May 1, 2013
Notification of Acceptance	On May 20, 2013
Authors' Registration	Before June 6, 2013
Final Paper Submission	Before June 6, 2013
ICEAE 2013 Conference Dates	July 6-7, 2013

SUBMISSION METHODS:

Conference Template (DOC)

Conference Website: www.iceae.org

1. **Electronic Submission System**; (.pdf)

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Call for Papers

The 2013 2nd International Conference on Geological and Environmental Sciences (ICGES 2013) is the premier forum for the presentation of technological advances and research results in the fields of Geological and Environmental Sciences.

All papers of ICGES 2013 will be published in the Volume of Journal (IPCBEE, ISSN: 2010-4618), and all papers will be included in the Engineering & Technology Digital Library, and indexed by Ei Geobase (Elsevier), Ulrich's Periodicals Directory, EBSCO, CNKI, WorldCat, Google Scholar, Cross ref and sent to be reviewed by Compendex and ISI Proceedings.

Important Date

Paper Submission (Full Paper)	Before April 30, 2013
Notification of Acceptance	On May 15, 2013
Authors' Registration	Before May 30, 2013
Final Paper Submission	Before May 30, 2013
ICGES 2013 Conference Dates	July 6-7, 2013

SUBMISSION METHODS:

Conference Template (DOC)

Conference Website: www.icges.org

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Call for Papers

The 2013 3rd International Conference on Asia Agriculture and Animal (ICAAA 2013) is the premier forum for the presentation of technological advances and research results in the fields of Asia Agriculture and Animal.

All papers of ICAAA 2013 will be published in the APCBEE Procedia (Journal under Elsevier, ISSN: 2212-6708), and will be included in ScienceDirect and sent to be reviewed by Scopus, Ei Compendex and ISI Proceedings.

Important Date

Paper Submission (Full Paper)	Before May 15, 2013
Notification of Acceptance	On June 5, 2013
Authors' Registration	Before June 20, 2013
Final Paper Submission	Before June 20, 2013
ICAAA 2013 Conference Dates	July 27 - 28, 2013

SUBMISSION METHODS:

Conference Template (DOC)

Conference Website: www.icaaa.org

1. **Electronic Submission System**; (.pdf)

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2. Email: **icaaa@cbees.org** (.pdf and .doc)

Call for Papers

2013 2nd International Conference on Biological and Life Sciences (ICBLS 2013) is the premier forum for the presentation of technological advances and research results in the fields of Biological and Life Sciences.

All papers of ICBLS 2013 will be published in the Journal of Life Sciences and Technologies (JOLST, ISSN: 2301-3672) as one volume, and will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, CrossRef, DOAJ, MELib, Index Copernicus, JournalSeek, Google Scholar, Cross ref and sent to be reviewed by Ei Compendex and ISI Proceedings

Important Date

Paper Submission (Full Paper)	Before May 20, 2013
Notification of Acceptance	On June 10, 2013
Authors' Registration	Before June 25, 2013
Final Paper Submission	Before June 25, 2013
ICBLS 2013 Conference Dates	July 27 - 28, 2013

SUBMISSION METHODS:

Conference Template (DOC)

Conference Website: www.icbls.org

1. **Electronic Submission System**; (.pdf)

If you can't login the submission system, please try to submit through method 2.

2. Email: **icbls@cbees.org** (.pdf and .doc)

Call for Papers

2013 2nd International Conference on Nutrition and Food Sciences(ICNFS 2013) is the premier forum for the presentation of technological advances and research results in the fields of Nutrition and Food Sciences. ICNFS 2013 will bring together leading engineers and scientists in Nutrition and Food Sciences from around the world.

All papers of ICNFS 2013 will be published in the Volume of Journal (IPCBEE, ISSN: 2010-4618), and all papers will be included in the Engineering & Technology Digital Library, and indexed by Ei Geobase (Elsevier), Ulrich's Periodicals Directory, Ulrich's Periodicals Directory, EBSCO, CNKI, WorldCat, Google Scholar, Cross ref and sent to be reviewed by Compendex and ISI Proceedings.

Important Date

Paper Submission (Full Paper)	Before May 20, 2013
Notification of Acceptance	On June 10, 2013
Authors' Registration	Before June 25, 2013
Final Paper Submission	Before June 25, 2013
ICNFS 2013 Conference Dates	July 27-28, 2013

SUBMISSION METHODS:

Conference Template (DOC)

Conference Website: www.icnfs.org

1. **Electronic Submission System**; (.pdf)

If you can't login the submission system, please try to submit through method 2.

2. Email: **icnfs@cbees.org** (.pdf and .doc)

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