2013 APCBEES COPENHAGEN CONFERENCES SCHEDULE

COPENHAGEN

FIRST HOTEL COPENHAGEN

May 19-20, 2013

Sponsored and Published by

May 19, 2013 (Sunday)

First Hotel Copenhagen

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 May 20, 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 7 Minutes of Presentation 3 Minutes of Q&A

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

Conference website and Secretariat Contact:

ICEII 2013: www.iceii.org iceii@cbees.org

ICBET 2013: www.icbet.org icbet@cbees.org

ICFEB 2013: www.icfeb.org icfeb@cbees.org

Morning, May 20, 2013 (Monday)

Venue: Congress 3

08:40-08:50	Opening Remarks Saji Baby Environmental Manager (Research and Consultation) & Principal Scientist GEO Environmental Consultation
08:50-09:30	Keynote Speaker I  Prof. Ioana Demetrescu University Politehnica Bucharest, Romania "Carbon nanotubes functionalization in serving Biomedical Engineering"
09:30 – 10:10	Keynote Speaker II  Saji Baby Environmental Manager (Research and Consultation) & Principal Scientist GEO Environmental Consultation "Petroleum Industries Related Soil Pollutant Contamination and Rehabilitation Technologies Adopted in Kuwait"
10:10-10:30	Taking Photo and Coffee Break

Morning, May 20, 2013 (Monday)

SESSION – 1 (ICEII)

Venue: Congress 3

Session Chair: Saji Baby

Time: 10:30 – 12:00

A004	The Recovery of Oil from Oil/Sand Slurries in a Laboratory-Scale Flotation Cell **Lau E. V.**, Foo K. L., and Poh P. E. *Abstract*—Oil/sand slurries are found abundantly particularly at petroleum refineries. The ability to recover oil from these oil/sand slurries is an added advantage to meet the increasing need in oil consumption. Thus, this research aims to investigate the effects of temperature and pH in the recovery of oil from oil/sand slurries using the flotation technique. The critical operating temperature and optimum pH condition are determined to be at 50oC and pH 9 respectively, whereby the maximum average oil

	recovered is 63.2 wt%. Oil recovery is found to be favorable at elevated temperatures due to the reduced oil viscosity which facilitates the liberation of oil from oil sands. Under alkaline conditions, negative surface charge is increased, resulting in increased disjoining pressure between the oil and sand grains which led to the improved oil recovery. Thus, the flotation process provides a promising alternative to recover oil from oil/sand slurries.
A005	The Performance Test on Local Exhaust Ventilation (LEV) System to Prevent Chlorine Gas Leakage in Water Treatment Plant **Nor Halim Hasan**, M.R Said, A.M Leman and Anuar Mohd Mokhtar *Abstract*— Water is a necessity of life to humans and animals. In Malaysia, Government Link Companies (GLC) or Private Companies manages most of the water treatment plants. Chlorine gas is used as one of the water treatment media to treat raw water that will then be distributed for public or commercial usage. The large volume of Chlorine gases used and stored in these treatment plants has the potential to create a disaster if it leaks. Objective of this paper to highlight a result of Local Exhaust Ventilation (LEV) monitoring system and their performance test in controlling of air flow from the chlorine gas building to prevent leakage and spread to the surrounding environment. Methodology used follows the American Governmental Industrial Hygienist (ACGIH). The Chlorine Gas leakage system is checked and verified by using ACGIH Standard. Finally as a result, all the measured parameters (velocity, flow rate, face velocity and brake horse power (bhp)) show that the measurement and monitoring system of LEV are complied with ACGIH Standard and Local Law and Regulations.
A007	Genetically engineered bacteria immobilized in alginate as an option of cyanotoxins removal. **Dariusz Dziga**, Magdalena Sworzen, Benedykt Wladyka, Marcin Wasylewski *Abstract* — Microcystins (MCs), cyclic heptapeptides produced by cyanobacteria constitute a significant risk to humans. Several bacteria with MCs degradation capability are known, however their practical usage is questionable due to low MC elimination efficiency. As an alternative bacteria with significantly enhanced activity toward these hepatotoxins may be constructed. We have recently presented successful expression of the MlrA enzyme involved in MC biodegradation in E. coli BL21 strain. In this paper preliminary experiments indicating the usefulness of such modified bacteria have been showed. The MC degradation efficiency was monitored by the HPLC detection of linear MC-LR. Immobilization procedure involved the formation of alginate beads with entrapped bacterial cells. The long-term activity of BL21_MlrA in comparison with wild Sphingomonas strain confirmed much higher potential of the modified bacteria. Immobilization in alginate allowed to form beads with high activity toward MC. A column packed with alginate entrapped cells eliminated MC efficiently from contaminated freshwater. These promising results will broaden the perspective of practical application of microorganisms in bioremediation of freshwater.
A009	The Mediterranean Eco-Industrial Development model **A. Dominici Loprieno**, M. Tarantini, R. Preka and M. Litido, *Abstract* - Industrial areas are a fundamental element of territorial development, since they can promote growth, jobs and entrepreneurship. Nevertheless the excessive exploitation of raw materials, the use of non-renewable energy resources, the emission of pollutants and waste production have up to now represented a weakness in the present production model. In this context Mediterranean Eco-Industrial Development (MEID) project, funded by the European program MED, aims to define a joint model to plan, build and manage sustainable Industrial Areas in the Mediterranean region, improving sustainable development and SMEs competitiveness. The model intends to enhance capacities and develop decision tools for Competent Authorities and Industrial Area Managers to integrate environmental friendly solutions into the Regional and Interregional Industrial Development Strategies. An incremental approach has been

	adopted to ensure the model applicability to new industrial areas, as well as already operating non structured and structured areas. Fundamental parts of the management model are high level infrastructures and innovative services to support SMEs to create networks, exploit the eco-innovation opportunities and face the challenges of the Green economy.
A011	Potential of Using Kitchen Waste in a Biogas Plant Apte, V. Cheernam, M. Kamat, S. Kamat, P. Kashikar and **H. Jeswani** *Abstract*— India's economic growth is contributing to a massive increase in the generation of solid waste. Approximately 55 million tones of Municipal Solid Waste is generated annually by urban areas in India. Over 59% of homes in urban India use Liquified Petroleum Gas (LPG) supplied in portable cylinders for their cooking needs. However, due to our country's dwindling petroleum reserves and increased costly imports of petroleum, non conventional energy resources are slowly gaining importance. The use of biogas using kitchen waste as feedstock can help solve the problem of energy deficit and at the same time, allow the safe disposal of kitchen waste which is often unscientifically dumped or discarded. Our institute campus (Bhavans' campus) has a number of campus kitchens that utilize several LPG cylinders and also generate large amounts of kitchen waste. The kitchen waste generated has high calorific value and moisture content; hence it can be anaerobically digested. The biogas produced can be used to supplement the fuel requirements of the campus kitchens that generate the kitchen waste. This study consists of carrying out survey, characterization of kitchen waste from several kitchens and exploring it's potential to be used for biogas production.
A013	PFI System for Retrofitting Small 4-Stroke Gasoline Engines **Mohd Faisal Hushim**, Ahmad Jais Alimin, Hazlina Selamat, and Mohd Taufiq Muslim *Abstract*— Fuel injection system is a promising technology that enhances positively the fuel economy, engine performances and emission reduction, as compared to the conventional carburetor system. Currently, motorcycles using carburetor system are widely used as a mean of transportation especially in urban areas. This conventional fuelling system produces more harmful emissions and consumes more fuel compared to the fuel injection system. It is therefore desirable to have a fuel injection system that can easily be retrofitted to the current on-road motorcycles. This paper presents a review and comparative study using 1-D simulation software - GT-Power, on electronic fuel injection (EFI) system between port-fuel injection (PFI) and direct injection (GDI) system for retrofitment purpose of small 125cc 4-stroke gasoline engine. From this study, PFI system has been selected based on its high brake power, brake torque, and brake mean effective pressure with low brake specific fuel consumption.
A015	Smart Runways- Use of Residual Vibration Energy from Air Wake to produce Electricity **Mohit Agarwal** and Jafar Ali *Abstract*— The importance of aviation industry in modern era is long familiar. The industrial sector has been suffering energy crises from decades and consequently paves way for the need of energy regeneration and utility. Runways are heart of an airport and currently runways are used as pathways for airplane takeoff and landing. The proposed idea emphasizes use of residual mechanical vibrational energy from aircraft during takeoff and landing. Air Wakes are huge source of vibrational energy and these vibrations are harnessed using energy regenerative engineering technology. The lifting aircraft produces turbulent air wakes, which strike light weight swinging elliptical dish plates along sides of the runway. These are made to vibrate continuously and impact the piezoelectric media which consequently produces electric potential. Varieties of efficient piezoelectric harnessers are being developed using different vibration analysis and many have embarked upon the idea. But this paper is unparallel to those in many ways.
A10004	Mathematical Model for Detection of Leakage in Domestic Water Supply Systems by Reading Consumption from an Analogue Water Meter

	Gal Oren and Nerya Y. Stroh *Abstract*—In this article we introduce the principles to detect leakage using a mathematical model based on machine learning and domestic water consumption monitoring in real time. The model uses data which is measured from a water meter, analyzes the water consumption, and uses two criteria simultaneously: deviation from the average consumption, and comparison of steady water consumptions over a period of time. Simulation of the model on a regular household consumer was implemented on Antileaks – device that we have built that designed to transfer consumption information from an analogue water meter to a digital form in real time.

12:00 – 13:30	**Lunch**

Afternoon, May 20, 2013 (Monday)

SESSION – 2 (ICFEB)
Venue: Congress 3
Session Chair: Mirela Kopja
Time: 13:30 – 15:30

B001	Application of Antimicrobial Nanocomposites in Ready to Eat Meat Products **Zehra Ayhan**, Donatella Duraccio, Birgül Özcan, Okan Eştürk, Serra Nalçabasmaz, Clara Silvestre, Sossio Cimmino, Gülsüm Erol, Murat Altan and Bengisu Toplu *Abstract*-The aim of this work was to explore preparation, characterization and applications of active nanomaterials for food packaging. Nano-iPP film and active-nano-iPP film were prepared with the addition of 1% of nanoclay, and with 1% nanoclay plus 5% poly-β-pinene (PβP), respectively. OTR and WVTR and antimicrobial properties of the films were determined. While the addition of 1% nanoclay reduced OTR and WVTR by 10% and 24% comparing to neat iPP, addition of 1% nanoclay and 5% PβP reduced OTR and WVTR by 24% and 31%, respectively. The WVTRs of iPP, iPP-nanoclay, iPP-nanoclay-PβP were 1.88, 1.43 and 1.30 g m^{-2} day^{-1}, respectively. The material containing PβP showed antibacterial effect. Sliced salami was packaged using these nanomaterials and multilayer material (control) under air, vacuum and 50% CO_2-50% N_2 and cold stored at 4°C. Results showed that the best results were obtained in vacuum and high CO_2 applications using multilayer material with the product shelf-life of 75 days. The shelf-life of the sliced salami was 50 days for nanomaterial containing PβP under vacuum; however, it was limited to 30 days under high CO_2 MAP application since the active material was more effective when it is in direct contact with the food.
B003	Infrared Assisted Microwave Drying of Eggplants **Ayca Aydogdu**, **Gulum Sumnu** and Serpil Sahin *Abstract*-The objective of the study is to investigate the effect of microwave-infrared (MIR) combination drying and osmotic dehydration on drying characteristics and color of dried eggplants.Solution of salt with concentration 10% and 20% (w/w) was used to provide osmotic dehydration as a pretreatment. Untreated eggplant slices were used as control. Bothuntreated and osmotically dehydrated eggplant slices were dried by using MIR combination oven in which different microwave powers (30%,40% and 50%) were combined with different infrared powers (10%, 20% and 30%). At the end of drying, initial moisture content decreased from 14 kg water/ kg dry solid to approximately 0.13 kgwater/ kgdrysolid for control

	eggplants and 0.03 kg water /kg dry solid for osmotically dehydrated eggplants. Drying time was reduced with increasing microwave and infrared power. Eggplants treated with osmotic dehydration had higher L* value after drying.
B005	ADEM: An online decision tree based menu demand prediction tool for food courts **Ahmet Selman Bozkir** and Ebru Akcapinar Sezer *Abstract*- The uncertainty of consumption demand in institutional food courts can cause loses of resources, work power and prestige. In this study, to overcome this problem, decision tree, a predictive data mining method was utilized. Thus, decision tree models sourced from an original 44 monthly dataset were generated and a tool named ADEM was designed and developed to make online prediction against the best model. To determine the best model, 10 fold cross validation technique was applied. As a result, decision tree models reaching up 80.78 accuracy levels (VAF value) were obtained and a user friendly, platform independent and reusable decision tree based decision support tool is presented for managers and nutritionists.
B009	Effects of chestnut flour on staling characteristics of gluten-free breads Ilkem Demirkesen, Osvaldo Campanella, Gulum Sumnu, **Serpil Sahin** and Bruce R. Hamaker *Abstract*-The effects of chestnut flour and a xanthan-guar gum blend-DATEM mixture on staling of gluten-free rice breads were studied. Staling properties of the bread were assessed using moisture loss, retrogradation enthalphy and mass crystallinity values. Moisture loss, retrogradation enthalpy and total mass crystallinity values for all bread samples increased significantly during storage. The replacement of rice flour with chestnut flour and the addition of xanthan-guar gum-DATEM mixture in formulations delayed staling of gluten-free breads significantly by decreasing moisture loss, retrogradation enthalpy, and total mass crystallinity.
B012	A rapid screening approach to factors affecting dilute acid hydrolysis of hazelnut shells **Sibel Uzuner** and Deniz Cekmecelioglu *Abstract*-Hazelnut shell is a lignocellulosic waste obtained from hazelnut processing. It is a potential source of pentose and hexose sugars (xylose, glucose) which can be used as a raw material for production of food enzymes, biofuel, and chemicals (acetic acid, furfural, methanol). An increasing interest in lignocellulosic wastes seems to stay consistent as these materials are low cost, renewable and abundant. The objective of the present study was to determine the effect of dilute acid (H2SO4) concentration, temperature and time on production of reducing sugars.The conventional one factor at a time approach showed that the highest concentration of reducing sugar was 16.74 g/L at a temperature of 130 ℃, an acid concentration of 3%, and a reaction time of 37.5 min, which also revealed a saccharification yield of 64.4%. Thus, this study showed that dilute acid hydrolysis is a promising pretreatment for hazelnut shells.
B013	Effect of tomato pulp addition on the functional properties of extrudates **Bade Tonyali**, **Cagla Caltinoglu** and **Ilkay Sensoy** *Abstract*-Effect of addition of tomato pulp on the physical parameters and the effect of extrusion on functional properties of the extrudates were investigated. Corn grits with and without tomato pulp at 30% moisture were extruded. Sectional expansion index, color and sensory analysis were conducted. Tomato pulp addition caused sligt increase in the expansion index at two shear rate and caused increase in the redness and some decrease in yellowness. Sensory analysis indicated no significant difference between the pulp added and not added products for appearance, color, crispiness, porosity, and overall preferences. Results indicated that total phenol content decreased from 12.41±0.76 mg/g to 3.39±0.47 mg/g at 125 rpm and to 2.59±1.33 mg/g at 225 rpm, expressed as gallic acid equivalent per gram dry sample with extrusion. Antioxidant activity was not affected by extrusion at the selected conditions. Antioxidant activity of the feed, and extrudates at 125 and 225 rpm were; 15.50±3.02, 15.16±3.60 and 14.72±3.34 μmol/g dry sample

	expressed as trolox equivalents. Shear rate had no significant effect on either total phenol content or antioxidant activity at the selected conditions.
B015	Effect of Blanching and Freeze-thaw Treatment on the Drying Rate and Electrical Impedance Characteristics of Carrots **Yasumasa Ando**, Koichi Mizutani and Naoto Wakatsuki *Abstract*- The objective of this study is to investigate the relationship between drying rate and physiological status of the blanched and frozen-thawed carrots. Electrical impedance spectroscopy was applied to measure electrical impedance characteristics as physiological status of the pretreated samples. Single exponential model was applied to describe moisture content changes during drying process. In the experimental results, drying rate constant k of the blanched and frozen-thawed samples were greater than that of control. Frozen-thawed sample had the highest values of k. Blanched samples showed higher values of k as the blanching temperature increases. The modified Hayden model which is an equivalent circuit model to represent plant cells was applied to describe impedance characteristics of each sample. Frozen-thawed sample took the significantly low value of Re/Ri which is the parameter representing healthiness of the cell membranes. Re/Ri of the blanched sample was lower as the blanching temperatures increases. In terms of the relationship between Re/Ri and drying rate constant k, negative correlation between them was found. From these results, it was suggested that increase of drying rate is due to increase of the water permeability caused by injury of cell membranes.
B016	Physicochemical and rheological changes of myofibrillar proteins from big-eye tuna (Thunnus obesus) during frozen storage Liu Qin, **Bao Hairong** and Xi Chunrui *Abstract*- Physicochemical changes of muscle from tuna were monitored during 60 days of storage at -18 and -30 ℃. Ca2+-ATPase activity of myofibrillar protein (MP) storage at both temperature decreased continuously during storage ($P<0.05$). A decrease in sulfhydryl group content was observed during the storage ($P<0.05$). Rheology indicated that MP at -18 ℃ showed higher storage modulus (G') than -30 ℃. The loss of free sulphydryls associated with the decrease in Ca2+-ATPase activity could result in an ascent in the storage modulus (G').
B017	Isothermal Rheological Profiles of Filmogenic Solutions from Native and Oxidized Starch with Plasticizers Addition Cynthia Gama-Abundez, Rodolfo Rendón-Villalobos, Emmanuel Flores-Huicochea, Francisco Rodríguez-González and **Javier Solorza-Feria** *Abstract*- Filmogenic solutions (FS) with 4 % w/w total solids, with either native (NS), or oxidized (OX2 and OX3) banana starch, were prepared using two plasticizers: starch-glicerol (1:1), starch-sorbitol (1:1). Amplitude and frequency sweeps were carried out using a stress controlled Rheometer TA Instruments (strain mode), model AR1000, with a cone and plate system, 60 mm of diameter and angle of 2°. Isothermal tests were run at 25 ℃. The storage (G') and viscous (G") modulus as well as the complex viscosity (η*) were measured. All FS from NS behaved as weak gel-like viscoelastic materials, with G' > G", while the oxidized specimens behaved as viscous solutions. The moduli values (G' and G") of NS predominated over those of the oxidized specimens (NS>OX2>OX3). Overall, sorbitol enhanced the samples structure to a higher degree than glycerol. Shear-thinning, shear-thickening and Newtonian behavior were seen in the FS viscosity profiles.
B022	Inactivation of Mushroom Polyphenoloxidase (PPO) by Thermosonication **Hande Baltacioglu**, Alev Bayindirli and Feride Severcan *Abstract*- In this study the combined effect of heat and ultrasound (thermosonication) on the inactivation of mushroom PPO was investigated. Inactivation of mushroom PPO was performed at 100% power for

	different temperature (20-60 ℃) and time (0-30 min) intervals. The activity of mushroom PPO dropped slightly at 20 ℃. However, higher mushroom PPO inactivation was observed after treatments between 30 ℃ and 60 ℃ with ultrasound compared to the activity in untreated samples. Complete inactivation was achieved at 60 ℃ for 10 min during thermosonication inactivation. As a result it was reported that thermosonication treatment was effective way to inactivate the mushroom PPO enzyme at low temperatures.
B023	Biotransformation of Monoterpenes by Endophytes Isolated From Brazilian Fruits **Gustavo Molina** and Gl áucia M Pastore *Abstract*-The term "endophytes" includes a suite of microorganisms that grow intra and/or intercelullarly in the tissues of higher plants without causing over symptoms on the plants in which they live. These microorganisms represent a potential source of novel natural products for medicinal, agricultural and industrial uses, such as antibiotics, anticancer agents, biological control agents, and other bioactive compounds. Despite the great potential of these microorganisms, their potential has not been investigated for the biotransformation of terpenes for the production of novel flavor compounds. Therefore, the aim of the present work was to isolate these microorganisms from Brazilian fruits and to investigate their biotechnological potential. Accordingly, it was proposed the biotransformation of the monoterpenes limonene, citronellol, α-pinene and β-pinene for the production of new flavor compounds. A total of 10 fungal strains were isolated from Cupua çu (Theobromagrandiflorum), Curau á (Ananaserectifolius) and Jamel ão (Syzygiumcumini) and identified in the present work. The preliminary results showed that the strains were capable of withstanding high concentrations of the terpenes tested (2-10%) and able to use the substrates as sole carbon source. The fungal endophyte LBCC1 bioconverted α-pinene into verbenol (85% similarity in MS results and confirmed with commercial standard), started after 48 hours of contact with the terpene. Quantification of verbenol showed a maximum production around 85 hours, reaching 40 mg.L-1, and its production occurred based on the biochemical reaction of hydroxylation of α-pinene. Meanwhile, the biotransformation of limonene by LBCC1 and LBCC2 resulted in limonene-1,2-diol. Although this product was recurrent from two strains, this pathway is well known in the literature using fungi as biocatalysts in biotransformation process. When the substrate was β-pinene, the strains LBJM2 and LBCR1 produced myrthenol and α-terpineol, respectively. In the latter case, the production achieved 58 mg.L-1 after 44 hours of fermentation. The biotransformation of citronellol resulted in rose oxide, a very interesting product for the flavor industry. The products achieved in this paper are of great industrial interest and the biotransformation of terpenes by fungal endophytes appeared as a promising alternative for commercial production of these bioflavors. Thus, this work demonstrates a partial use of these microorganisms in biotechnological processes and their potential as source of new flavor compounds from the biotransformation of monoterpenes.
B024	Selective separation of aminoacids mixture by reactive extraction and pertraction Lenuta Kloetzer, Alexandra Blaga, Madalina Postaru, Alexandra Carlescu, Anca Galaction and **Dan Cascaval** Abstract- Separation of some amino acids from their mixture obtained either by fermentation or protein hydrolysis by reactive extraction with di-(2-ethylhexyl) phosphoric acid (D2EHPA) indicated the possibility of the amino acids selective separation as a function of the pH value of aqueous solution and the acidic or basic character of each amino acid. Thus, using multistage extraction, the total separation of the following amino acids groups has been performed: neutral amino acids (l-glycine, l-alanine, l-tryptophan) at pH 5–5.5 (nine extraction stages), basic amino acids (l-lysine, l-arginine) and l-cysteine at pH 4–4.5 (ten extraction stages), l-histidine at pH 3–3.5 (five extraction stages), and acidic amino acids. Further, in order to reduce the number of stages required for an efficient separation and, therefore, the

	corresponding energy and material consumption, the study on facilitated pertraction of these amino acids from their mixtures using di-(2-ethylhexyl) phosphoric acid (D2EHPA) as carrier was performed.

Afternoon, May 20, 2013 (Monday)

SESSION – 3 (ICBET)
Venue: Meeting 16
Session Chair: Prof. Ioana Demetrescu
Time: 13:30 – 15:30

B0002	An Easy Platform for Postural Balance Analysis by the Evaluation of Instantaneous Center of Gravity **Samir Boukhenous**, Mokhtar Attari, Youcef Remram *Abstract*-The aim of this paper is to present an easy instrument and method for postural balance analysis based on evaluation of instantaneous center of gravity (COG) were the subject is stand on innovative force platform. The instrument is realized with three identical composite sensor supporting a feet plate were used to measure the ground reaction force applied by subject during postural balance analysis. A Microsystems based on microcontroller was built in order to drive the instrumentation and a graphical user interface was realized. The signals acquisitions are displayed on the PC screen when the COG moves in the xy plan. After the calculation and programming of the COG coordinates point, the plot of the XG and YG time series of the COG position during a postural balance analysis is easily obtained and recording. The effect of visual input is studied by performing the test with eyes open and then closed. The dynamic parameters show clear indicator of the postural balance. Objective method of diagnosis is to access to postural stability for identifying persons at risk of falling.
B0003	EEG artifact detection using spatial distribution of rhythmicity **Skupch A.M.**, Dollfuß P., Fürbaß F., Hartmann M., Perko H., Pataraia E., Lindinger G., Kluge T. *Abstract*-The contamination of EEG by artifacts requires automatic artifact detection for EEG processing systems. It is particularly important for automatic seizure detection systems since artifacts can mimic rhythmical pathological EEG. In this paper we present a novel approach to artifact detection by considering the spatial distribution of the rhythmicity of the EEG signal with the help of the Periodic Waveform Analysis (PWA). The algorithm enables to identify defect electrodes during the EEG-processing. The good performance of this algorithm is shown by including it into the automatic seizure detection system EpiScan and applying it to a very large and varied database.
B0004	Investigation of the Thermostability of Bovine Submaxillary Mucin(BSM) and Its Impact on Lubrication **Jan Busk Madsen**, Kirsi I. Pakkanen, Seunghwan Lee *Abstract*-Bovine Submaxillary Mucin (BSM) generates thin film layers via spontaneous adsorption onto hydrophobic surfaces such as Poly(dimethylsiloxane) (PDMS) and High Density Polyethylene (HDPE). A characteristic feature of mucin is its tribological- or lubricating properties. Circular dichroismspectroscopy revealed that BSM is thermally stable over a wide range of temperatures (5–85 ℃) in its conformation, and Pin-on-Disk tribometry at low speeds showed negligible influence on lubricating properties. Employing the Mini Traction Machine, BSM was found to retain comparable lubricating properties after heating to 80 ℃ and subsequent cooling.Random coiled secondary- and lack of tertiary structure in BSM is believed to contribute to the heat tolerance observed with regards to its conformational and lubrication properties.

B0008	Survey of Formal Methods of Hip Joint Center Calculation in Human Studies Swati Upadhyaya, **Won-Sook Lee** *Abstract*-Functional hip joint center (HJC) calculation involves recording movements of femur relative to acetabulum through markers placed on skin around thigh and pelvis. This non-invasive method of finding hip joint center involves either fitting a geometric sphere onto marker trajectories or coordinate transformation techniques which find the point with least movement in local frame with respect to global frame. A survey study by Ehrig et al has evaluated both categories of formal methods through virtual simulation and also contributed another algorithm known as "SCoRE"(Systematic center of rotation estimation). This algorithm gives an accuracy of 0.5 cm with 20 degree range of motion (ROM) and claimed to be most accurate with both segments in motion. This paper reviews the studies using this method to calculate hip joint center. Also a review of studies using Ultrasound as a validation method has been provided. This forms the basis to the possibility of using Ultrasonic sensors to be placed along with markers to measure the relative movement of markers with respect to bone in vivo. This paper provides a survey of studies performed on human subjects either in vivo (live humans) or ex vivo (cadaver) to help an experimenter or researcher pick the best relevant technique matching their experimentation requirement including soft tissue artifact factor.
B0011	A New Hyperthermia Scheme with a Cylindrical LHM Lens **Yonghui Tao**, Gang Wang *Abstract*-Flat left-handed metamaterial (LHM) lens has shown great potentials for superficial tumor hyperthermia. However, in clinic, superficial tumors usually occur in cylindrical tissue. For such superficial tumors, cylindrical LHM lens could be more comfortable. In this paper, we proposed a new hyperthermia scheme with a cylindrical LHM lens. And by numerical simulations, it is proved that it is feasible and profitable to using this scheme to treat superficial tumors.
B0014	Femoral Mechanical Response in Golfers with Total Hip or Hip Resurfacing Implants **Cameron Coates**, Javier Sanchez *Abstract*-This work investigates the stress response in the femur bone which has been modified to accommodate either a total hip replacement or hip resurfacing implant when the hips are subjected to peak loads during a golf swing. The objective is to provide a quantitative comparison of the stress shielding effects of both systems in order to support orthopedic recommendations regarding hip replacement or resurfacing for golfers. The peak loads of a golf swing are determined by applying kinematic relationships and Euler's equations to the lead leg using lead knee and ground reaction force data taken from existing literature. These loads are then applied to 3D Finite Element (FE) static models for the unmodified femur, the femur with a total hip implant, and the femur with a hip resurfacing implant. The FE models predict that both implants will result in significant Von Mises stress reductions along closed paths on proximal and distal femoral transverse planes, compared to normal bone. The Von Mises stress response of the implant systems do not differ by more than 7% for peak or mean stress magnitudes and gradients. FE predictions therefore indicate that, along closed contours, the stress shielding effects from each system may not differ significantly.
B0017	Bio-Impedance Excitation System: A Comparison of Voltage Source and Current Source Designs **T R Qureshi**, Chris Chatwin , Wei Wang *Abstract*-The key component in any bio-impedance measurement system is the excitation subsystem. Bio-impedance measurement can be performed by applying either current or voltage through the electrodes and then by measuring the resulting voltages or current respectively. A current source based excitation system can be useful for lower frequencies (i.e. up to 1MHz). For a mammography system, many useful characteristics of the breast tissues lie above 1MHz. The performance will degrade if a

	current source is used as an excitation system due to the higher output impedance and high precision requirement for an EIM system. Therefore a wideband excitation source covering higher frequencies, above 1MHz, with an acceptable level of output impedance is required. This paper reports on a performance comparison of a traditional Enhanced Howland based current source with a proposed voltage controlled voltage source (VCVS). Results are compared to establish their relationship to performance parameters: bandwidth, output impedance, SNR, and phase difference over a wide bandwidth (i.e. up to 10MHz). The objective of this research is to show which design is the most appropriate for constructing a wideband excitation source specifically for EIM or for any other EIT related biomedical application which requires a wideband system.
B0019	Producing of Microalgal Lipid by Isolated Microalgae under Photoautotrophic and Heterotrophic Cultivations **Ratanaporn Leesing**, Saranrat Sihawong, Nontikorn Duangkeaw *Abstract*-The objective of this work is to produce lipid from isolated freshwater microalgae strains. Under photoautotrophic cultivation, a biomass of 1.67g/L with lipid of 23.94mg/L, 1.2g/L with lipid of 37.0mg/L, 1.13g/L with lipid of 36.4mg/L were obtained from microalgae isolate Chlorella sp. MSU1, Chlorella sp. MSU2 and Chlorella sp. MSU3, respectively. A biomass of 2.33g/L with lipid of 94.9mg/L, 2.73g/L with 398.9mg/L, 5.28g/L with lipid of 67.0mg/L were found from Chlorella sp. MSU1, Chlorella sp. MSU2 and Chlorella sp. MSU3, respectively, under heterotrophic condition. Heterotrophic lipid production of microalgae Chlorella sp. MSU2 reached the maximum of 797.7mg/L at 40 g/L glucose was obtained. Maximum cell yield coefficient ($Y_{X/S}$) was found of 0.733 using 20 g/L glucose, whereas volumetric lipid production rate (Q_P) of 132.9mg/L/d was obtained using 40g/L glucose.
B0020	Flexible Artificial Muscle Actuator Using Coiled Shape Memory Alloy Wires **Hironari Taniguchi** *Abstract*-This paper presents a flexible artificial muscle actuator using coiled shape memory alloy (SMA) wires. The actuator mainly consisted of flexible materials and SMA wires and the fabrication was based on molding of silicon rubber. The actuator was also characterized by the motion with the body in flexion. We measured several characteristics to investigate a relationship between the bending angle of its body and the actuation. As the results, we confirmed that it was possible to actuate with the body in flexion.
B0022	A Framework for High Performance Embedded Signal Processing and Classification of Psychophysiological Data **Hendrik Woehrle**, Johannes Teiwes, Elsa Kirchner and Frank Kirchner *Abstract*-We present a framework to perform and speed up signal processing and machine learning tasks of biomedical and psycho physiological data in mobile and wearable systems using field programmable gate arrays. We show the basic architecture and capabilities of the framework and demonstrate its usage to construct a mobile system for the detection of event related potentials in electroencephalographic data. The performance of the developed system is evaluated in a specific application: the single trial classification of the P300 in an operator surveillance setup.
B0015	Improvement of Galton–Watson Branching Process (GWBP) for Mathematical Optimization of Cancer Treatment **Hoda Sbeity**, Rafic Younes, Imad Mougharbel, Suat Topcu *Abstract*-Biologists have uncovered some of the most basic mechanisms by which normal cells develop into cancerous tumors. These biological theories can be transformed into adequate mathematical models. For this reason, we attempt to study the evolution of cancer cells using the GWBP. The purpose of this paper is to study how the genetic algorithm (GA) can be used to follow the evolution of cancer and find optimal chemotherapeutic treatments.

	The development of GWBP give us the evolution of number of cancer cells for any patient if the death rate will defined experimentally, according to this value we can simulate the suitable chemotherapy treatments which cause the death of cancer, then determine the minimum dosage treatment injected using the GA optimization method. Analysis of these results gives us the objective function, who gives us a minimum in terms of number of cancer cells, with maximum in terms of cumulative treatment dosage.

15:30 - 15:50	**Coffee Break**

Afternoon, May 20, 2013 (Monday)

SESSION – 4 (ICFEB)
Venue: Norio Inou
Session Chair: Congress 3
Time: 15:50 – 18:00

B025	Selective separation of ascorbic acid from (bio)synthesis media by extraction and transport through liquid membrane Alexandra Blaga, Lenuta Kloetzer, Alexandra Carlescu, **Anca Galaction**, Dan Cascaval Abstract-The separation of ascorbic acid/vitamin C from a mixture with the main by product in fermentation process using pertraction has been investigated. The studies on extraction and transport of vitamin C using a liquid membrane (dichloromethane with Amberlite LA-2 as carrier - facilitated pertraction) indicated the major parameters that affect the separation efficiency: pH gradient between the two aqueous phases and carrier concentration in the liquid membrane. The overall results obtained in this work showed that liquid membrane systems can effectively be used to selectively separate vitamin C from its mixture with the fermentation by-product, 2-ketogluconic acid.
B034	Measurement of Microscopic Young's Modulus of Crispy Foods Ren Kadowaki, **Norio Inou** and Hitoshi Kimura Abstract-This study addresses a measurement method of microscopic Young's modulus of crispy foods. It is significant for examining food texture to measure substantial mechanical property of the foods independent of its structure. There are few studies on measurement of Young's modulus on a micro-scale level although many macroscopic studies were reported. We propose a new method to estimate microscopic Young's modulus of crispy foods. The method consists of a micro-scale compression test and the individual finite element analysis. The estimated Young's modulus is about 300-1500MPa on the microscopic level that is much more than 10 times larger than the macroscopic values.
B10009	Utilisation of pentosans from sugar beet pulp by different white-rot fungi Ildikó Bényes, Natalija Velić, Mirela Planinić, Daniela Šmogrovičová, **Marina Tišma** Abstract- Finding the alternative energy sources that will efficiently replace fossil fuels has been of tremendous scientific and public interest in recent years. Degradation of lignocellulosic materials, like herbaceous sugar beet waste- a sugar beet industry by-product, and use of its degrading products as substrate for biofuels production may be one of the alternatives. The composition of sugar beet pulp is as follows: 75-80 % carbohydrates, 1-6 % lignin and 10-15 % proteins. Hemicellulose, one of the major constituent of plant material is therefore convertible to bioethanol through hydrolysis and fermentation processes. Hemicellulose is a type of hetero-polysaccharide, containing glucose, xylose, mannose, galactose, arabinose, fucose, glucuronic acid, and galacturonic acid in various amounts depending on the

	source. Pentosan group is composed of 5C hemicellulose sugars. The aim of this study was to investigate the pentosans utilisation possibility of different white-rot fungi. Trametes versicolor exhibited the best pentosans degradation capacity, with only 3.75 % of pentosans in dry matter determined at the end of fermentation.
B10012	Thermal behaviour of strawberry cream fillings in presence of trehalose studied by Differential Scanning Calorimetry **Mirela Kopjar**, Jurislav Babić, Drago Šubarić, Janez Hribar and Vlasta Piližota Abstract- The objective of this study was to investigate influence of trehalose addition (3, 5 or 10 %) in strawberry cream fillings during preparation of the samples on thermal behaviour (glass transition temperatures, melting temperature and enthalpy of melting). Samples were prepared by evaporation and freeze-drying. Addition of trehalose and preparation process strongly influenced thermal behaviour of strawberry cream fillings. Glass transition temperatures increased with increase of trehalose addition, in both freeze-dried and evaporated samples. Higher values were determined in freeze-dried samples. Melting temperatures were higher in evaporated samples in contrast to freeze-dried samples. In freeze dried samples with addition of trehalose, melting temperatures decreased, also enthalpy of melting decreased. In evaporated samples melting temperatures didn't depend on trehalose addition, and values were almost the same for all samples. Enthaply of melting for those samples had the lowest value in sample without trehalose addition, while other samples had similar values.
B10015	Recovery of Functional Horticultural Ingredients Using Cost Effective and Commercially Viable Methods Johannes Bartusch, Jing Zhou and **Zaid Saleh** *Abstract*- The recovery of plant ingredients for functional food products has become an important value in our society. The aim of this study was to develop an extraction condition for extractable phenolic compounds, which is cost efficient, food-safe, commercially feasible and able to transfer to pilot-plant scale experiment. Fruits, including apples and berries, and vegetables, including celery and potatoes, were lyophilised (freeze-dried) and extracted in the first laboratory scale step. All plants were separated into skin, flesh and seeds. The second step transferred the laboratory experiments into pilot plant experiments. Folin-Ciocalteu assay and HPLC were used in the first step for analysis and just the Folin-Ciocalteu assay in the second step. It was found that the pre-treatment of the fruit has an influence on the yield and the stability of extractable phenolics.
B031	Changes of Electrical Impedance Characteristic of Pork in Heating Process **Akihito Kobayashi**, Koichi Mizutani and Naoto Wakatsuki *Abstract*- The purpose of this study is to investigate a change of electrical impedance characteristics of meat in heating process. In our experiments, pork fillets were heated at constant temperature of 50, 60, 70 and 100 ℃ for 3, 6 and 9 minutes, and we measured their electrical impedance and cooking loss. In order to express measured electrical impedance, equivalent circuit analysis is utilized using modified Hayden model, which consists of by intracellular resistance Ri and extracellular resistance Re, and cell membrane capacitance Cm. From the experiment, Ri and Re increased and Cm decreased while the cooking loss increased during the heating process. Both changes of the electrical impedance and cooking loss are more pronounced at higher heating temperature. Especially, the relationship between Re and cooking loss was remarkable. Therefore, electrical impedance spectroscopy (EIS) can evaluate physical property changes of meat during heating.
B20007 **Poster**	Optimized preparation of Eggshells calcium citrate（ESCC）by PEF technology and its accumulation in mice bone **Yiding Yu** , Jingbo Liu and Songyi Lin *Abstract*-Under optimized PEF treatment for production of Eggshells calcium citrate（ESCC） by

	one-factor-at-a-time test(OFAT) and ternary quadratic regression orthogonal combination design (TQROCD), the highest dissoluble calcium citrate content (7.119 mg/mL) was obtained with the 2.0 % citric acid, the electric field intensity of 15 kV/cm, and pulse duration of 20 μs. In vivo, ESCC chewable tablets prepared by the best conditions of PEF at doses of 133.0 mg•kg-1•d-1 significantly improve not only the femurs length and diameter but also organic matter of femurs and weight of the mice calcium content of bone ($P < 0.05$).
B20008	An enzymolysis-based extraction method to obtain collagen from Wood Frog skin and their antioxidant activities **Songning Zhao**, Yiding Yu, Yanbo Sun, Yan Zhang, Shuang Ma, Jingbo Liu *Abstract*-The aim of the investigations was to extract collagen from Wood frog skins (WFS) and study the antioxidant activities.WFS collagens were prepared and optimized in single factor experiments combined with ternary quadratic regression orthogonal combination design (TQROCD) optimization mathematical equation model. The optimal condition were peptide, pH 1.966, enzyme concentration of 5.42% and liquid-solid ratio of 145.2:1. Verification test average result in triplicate was 29.65%, which matches well with the predicted value. Spectrogram of reference standard and sample by High Performance Liquid Chromatography (HPLC) proved to be the existence of collagen in wood frog skin.
B20009 **Poster**	Effects on ABTS radical inhibition and functional groups of soybean antioxidant peptides （SAP） processed by microwave assisted enzymatic digestion **Jingbo Liu**, Dan Liu, Yuquan Zhou and Songyi Lin *Abstract*- Box-Behnken design (BBD) of response surface methodology (RSM) were used to optimize soybean antioxidant peptides (SAP) processed by microwave assisted enzymatic digestion. Antioxidant activity was estimated by ABTS radical inhibition, change of functional group was determined by Mid-infrared spectroscopy (MIR). Compared to enzymatic hydrolysis, ABTS radical inhibition of SAP processed by microwave assisted enzymatic digestion were increased 9.12 % under the optimized conditions of microwave time 37 min, microwave temperature 56 ℃, pH of 8.17, [E/S] of 5:100, [S] of 50 g L-1 and microwave power 500 W. SAP processed by microwave assisted enzymatic digestion possess the different functional groups of S-S, C-C, C-S, C-SO2-C, N=N, ≡C-H. The activity and functional groups of SAP processed by microwave assisted enzymatic digestion technology were difference with enzymatic hydrolysis.
B035	Agriproducts Sterilization and Optimization by Using Supercritical Carbon Dioxide Fluid (SC-CO2) Chao-Chin Chung, Tzou-Chi Huang, Chang-Yi Li and **Ho-Hsien Chen** *Abstract*-Sterilization of supercritical carbon dioxide (SC-CO2) is an innovative, non-thermal bactericidal technique for some thermal sensitive products. Due to CO2 gas has some special characterizations which the supercritical state is attained, the non-reactive nature, and the ability to readily penetrate substrates. It is suggested that SC-CO2 is an effective alternative for terminal sterilization of biological materials and medical devices. This study was to investigate the bactericidal effect of SC-CO2 treatment for various foods to ensure microbiological safety and product quality. In this study, the Taguchi method was applied to determine optimum conditions for SC-CO2 process, and Bacillus atrophaeus spores, Saccharomyces cerevisiae and Escherichia coli (E. coil) were chosen as biological indicator (BI) to test bactericidal effect. The results showed that the pressure difference had no effect for sterilization ($p < 0.05$). It is exposed to SC-CO_2 optimum conditions under 1200 psi at 45℃ for 32 hrs that Bacillus atrophaeus spores was induced 4.06 log (CFU/g) reductions, yeast (Saccharomyces cerevisiae) was induced 5.2 log (CFU/g) reductions and E. coil induced 5.8 log (CFU/g) reductions, respectively. Besides, total plate count (TPC) of purple cabbage and cucumber were induced 5.0 log reductions in the same conditions. In addition, scanning electron microscope (SEM) images showed that SC-CO2 treatment indeed broke the structure of

	microbe to cause the bacteria to death.
B30001	A new flocculant-coagulant with potential use for industrial wastewater treatment Muhammad Huzaifah Jusof Khadidi, Najeeb Kaid Al-Shorgani, and **Mohd Sahaid Kalil** *Abstract*-This research is focusing on preparation of flocculants from waste Activated Bleaching Earth (wABE) for treatment of wastewater from different sources. The flocculants were prepared by digestion method using HCl or H_2SO_4 and NaOH. Samples of industrial wastewater including food and beverages, paper mill (Soaking & End Process) and Palm Oil Mill Effluent (POME) were used to determine the flocculation activity. Results showed that treatment of Food and beverages wastewater with HCl-flocculant dosage of 6.5% (v/v) showed COD and turbidity removal of up to 71.5% and 70.8% respectively. Wastewater from soaking of paper mill and end process paper mill showed a bit lower percentage of COD removal of about 40-50%. However, the turbidity and Total Suspended Solid (TSS) of end process paper mill were high (91.67% and 95.77%) respectively. The highest Chemical Oxygen Demand (COD), turbidity and total suspended solid (TSS) removal was obtained when POME were treated with 2%(v/v) H_2SO_4-flocculant where the COD, turbidity and TSS removals were 81.15%, 82.54% and 89.91% respectively. The results indicated that the new flocculant-coagulant has potential application for treatment of different industrial wastewaters.
B30003	Possible Involvement of Diminishing Metal Ion Concentration and Key Lipogenic Enzymes Activities in the Cessation of Lipid Accumulation in Cunninghamella Bainieri Sp. 2a1 **Aidil Abdul Hamid**, Shuwahida Shuib , Mohd Sahaid Kalil,and Othman Omar *Abstract*-Possible involvement of metal ions and activities of malic enzyme (ME), ATP-citrate lyase (ACL) and fatty acid synthase (FAS) in the cessation of lipid accumulation in *Cunninghamellabainieri* sp. 2A1 were investigated. Cultivation was performed in 200 mL nitrogen-limited medium and incubated at 30 ℃. The specific activities of the enzymes,concentrations of trace elements and the lipid content were determined at 24 h intervals. Cessation of lipid accumulation coincided with diminishing activities of the enzymes at 48 h. A significant decrease in metal ions concentration was observed followed by total depletion at 48 h except Mg^{2+} and Ca^{2+}. Feeding of ammonium tartrate and glucose after the cessation of lipid accumulation resulted in a marked increase in the specific activity of the enzymes but with no increase in the lipid content. In contrast, the lipid content increased from 32% to 50% (g/g biomass) when trace elements were included in the feeding. No increase in lipid content was observed when the cultures were fed only with trace elements or with the omission of ammonium tartrate. These results showed that cessation of lipid accumulation were caused by the diminishing activities of the enzymes as well as depletion of the metal ions.

Afternoon, May 20, 2013 (Monday)

SESSION – 5 (ICBET)
Venue: Meeting 16
Session Chair: Cameron Coates
Time: 15:50 – 18:00

B0028	Electrochemical Impedance Spectroscopy (EIS) investigation on dental hard tissue whitening process using fluoride and non-fluoride carbamide peroxide gels **Virgil Penta**, Cristian Pirvu, Ioana Demetrescu *Abstract*-Fluoride under various forms is one of the most used substances in dentistry and prevention. It is

	a joined effort of many countries to incorporate fluoride in water, salt and many other consumer products but could it be too much? Modern day dentistry struggles to offer the possibility of tooth whitening to any nuance with no pain at all. Some products are presented as having a beneficial effect of re-mineralization with the augmentation of fluoride but what is the truth? This article uses Electrochemical Impedance Spectroscopy (EIS) in a unique way. We compare the effect of whitening carbimide peroxide gels with and without fluoride addition to assess the benefits toward dental health as opposed to over dosage and general health risk. The possibility to view the dental hard tissues as electrical circuit phases and observe modifications in detail is of great advantage in our further understanding of complex oral processes.
B0029	Blood analog fluid flow in vessels with stenosis: development of an Open FOAM code to simulate pulsatile flow and elasticity of the fluid **S.I.S. Pinto**, E. Doutel, J.B.L.M. Campos, J.M. Miranda *Abstract*-The present work reports a numerical study of the flow of a blood analog fluid in vessels with a stenosis using Open FOAM code. The CFD package Open FOAM was selected to perform the numerical study because it is an open software package that can be freely modified. Pulsatile flow and elasticity of a blood analog fluid were considered and implemented in a numerical code. Velocity profiles were obtained for an artery with a stenosis, considering constant inlet velocity and elasticity of blood analog fluid. The profiles obtained through Open FOAM are in agreement with those obtained through the analytical solution. Velocity profiles were also obtained for a bifurcation with a stenosis, considering pulsatile flow and shear-thinning of the fluid. The profiles obtained through Open FOAM are in agreement with those obtained by ANSYS.
B0032	Carotid Artery Modeling Using the Navier-Stokes Equations for an Incompressible, Newtonian and Axisymmetric Flow **Jhalique Jane R. Fojas**, Rizalinda L. De Leon *Abstract*-This paper describes two-dimensional (2D) structural and hemodynamics model of the carotid artery and its bifurcation using computational software (CS). The Arbitrary Lagrangian Eulerian (ALE) which was introduced in a finite element system was utilized as a numerical technique. The structural modeling of the carotid arteries about the bifurcation area was constructed from computed tomography (CT) scan images using computer-aided design (CAD) and the Lagrangian formulation was used for the structure domain. The blood was considered as an incompressible Newtonian fluid and Eulerian reference was applied for its domain. Coupling of the reference systems was carried out on arbitrary computational grid permitting numerical modeling of hemodynamics as governed by 2D axially symmetric incompressible Navier-Stokes equations (NSE). The results for hemodynamic simulations were compared with the physiological blood velocity obtained using the Doppler ultrasound instrument.
B0033	The Use of an Orientation Kalman Filter for the Static Postural Sway Analysis **Ahmed Al-Jawad**, Anton Barlit, Michailas Romanovas, Martin Traechtler, Yiannos Manoli *Abstract*-The paper presents a quaternion-based extended Kalman filter for postural instability evaluation during stance. It uses low-cost MEMS inertial sensors attached on the lower back of the person at a known height in order to instrumenting the static balancing test. Generally, patients with Parkinson's disease or vestibular-loss are at greater risk for having this problem. The objective of this study was to assess the feasibility of using Kalman filter to characterize the postural steadiness. The Kalman filter is used here as a data fusion algorithm to estimate the orientation of the body based on acceleration and angular rate signals. In order to get the coordinate of the body's centre of mass (CoM), the height of the sensor is projected on the horizontal plane by using the estimated orientation. Many parameters such as the mean velocity of sway, lateral/anterior-posterior range and others are then obtained from the sway path, which help the clinicians to assess the postural instability. The method was tested on 9 healthy individuals (21-31

	years). Three different test conditions, namely feet comfortable stance with eyes-open, feet together stance with closed eyes and one-leg stance with eyes-open were evaluated here. The proposed algorithm showed successful estimation of the time-domain parameter for the postural sway analysis.
B0034	Saponin Rich Fractions (SRPs) From Soapwort Show Antioxidant and Hemolytic Activity **Idris Arslan**, Ali Çelik *Abstract*-The present study established baseline data on hemolytic and antioxidant capacity of saponin rich fractions (SRFs) of Gypsophila arrostii, G.pilulifera and G.simonii (Caryophyllaceae) naturally found in Turkey. The antioxidant activity of the each SRF was carried out using 2 different methods: free-radical scavenging activity using 2,2-diphenyl-1-picryl hydrazyl (DPPH) and ABTS assay. Hemolytic activity of SRFs was tested using diluted sheep bloods and saline/distilled water as control groups. Also, total phenolic contents of each fraction were determined. Our results demonstrated that G.arrostii, G.pilulifera and G.simonii possessed strong antioxidant and the slight hemolytic activity when comparing the other saponin containing extracts.
B0035	Heart Sound Analysis for Diagnosis of Heart Diseases in Newborns **Amir Mohammad Amiri**, Giuliano Armano *Abstract*-Many studies have been conducted in recent years to automatically differentiate normal heart sounds from heart sounds with pathological murmurs using audio signal processing in early stage. Serious cardiac pathology may exist without symptoms. The purpose of this study is developing an automatic heart sound signal analysis system, able to support the physician in the diagnosing of heart murmurs at early stage of life. Heart murmurs are the first signs of heart disease. We screened newborns for normal (innocent) and pathological murmurs. This paper presents an analysis and comparisons of spectrograms after smoothing phonocardiogram signals (PCG) with Cepstrum, Bispectrum, and Wigner Bispectrum techniques. A comparison between these methods has shown that higher order spectra, as Bispectrum and Wigner bispectrum, gave the best results.
B0036	Perturbation Analysis of Korean Disordered Voices according to Signal type **JiYeoun Lee**, Su-hyun Kim, Jin-Hyun Park *Abstract*-In this paper, Korean pathological voices are classified into signal type 1, 2, 3, or 4 to estimate perturbation parameters. Although the perturbation analysis can be applied to only type 1 and 2 signals, we recommend that the method should be carefully used to analyze the disordered database. Also the development of a suitable tool is essential for analysis of disordered voices such as signal type 3 and 4.
B0038	A Real-Time BLE enabled ECG System for Remote Monitoring Farid Touati, Rohan Tabish, **Adel Ben Mnaouer** *Abstract*-A major requirement of ubiquitous healthcare systems consists in the provision of low power usage, battery operated devices that are used in long term patient monitoring. Thus far, researchers have tried to adapt various short range technologies such as IEEE802.15.4, classical Bluetooth etc., to achieve this goal. The IEEE802.15.4 was, by excellence, widely deployed because of its low power and its security features compared to technologies such as the classical Bluetooth. However, the Bluetooth Special Interest group has recently announced Bluetooth 4.0 with low energy technology (BLE) for low power personal area networked devices, which offers more compelling features in various aspects when compared to IEEE802.15.4. This makes its evaluation for healthcare applications an urgently needed endeavour. In this paper, we present a BLE-based remote health monitoring system in which we have interfaced an ECG simulator directly to a BLE enabled CC2540 wireless sensor node (a system-on-chip (SoC) for Bluetooth low energy applications, from Texas Instruments). The node acts as a slave to the Master BLE device. In our system, we have used a BLE112 module (from Bluegiga) as a slave node while for the master we have used a BLE USB dongle connected to a PC in order to manage data received from

	the sensor node. A server application running on the PC uses a TCP-based connection over the network interface in order to enable remote monitoring. Any remote client can connect to the server and receives live updates from the sensor node. We have developed a LabVIEW based TCP client application to provide this functionality. An ECG simulator was used to generate ECG signals for different heartbeat rates that were sent through the BLE enabled network. The waveforms received at remote station using the developed system were found to conform exactly to those captured using a high resolution oscilloscope.
B0039	μPIV analysis and numerical simulation of the flow in mili-scale channels developed for studies in hemodynamics **E. Doutel**, S.I.S. Pinto, J.B.L.M. Campos, J.M. Miranda *Abstract*-This study reports μPIV flow data analysis and their comparison with numerical results of the flow in 3D mili-scale channels developed for hemodynamic studies. The 3D mili-scale channels represent simplified anatomical models of blood vessels constructed in polidimethylsiloxane (PDMS) and produced by a sucrose casting method. The CFD package used to simulate the flow was ANSYS. Vessels with stenoses were chosen to the study: a straight channel and a channel bifurcating in two daughter channels. The results show a good agreement between the numerical and the experimental data. This work will allow a more realistic approach for future hemodynamic studies focusing on atherosclerosis in mili-scale arteries.
B3003	Development of Wearable Systems for Ubiquitous Healthcare Service Provisioning **Ogunduyile, O.O**, Olugbara O.O, Lall M *Abstract*-This paper reports on the development of a wearable system using wireless biomedical sensors for ubiquitous healthcare service provisioning. The prototype system is developed to address current healthcare challenges such as increasing cost of services, inability to access diverse services, low quality services and increasing population of elderly as experienced globally. The biomedical sensors proactively collect physiological data of remote patients to recommend diagnostic services. The prototype system is designed to monitor oxygen saturation level (SpO_2), Heart Rate (HR), activity and location of the elderly. Physiological data collected are uploaded to a Health Server (HS) via GPRS/Internet for analysis
B3005	Hydrodynamically stable adhesion of Endothelial Cells on gelatin electrospun nanofibrous scaffolds **Nasim Salehi-Nik**, Ghassem Amoabediny, Razieh Ahmadizadeh, Bentolhoda Heli, Behrouz Zandieh-Doulabi *Abstract*-In the current research, electrospun gelatine fibers for vascular tissue egineering was successfully fabricated with the aim of increasing the adhesion and stability of cells under shear stress. The gelatin solutions were prepared with different amount of gelatin (10, 15, 20 and 25% wt) which dissolved in different ratios of co-solvent acetic acid / water (1:9, 1:3 and 1:1). The experiments showed the best conditions for electrospinning of the gelatin solution in where the concentration was 25% wt gelatin while it was dissolved in the ratio of 1:9 (v/v) water/ acetic acid and the applied voltage was 23 or 25 kV. The SEM images revealed the average size of diameter were about 190 and 210 nm, respectively. For studying the cell adhesion properties of fabricated scaffolds under shear stress, a parallel plate flow chamber with different flow rates was used. Here, Human Umbilical Vein Endothelial Cells (HUVECs) were either maintained in static condition or exposed to laminar shear stress (48 ml/min) for 12 h. This study shows that the constructed gelatin scaffold is remarkably suited for stable adhesion of cells under shear stress.
B3007	Tannic acid as Phytochemical Potentiator for Antibiotic Resistance Adaptation **Kyaw, Bhone Myint**; Lim, Chu Sing; Wei, Zhou *Abstract*-The effect of phytochemical tannic acid on Methicillin Resistant *Staphylococcus aureus* (MRSA) three clinical strains was studied individually and in combination with western antibiotic fusidic acid. The

	two drugs were synergistic to each other and the combined effect of the two drugs could delay or prevent the occurrence of adaptive mutations in MRSA. The possible mechanism might be the phytochemical tannic acid could potentiate the effect of fusidic acid and/or acts alternative target that results in lysis of bacteria. In this study, it was found that the mutants result from the continuous exposure of sub-minimal inhibitory concentration (MIC) of fusidic acid revealed over active efflux pump as measured by ethidium bromide (EtBr) accumulation assay. However, the parent strains have no efflux pump activity. Therefore, it can be concluded that the strains which normally don't have efflux activity can result in over activity of efflux pump if they are being exposed by sub-MIC concentrations of western antibiotic (fusidic acid). Efflux modulating activity of tannic acid was tested against the strains with over active efflux pump activity. It was noticed that EtBr accumulation was increased with over time when the adapted strains were being exposed by sub-MIC concentrations (0.3 and 0.6 MIC) of tannic acid, meaning that phytochemical tannic acid has efflux modulating activity against MRSA strains that results in decreased in MIC of partner drug and thus, preventing its adaptive mutation.

May 20, 2013 19:00	**Dinner and Closing Ceremony**

Conference Venue

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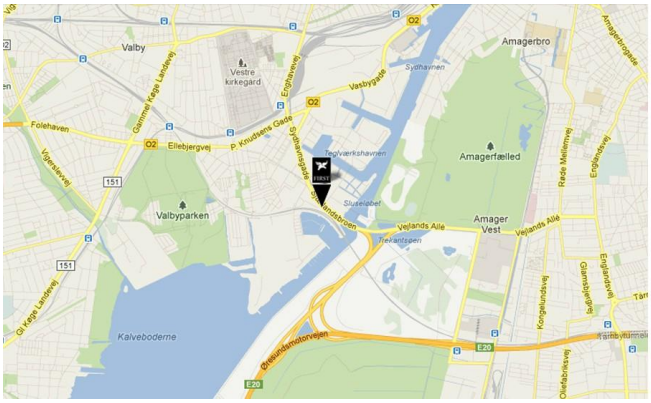

Road Directions:
First Hotel Copenhagen is situated only 9 km from Copenhagen International Airport and 4 km from the city centre.

Car:
Follow E20 / the Øresund motorway from the airport and then follow the Amager motorway when you reach the sign København C (02). By the sign Centrum 7 (02) you follow the Zealand Bridge and then turn left at Bådehavnsgade and yet another left by Molestien.

Public Transport:
You can also use the public buses, 4A from Valby station and 30 from the central station stopping right outside the hotel.

Whether you arrive from Copenhagen International Airport, Copenhagen Train Station, from Sweden, Jutland, or from somewhere else, we look forward to welcoming you at Clarion Hotel Copenhagen. If you have any question regarding transportation to the hotel, please contact us.

APCBEES FORCOMING CONFERENCES

Call for Papers

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All papers for the ICEEA 2013 will be published in JOCET (ISSN: 1793-821X) as one volume, and will be included in Engineering & Technology Library, EBSCO, Ulrich's Periodicals Directory, BE Data and Google Scholar,Cross ref, ProQuest and sent to be reviewed by Ei Compendex and ISI Proceedings.

Important Date

Paper Submission (Full Paper)	Before May 15, 2013
Notification of Acceptance	On June 5, 2013
Final Paper Submission	Before June 25, 2013
Authors' Registration	Before June 25, 2013
ICEEA 2013 Conference Dates	August 24-25, 2013

Formatting

Each paper is limited to 5 pages normally, and additional pages will be charged. Please follow the Conference format.

- Formatting Instructions (DOC)

SUBMISSION METHODS

1. Electronic Submission System; (.pdf)

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

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

Call for Papers

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All papers for the ICEBB 2013 will be published in the International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638), and all papers will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, WorldCat, Google Scholar, Cross ref, ProQuest and sent to be reviewed by Ei Compendex and ISI Proceedings.

Important Date

Paper Submission (Full Paper)	Before May 10, 2013
Notification of Acceptance	On June 1, 2013
Final Paper Submission	Before June 15, 2013
Authors' Registration	Before June 15, 2013
ICEBB 2013 Conference Dates	August 24-25, 2013

Formatting

Each paper is limited to 5 pages normally, and additional pages will be charged. Please follow the Conference format.

- Formatting Instructions (DOC)

SUBMISSION METHODS

1. Electronic Submission System; (.pdf)

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

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

Call for Papers

2013 2nd International Conference on Biotechnology and Food Engineering (ICBFE 2013) is the premier forum for the presentation of new advances and research results in the fields of theoretical, experimental, and applied Biotechnology and Food Engineering. The conference will bring together leading researchers, engineers and scientists in the domain of interest from around the world. Topics of interest for submission include, but are not limited to:

All papers for the ICBFE 2013 will be published in the Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796), and all papers will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, WorldCat, Google Scholar, Cross ref and sent to be reviewed by Ei Compendex and ISI Proceedings.

Important Date

Paper Submission (Full Paper)	Before May 5, 2013
Notification of Acceptance	On May 25, 2013
Final Paper Submission	Before June 15, 2013
Authors' Registration	Before June 15, 2013
ICBFE 2013 Conference Dates	August 24-25, 2013

Formatting

Each paper is limited to 5 pages normally, and additional pages will be charged. Please follow the Conference format.

- Formatting Instructions (DOC)

SUBMISSION METHODS

1. Electronic Submission System; (.pdf)

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

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

Call for papers

The aim objective of the International Conference on Chemical Engineering and Applications (CCEA) is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Chemical Engineering and Applications.The 2013 4th International Conference on Chemical Engineering and Applications (CCEA 2013) will be held in Paris, France during October 12-13, 2013.

All CCEA 2013 papers will be published in the International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221), and all papers will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, WorldCat, Google Scholar, Cross ref, ProQuest and sent to be reviewed by Ei Compendex and ISI Proceedings.

Important Date

Paper submission (Full Paper)	Before June 1, 2013
Notification of acceptance	On June 20, 2013
Authors' Registration	Before July 10, 2013
Final paper submission	Before July 10, 2013
CCEA 2013 Conference Dates	October 12-13, 2013

Formatting

Each paper is limited to 8 pages normally, and additional pages will be charged. Please follow the Conference format.

- Formatting Instructions (DOC)

Submission Methods:

1. https://www.easychair.org/account/signin.cgi?conf=ccea2013; (.pdf)

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

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

Call for papers

The aim objective of the International Conference on Petorleum and Sustainable Development (ICPSD) is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Petorleum and Sustainable Development.The 2013 3rd International Conference on Petorleum and Sustainable Development (ICPSD 2013) will be held in Paris, France during October 12-13, 2013.

All ICPSD 2013 papers will be published in the International Journal of Environmental Science and Development (IJESD, ISSN:2010-0264), and all papers will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, WorldCat, Google Scholar, Cross ref, ProQuest and sent to be reviewed by Ei Compendex and ISI Proceedings.

Important Date

Paper submission (Full Paper)	Before May 25, 2013
Notification of acceptance	On June 15, 2013
Authors' Registration	Before July 5, 2013
Final paper submission	Before July 5, 2013
ICPSD 2013 Conference Dates	October 12-13, 2013

Formatting

Each paper is limited to 8 pages normally, and additional pages will be charged. Please follow the Conference format.

- Formatting Instructions (DOC)

Submission Methods:

1. https://www.easychair.org/account/signin.cgi?conf=icpsd2013; (.pdf)

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

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

Call for papers

The aim objective of the International Conference on Medical and BioSciences (ICMBS) is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Medical and BioSciences. The 2013 International Conference on Medical and BioSciences (ICMBS 2013) will be held in Paris, France during October 12-13, 2013.

All ICMBS 2013 papers will be published in the Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796), and all papers will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, WorldCat, 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 July 1, 2013
Final paper submission	Before July 1, 2013
ICMBS 2013 Conference Dates	October 12-13, 2013

Formatting

Each paper is limited to 8 pages normally, and additional pages will be charged. Please follow the Conference format.

- Formatting Instructions (DOC)

Submission Methods:

1. https://www.easychair.org/account/signin.cgi?conf=icmbs2013; (.pdf)

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

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

Call for papers

The aim objective of the International Conference on Civil Engineering (ICCEN 2013) is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Conference on Civil Engineering.The 2013 2nd International Conference on Civil Engineering (ICCEN 2013) will be held in Stockholm, Sweden during December 13-14, 2013.

All ICCEN 2013 papers 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 July 25, 2013
Notification of acceptance	On August 15, 2013
Authors' Registration	Before August 30, 2013
Final paper submission	Before August 30, 2013
ICCEN 2013 Conference Dates	December 13-14, 2013
Academic Official Visit (Half Day)	December 15, 2013

Formatting

Each paper is limited to 5 pages normally, and additional pages will be charged. Please follow the Conference format.

- Formatting Instructions (DOC)

Submission Methods:

1. https://www.easychair.org/account/signin.cgi?conf=iccen2013; (.pdf)

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

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

Call for papers

The aim objective of the International Conference on Environment, Chemistry and Biology(ICECB) is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Conference on Environment, Chemistry.The 2013 2nd International Conference on Environment, Chemistry and Biology (ICECB 2013) will be held in Stockholm,Sweden, during December 13-14, 2013.

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

Important Date

Paper submission (Full Paper)	Before July 20, 2013
Notification of acceptance	On August 10, 2013
Authors' Registration	Before August 30, 2013
Final paper submission	Before August 30, 2013
ICECB 2013 Conference Dates	December 13-14, 2013
Academic Official Visit (Half Day)	December 15, 2013

Formatting

Each paper is limited to 5 pages normally, and additional pages will be charged. Please follow the Conference format.

- Formatting Instructions (DOC)

Submission Methods:

1. https://www.easychair.org/account/signin.cgi?conf=icecb2013; (.pdf)

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

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

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