2017 FRANKFURT CONFERENCE ABSTRACT

February 8-10, 2017

Frankfurt University of Applied Sciences

Frankfurt, Germany

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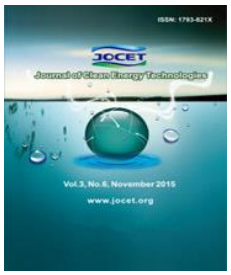
2017 CBEES Frankfurt Conference Introductions

Welcome to CBEES 2017 conferences in Frankfurt, Germany. The objective of the Frankfurt conferences is to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Clean and Green Energy, Chemistry and Chemical Process and Environmental Science and Development.

2017 6th International Conference on Clean and Green Energy (ICCGE 2017)

❄ **Paper publishing and index:** ICCGE 2017 papers will be published in one of the following journals:

International Journal of Smart Grid and Clean Energy (IJSGCE, ISSN: 2315-4462) and all papers will be indexed by EI (INSPEC, IET), DOAJ, Ulrich's Periodicals Directory, Google Scholar, Crossref, etc.



Journal of Clean Energy Technologies (JOCET, ISSN: 1793-821X), and all the papers published in JOCET will be indexed by EI (INSPEC, IET), Electronic Journals Library, Chemical Abstracts Services (CAS), Ulrich's Periodicals Directory, Google Scholar, ProQuest and DOAJ.

❄ **Conference website and email:** http://www.iccge.org/; iccge@cbees.org.

2017 7th International Conference on Chemistry and Chemical Process (ICCCP 2017)

❄ **Paper publishing and index:** ICCCP 2017 papers will be published in the following journal:

International Journal of Chemical Engineering and Applications (IJCEA, ISSN: 2010-0221), and will be indexed by Chemical Abstracts Services (CAS), Ulrich's Periodicals Directory, CABI, DOAJ, Electronic Journals Library, Google Scholar, Engineering & Technology Digital Library, ProQuest, and Crossref.

❄ **Conference website and email:** http://www.icccp.org/; icccp@cbees.org.

2017 8th International Conference on Environmental Science and Development (ICESD 2017)

❄ **Paper publishing and index:** **ICESD 2017** papers will be published in one of the following publications:

International Proceeding of Chemical, Biological and Environmental Engineering (IPCBEE,ISSN:2010-4618), and all the papers published in IPCBEE will be included in Chemical Abstracts Services (CAS), CABI, CNKI, WorldCat, Google Scholar, EBSCO, Ulrich's Periodicals Directory, Crossref, and Engineering & Technology Digital Library.

Journal of Environmental Science and Development (IJESD, ISSN:2010-0264), and will be included in Chemical Abstracts Services (CAS), CABI, DOAJ, Ulrich Periodicals Directory, Engineering & Technology Digital Library, Electronic Journals Library, Crossref, ProQuest.

❄ **Conference website and email:** **http://www.icesd.org/; icesd@cbees.org.**

Presentation Instructions

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

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

Materials Provided by the Presenters:

PowerPoint or PDF Files (Files should be copied to the Conference laptop at the beginning of each Session.)

Duration of each Presentation (Tentatively):

Regular Oral Presentation: about **12** Minutes of Presentation and **3** Minutes of Question and Answer
Keynote Speech: about **40** Minutes of Presentation and **5** Minutes of Question and Answer
Plenary Speech: about **25** Minutes including Presentation and **5** Minutes of Question &Answer

Instructions for Poster Presentation

Materials Provided by the Conference Organizer:

The place to put poster

Materials Provided by the Presenters:

Home-made Posters
Maximum poster size is A1
Load Capacity: Holds up to 0.5 kg

Best Presentation Award

One best oral presentation will be selected from each oral presentation session, and the Certificate for Best Oral Presentation will be awarded at the end of each session on February 9, 2017.

Dress code

Please wear formal clothes or national representative of clothing.

Keynote Speaker Introductions

Keynote Speaker I

Prof. Hartmut Hinz
University of Applied Sciences, Frankfurt, Germany

Prof. H. Hinz was born in Düren, Germany. He received the diploma degree in electrical engineering from the University of Applied Sciences, Aachen and the Ruhr University, Bochum in Germany in the years 1990 and 1994 respectively. He received the Ph.D. degree from the Technical University, Darmstadt in Germany in 2000.

From 1999 to 2009 he worked for General Motors Europe in the research department for fuel cell vehicles. In 2009 he was appointed as a Professor in power electronics at the Frankfurt University of Applied Sciences, Germany. Since 2011 he is the academic leader of the study program Energy efficiency and renewable energy. Since 2010 he is a visiting Professor at the Vietnamese-German University in Ho-Chi-Minh City, Vietnam. His research interests are in the areas power electronics and decentralized power generation.

Topic: “Status of Wind Power: A Global Overview”

Abstract: Most estimates predict that the global energy requirements will double by the year 2050. However global greenhouse gas emissions need to be stabilized until 2030 and reduced by the mid-century to less than half of the level of 1990. Therefor in the long term fossil fuels are unable to meet the rising demands for energy. Consequently a transition towards a decarbonized economy is mandatory. A substantial growth of renewables led by wind is indispensable.

Keynote Speaker II

Prof. Dr. rer. nat. Michael Schmidt
Department of Electrical Engineering and Information Technology of,
Offenburg University of Applied Sciences, Germany

Michael Schmidt received his Diploma degree and his Doctorate degree in mathematics from the Technical University of Berlin in 2002 and 2007, respectively. A part of his studies and research he conducted at the Université de Nantes and at the École Supérieure d'Électricité in Paris.

From 2008 to 2013 he was with GE Global Research, Munich, initially as project lead and later as head of the research department "Renewable Energy and Power Systems". In 2013 he became a Professor at the University of Applied Sciences in Saarbrücken. Since 2014, he has been a Professor at the Department of Electrical Engineering and Information Technology of the Offenburg University of Applied Sciences.

His main areas of research interest are the optimization of renewable energy systems, their grid integration, and managing the variability of renewable energy sources.

Topic: “Microgrids as Key Elements of Future Power Systems”

Abstract: According to a recent study of the International Energy Agency, the share of renewables in total power generation rises from 21% in 2012 to 33% in 2040, as they supply nearly half of the growth in global electricity generation. This development comes along with a significant increase of distributed energy resources (DER), which have to be managed in a coordinated way such that the overall system safety and reliability can be guaranteed. This requires new control and communication concepts.

A very promising concept is the coupling of microgrids: Microgrids are small-scale energy systems consisting of distributed energy sources, loads and storage. Managing their own internal energy flows they can be operated in parallel with, or independently from, the main power grid. In this way, they help to realize local decision making and to reduce the necessary amount of overall system level communication and control. They can disconnect from the utility during events like faults, voltage collapses, or low power quality. By means of an intelligent system level coordination, they can also help to re-establish normal operation after such events.

This talk will give an overview of the state of the art of microgrids - including tri-generation systems that combine electricity, heat and cold. It will show how microgrids can help to solve the challenges of a massive transformation of the energy system towards distributed and renewable resources. The talk will give practical examples from a real-world microgrid operated at the Institute of Energy Systems Technology (INES) at the University of Applied Sciences Offenburg.

Plenary Speaker I

Prof. Shen-Ming Chen
Department of Chemical Engineering and Biotechnology, National Taipei University of Technology, Taipei 106, Taiwan

Prof. Shen-Ming Chen (h-index > 60) received his PhD degrees in chemistry from National Taiwan University, Taipei, Taiwan. He was a visiting postdoctoral fellow with the Institute of Inorganic Chemistry, Friedrich-Alexander University Erlangen-Nuremberg, Germany in 1997. He joined Department of Chemical Engineering, National Taipei Institute of Technology, Taipei, Taiwan in 1985. He had been an associate professor of Department of Chemical Engineering, National Taipei Institute of Technology, Taipei, Taiwan from 1991 to 1997. Since August 1997, he has been a full professor of Department of Chemical Engineering and Biotechnology, National Taipei University of Technology. He has been the Dean (Curator) of library, National Taipei University of Technology, Taiwan from 2000 to 2006 and the Director of Extracurricular Activity, office of student affairs, National Taipei University of Technology, Taiwan from 1995 to 2000.

Prof. Shen-Ming Chen has published over 500 research and review papers in internationalSCI journals. Some of their papers have been selected as the most cited papers in theJournal of Electroanalytical Chemistry and Biosensor & Bioelectronics. He received threetimes Distinguish Professor awards. He also received three times Outstanding Research Award from National Taipei University of Technology, Taiwan. He have edited or attended two books for NOVA publications titled “Nanostructured Materials for Electrochemical Biosensors” and “Biosensors: Properties, Materials and Applications” and contributed four book chapters.

His research interest includes nanocomposites, bionanomaterials, bionanotechnology, electrochemical biosensor, biosensors, bioelectrochemistry,, chemical materials, electroanalytical Chemistry, electrocatalysis and electroanalysis, photoelectrochemistry, metalloproteins, metalloporphyrins, nanotechnology, spectroscopic techniques, scanning probe techniques, quartz crystal microbalance, materials research, fuel cells, solar cell and photovoltaic cells.

Topic: “Design and Synthesis of Carbon Nanomaterials Composite for the Electrochemical Sensors, Biosensors, and Energy Storage Devices”

Abstract: Growing the aspects in materials science, there are enormous synthesis route has identified to produce materials, particularly by simple methodology. The synthesis of nanostructured materials has incessantly received a significant scientific interest due to their unique physical and chemical properties. In this aspect, we have synthesized different nanomaterials and used for the electrochemical sensors, biosensors and energy storage devices. For occasion, a novel copper hexacyanocobaltate based sensor was developed and its electrocatalytic behavior was demonstrated towards the oxidation of dopamine. The gold nanoparticles decorated graphene oxide/polydopamine composite was prepared for the sensitive and low potential detection of catechol. The electrochemically deposited bismuth nanoribbons on reduced graphene oxide were studied for the enzymatic glucose biosensor. The influence of poly (n-vinylcarbazole) was studied for the photoanode component in dye-sensitized solar cell which exhibiting an enhanced high performance to the solar cell applications. A honeycomb-like porous carbon–cobalt oxide nanocomposite was prepared and studied towards the high-performance glucose sensor and supercapacitor applications. The $CoWO_4$ nanospheres was prepared by low temperature chemical synthesis method and characterized towards the sensitive detection of glucose. Electrochemical synthesis of Au–MnO_2 on electrophoretically prepared graphene nanocomposite was demonstrated for the high performance supercapacitor and biosensor applications. All the aforesaid composites were prepared by different physiochemical methods and electrochemical methods. The aforementioned nanomaterials were furnished a good electrocatalytic activity with appreciable stability towards the chemical sensors, biosensors, solar cells and super capacitors when compare with the previously reported sensors and devices. The analytical parameters such as linear response range, sensitivity, limit of detection and reproducibility of the devices also been carried out and compared with the current state of the art.

Brief Schedule for Conference

<table>
<tr><td>Day 1</td><td colspan="2">February 8, 2017 (Wednesday) 10:00~17:00
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Arrival Registration</td></tr>
<tr><td rowspan="10">Day 2</td><td colspan="2">February 9, 2017 (Thursday) 9:20~18:30
Venue: 109-110 in Building Four
Arrival Registration, Keynote Speeches, and Conference Presentations</td></tr>
<tr><td colspan="2">Morning Conferences Venue: 109 in Building Four</td></tr>
<tr><td colspan="2">Opening Remarks 9:20~9:30
Keynote Speech I 9:30~10:15
(Prof. Hartmut Hinz-University of Applied Sciences, Frankfurt, Germany)
“Status of Wind Power: A Global Overview”
Coffee Break & Photo Taking 10:15~10:45
Keynote Speech II 10:45~11:30
(Prof. Dr. rer. nat. Michael Schmidt-Department of Electrical Engineering and Information Technology of, Offenburg University of Applied Sciences, Germany)
“Microgrids as Key Elements of Future Power Systems”
Plenary Speech I 11:30~12:00
(Prof. Shen-Ming Chen-Department of Chemical Engineering and Biotechnology, National Taipei University of Technology, Taipei 106, Taiwan)
“Design and Synthesis of Carbon Nanomaterials Composite for the Electrochemical Sensors, Biosensors, and Energy Storage Devices”</td></tr>
<tr><td colspan="2">Lunch 12:00~13:30 Venue: 111-112 in Building Four</td></tr>
<tr><td colspan="2">Afternoon Conferences 13:30~:18:30</td></tr>
<tr><td>Session 1: 13:30~16:00
Venue: 109 in the Building Four
10 presentations-Topic:
“Chemical Engineering and Technology”</td><td>Session 2: 13:30~16:00
Venue: 110 in the Building Four
10 presentations-Topic:
“Environmental Engineering and Management”</td></tr>
<tr><td colspan="2">Coffee Break 16:00~16:15</td></tr>
<tr><td>Session 3: 16:15~18:15
Venue: 109 in the Building Four
8 presentations-Topic: “Renewable Energy and Energy Chemistry”</td><td>Session 4: 16:15~18:30
Venue: 110 in the Building Four
9 presentations-Topic: “Motor, Power System and Automation”</td></tr>
<tr><td colspan="2">Poster Session: 9:20~18:30 Venue: 109-110 in Building Four</td></tr>
<tr><td colspan="2">Dinner:18:30 Venue: SCHANDIS PERSIAN RESTAURANT</td></tr>
<tr><td>Day 3</td><td colspan="2">February 10, 2017 (Friday) 10:00-16:00 One-Day Academic Visit</td></tr>
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Tips: Please arrive at conference room 10 minutes before the session beginning to upload PPT into conference laptop.

Detailed Schedule for Conferences

February 8, 2017 (Wednesday)

Venue: 109-110 in Building Four

10:00-17:00	**Arrival and Registration**

Note:(1) The registration can also be done at any time during the conference.
(2) The organizer doesn't provide accommodation, and we suggest you make an early reservation.
(3) One best oral presentation will be selected from each oral presentation session, and the Certificate for Best Oral Presentation will be awarded at the end of each session on February 9, 2017.

Morning, February 9, 2017 (Thursday)

Venue: 109 in Building Four

9:20~10:15		**Opening Remarks** **Keynote Speech I** Prof. Hartmut Hinz University of Applied Sciences, Frankfurt, Germany **Topic: "Status of Wind Power: A Global Overview"**
10:15~10:45	**Coffee Break & Photo Taking**	
10:45~11:30		**Keynote Speech II** Prof. Dr. rer. nat. Michael Schmidt Department of Electrical Engineering and Information Technology of, Offenburg University of Applied Sciences **Topic: "Microgrids as Key Elements of Future Power Systems"**
11:30~12:00		**Plenary Speech I** Prof. Shen-Ming Chen Department of Chemical Engineering and Biotechnology, National Taipei University of Technology, Taipei 106, Taiwan **Topic: "Design and Synthesis of Carbon Nanomaterials Composite for the Electrochemical Sensors, Biosensors, and Energy Storage Devices"**
12:00~13:30	**Lunch** **111-112 in Building Four**	

Let's move to the Sessions!

Session 1

Tips: The schedule for each presentation is for reference only. In case of missing your presentation, we strongly suggest that you attend the whole session.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

S3012 Presentation 1 (13:30~13:45)

Feasibility Study of Disposed LCD monitor and Carbon Cloth electrodes for Synchronized Removal/Recovery of Cr^{6+} by Microbial fuel cells

F.A. Praveena Gangadharan and S.A. Indumathi M Nambi

Indian Institute of Technology, Madras, India

Abstract—This study compares the use of Liquid Crystal coated Polaroid Glass Electrode (LCPGE) material collected from the disposed computer monitor and carbon cloth as electrodes in microbial fuel cell (MFC) for the simultaneous reduction/recovery of hexavalent chromium (Cr^{6+}) from wastewater. The Cr^{6+} is bioelectrochemically reduced to the non-toxic Cr^{3+} form in the cathode chamber of a two-chambered MFC. At the cathode LCPGE interface, 100% of Cr^{6+} reduction was achieved within 48 h of operation. Similarly, using carbon cloth as cathode, 100 mg/L of Cr^{6+} was completely removed within 24 h (initial pH 2.0). In both the electrodes, the chromium was recovered as highly stable and non-toxic chromium oxide (Cr_2O_3). The recovered Cr_2O_3 was characterized by ATR-FTIR analysis. A maximum power density of 10 mW/m^2 and 700.11 mW/m^2 was achieved for the LCPGE and carbon cloth electrodes, respectively at ambient conditions. Moreover, 78% of organic carbon is mineralized at the anode chamber making this technology a more viable option for simultaneous chromium reduction and domestic wastewater treatment along with power production. Furthermore, the recovered Cr_2O_3 can be used as a raw material for various applications.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

F0005 Presentation 2 (13:45~14:00)

Visible Light Induced Methanol Production Based on Carbon Dioxide Reduction with Biocatalyst and Photo-Functional Material

Yutaka Amao and Ryota Kataoka

Osaka City University, Japan

Abstract—CO_2 fixation is a potential technology for the realization of catalytic CO_2 reduction. Many studies on electro-catalyzed CO_2 reduction have been performed using specific electrode materials. On the other hand, studies on CO_2 fixation also have investigated photocatalysis on semiconductors such as titanium dioxide, silicon carbide and strontium titanate. However, these systems use ultraviolet irradiation and the total reaction is low yield, whereas highly efficient CO2 fixation system using visible light is more desirable.

In this work, system for visible light-induced methanol synthesis from CO_2 with the system formate (FDH), aldehyde (AldDH), and alcohol (ADH) dehydrogenases, and methylviologen (MV2+) photoreduction by the visible light photosensitization of chlorophyll analogue tetraphenylporphyrin tetrasulfonate (TPPS) in the presence of triethanol amine (TEOA) as an electron donor is developed.

A sample solution containing TPPS (0.1 μM), MV2+ (0.1 mM), TEOA (0.3 M) FDH (12.5 units), AldDH (12.5 units) and ADH (12.5 units) was deaerated by freeze-pump-thaw cycles repeated 6 times and then flushed with CO2 gas for 5 min. The produced methanol was measured by gas chromatography. When the sample solution was irradiated with a 200 W tungsten lamp, methanol is produced with irradiation time. The methanol production was 0.55 μM after 4 h irradiation. The conversion yield of CO_2 to methanol was estimated to be 5.5% after 4 h irradiation. In contrast, no methanol production was observed without irradiation. Moreover, no methanol production was also observed in the absence of CO_2. Thus, the produced methanol is not the oxidized TEOA but the origin from CO_2 reduction with three dehydrogenases. These results indicate that the photochemical synthesis of methanol from CO_2 with FDH, AldDH and ADH via the photoreduction of MV2+ using TPPS photosensitization.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

F0007 Presentation 3 (14:00~14:15)

Adsorption Kinetics of Amoxicillin on Graphene Oxide-Au nanoparticles (AuNPs-GO)

Soheyla.Tahmasebi, O. Moradi, M, Yari

Shahr-e-Qods Branch, Islamic Azad University, Iran

Abstract—In this research, Graphene Oxide-Gold nanoparticles (AuNPs-GO) were easily fabricated by a redox reaction between GO and chloroauric acid without using any additional reductant and then used to stabilize Pickering emulsions. (AuNPs-GO) was investigated by FT-IR spectroscopy. The changes of parameters such as contact time, pH, Amoxicillin initial concentration and temperature were tested and investigated by several adsorption experiments various factors affecting the uptake behavior such as initial concentration, contact time and temperature were studied. The adsorption kinetics well described by a pseudo-second-order rate model.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

F0008 Presentation 4 (14:15~14:30)

Design and Control of an Integrated Toluene-Aniline Production Plant- A Preliminary Study

Ahtesham Javaid, Costin Sorin Bildea

Pakistan Atomic Energy Commission, Pakistan

Abstract—The scope of this research is to emphasize the importance, possibility and benefits about the coupling of exothermic and endothermic reactions. Coupling could be hydration with dehydration, oxidation with reduction and hydrogenation with dehydrogenation. Nonlinear analysis of reactor-separation-recycle shows difficulties in controlling integrated plants when un-reacted reactant is recycled. As a case study simultaneous hydrogenation of Nitrobenzene to Aniline with dehydrogenation of Methyl-cyclohexane to Toluene is investigated. Instead of multi-tubular reactor, the coupled reaction is carried out in a single tube adiabatic reactor, therefore the complex set-up for hydrogenation and large amount of hydrogen to avoid reaction run-away are no longer required. The steady state and dynamic state behaviour of an integrated plant is analysed using AspenPlus and AspenDynamics respectively. On implementing plantwide control structure the change in production rate is studied. The new system is simpler, stable and robust to feed disturbances. The results obtained here are also applicable to other chemical processes of practical relevance.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

F0009 Presentation 5 (14:30~14:45)

Preparation and Characterization of Carbon Nanotubes/Hydroxyethyl Cellulose Hybrid Material

Gang Ke

Guangzhou University, China

Abstract—Hybrid material of multiwalled carbon nanotubes (MWNTs) and hydroxyethyl cellulose (HEC) was prepared by an efficient method that comprises shorten, chain extension, active groups introducing and homogeneous reaction process. The hybrid material (MWNT-HEC) was characterized by FTIR, XPS spectroscopies, thermogravimetric analysis and transmission electron microscopy. Results confirm the covalent conjugate of the nanotubes and the cellulose chains. The hybrid material consists of carbon (76.2%), oxygen (19.5%) and nitrogen (4.3%). With a nanotube-attached hydroxyethyl cellulose content of 32.1 wt%, the MWNT-HEC is readily soluble in common polar solvents, which makes it possible to mix the hybrid material together with certain cellulose matrices in homogeneous systems in next application step. Further studies aiming at potential applications in specific sorption & isolation and delivery systems are in process.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

F0014 Presentation 6 (14:45~15:00)

Potential Energy Surface of H + F2 -> HF + F Reaction Using Machine Learning Fitting Algorithms

Serkan Dursun and Ozgur Kisi

International Black Sea University

Abstract—Machine Learning (ML) algorithms have been used constantly in numerous studies of computational chemistry so far. Artificial Neural Network (ANN) and Support Vector Machines (SVM) algorithms are two of the good examples of the ML procedures to fit any types of the functions theoretically. These algorithms, specifically ANN, have been successfully applied in search of the Potential Energy Surface (PES) and increase the precision of the results of the Density Functional Theory (DFT) and ab initio computational chemistry results recently. In this study, we applied the ANN and SVM fitting on the DFT data, obtained from H + F2 -> HF + F reaction's global PES. A rigorous data point is produced using B3LYP hybrid DFT method and 6-311G(d,p) basis set. The PES convergence properties checked properly for each data point in DFT analysis. The results of the ANN and SVM fittings, and any known experimental data are compared accordingly. The root mean square errors for energies exhibit a good correlation between DFT energies and ANN fitting. The barrier heights and production probabilities are also evaluated.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: “Chemical Engineering and Technology”

Session Chair: Prof. Shen-Ming Chen

F0015 Presentation 7 (15:00~15:15)

Development of the Technology of Poultry Litter Treatment into Organic Fertilizer through Its Decontamination by the Low-Temperature Pyrolysis Method

Rafail Isemin, Alexander Mikhalev, **Oleg Milovanov,** Ludmila Stepantsova and Vladimir Solopov

Clean Energy, Russia

Abstract—Dry poultry waste can be used as a valuable fertilizer for seedbed preparation and spring fertilizing of winter crops. One of the major limitations for the direct application of organic waste in the soil is the presence of conditionally pathogenic and pathogenic microorganisms, preserving viability and virulence for a long time. The low-temperature pyrolysis of pelleted litter mass at 250 °C and treatment time of 60 min. allows for complete decontamination of this type of waste. Reducing the pyrolysis temperature to 155 °C even when the treatment time was 60 min. did not fully decontaminate the litter mass. There was also a series of experiments on the use of pelleted litter mass subjected to low-temperature pyrolysis for 1 hour at 250 °C as a fertilizer. It was found that by introducing these pellets into the soil in an amount of 2 tons/ha, the barley yield increased by 16.2%; the timing of fruit formation of the tomato variety "Krasavets" reduced from 70 to 62 days from the start of germination, and the starting date of ripening decreased from 95 to 82 days; the yield of "Santana" potato variety increased by 36.5% up to 62 tons/ha.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

F0016 Presentation 8 (15:15~15:30)

The Effect of Orchis anatolica Leaves on Reproductive System- an in Vivo Study

Mansour Nawasreh and Lubna Tahtamouni

Al-Balqa Applied University, Jordan

Abstract—Modern medicine recognized Herbalism as an alternative therapy, though it is still widely used without supporting scientific evidence. Recent studies showed that the ingestion of Orchis anatolica roots enhanced adult male mice fertility. In the current study we aimed to investigate if the leaves of Orchis anatolica have fertility-enhancing effects similar to those of the root. As a result, sperm count, progressive motility and normal morphology were decreased in Orchis anatolica-treated group, while the percentage of sperm with damaged DNA increased. Additionally, the rate of pregnancy and the number of implantation sites decreased significantly in the treated group, while the number of resorption sites increased. Moreover, testosterone concentration decreased in Orchis anatolica-receiving group. This led to a conclusion that Orchis anatolica leaves ethanolic extract has a negative impact on male mice fertility.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

F1003 Presentation 9 (15:30~15:45)

Low-cost Fabrication of a PDMS Microchannel Using an Improved Print-and-Peel (PAP) Method

Kristian July R. Yap, John Paul Niño A. Sanglay, Jan Samuel C. Matuba and Rodgee F. Abaya

University of the Philippines Diliman, Philippines

Abstract—Microfluidics involves fluid dynamics, controlled fluid manipulations, and design of devices or systems in microchannels with typical dimensions of 10 to 200 micrometers. The conventional fabrication method of polydimethylsiloxane (PDMS) microchannels is soft lithography, which involves an expensive process for the preparation of master. The study aims to fabricate microchannels using print-and-peel (PAP) method for simple and low-cost construction of microfluidic systems. Based on the PAP method, a PDMS microchannel is developed using a master based on inkjet ink relief printed on paper. The study improves on the existing methodologies for PAP method by devising a technique called "printing-over", which is reprinting of the same pattern over itself at a high precision by modifying the printing process. This can produce irregularly-shaped molds with dimensions that can reach up to 200 micrometer width and 14.8 micrometer height, with aspect ratio equal to 0.07. Moreover, the aspect ratio is found to increase proportionally with number of printing-over runs. The microchannel produced from the mold has dimensions of 155 by 10 micrometers with aspect ratio of 0.06. With a rough cost analysis, the capital and variable costs of the PAP inkjet method are significantly lower than that of photolithography.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 109 in the Building Four

Session 1: 10 presentations-Topic: "Chemical Engineering and Technology"

Session Chair: Prof. Shen-Ming Chen

S0005 Presentation 10 (15:45~16:00)

The Analysis of Importance Index to the Dominant Category Causing Contractor Contingency Cost in Aceh Province

Hafnidar A. Rani

Department of Civil Engineering, Universitas Muhammadiyah Aceh, Indonesia

Abstract—Contingency cost is the money provided as the reserve cost to face the uncertainty situation relating to the construction project. The contractor need to allocate some amount of the budget for contingency cost into the offering budget proposed to anticipate the uncertainty situation that could be occurred. The problem raised is what the uncertainty factors affecting contractor contingency cost. From the results of this study are obtained five of the most factors causing uncertainty which affecting contractor contingency cost in the building construction project. These five factors are divided into two dominant categories causing uncertainty which affecting contractor contingency cost in the building construction project based on the three respondent groups which are team financial condition, security and safety in the project location, and team management capability involved.

16:00-16:15	**Coffee Break**

Session 2

Tips: The schedule for each presentation is for reference only. In case of missing your presentation, we strongly suggest that you attend the whole session.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S0004 Presentation 1 (13:30~13:45)

A Mass Balance Method for Assessing Emergy Benefit of Waste Mining for Refuse Derived Fuel Production

Christia Meidiana and Dwi Mashita

FACULTY OF ENGINEERING, BRAWIJAYA UNIVERSITY, INDONESIA

Abstract—Waste mining has been implemented in Gresik City since 2013. The aged waste is processed into refuse-derived fuel (RDF) for Cement Industry. The study objects to calculate the benefit of waste mining activity using emergy analysis. Mass balance analysis assesses total waste flow for separation, composting, and RDF production. Waste separation done by 72 scavengers in landfill contributes 1.54% waste reduction (1.3 ton waste) and 228.5 US$/day income by selling them to middle man. Meanwhile, 265.6 ton aged waste excavated from landfill is screened, shredded and processed into 72.68 ton/day RDF type 2. By-product of this process is 184.32 ton/day residue (soil-like substances) used for land reclamation. RDF produced from landfill can substitute coal consumption in cement industry for 4.25 years. Emergy calculation comes to the result that waste treatment in landfill through scavenging, composting and waste mining contributes gross emergy benefit of 2.14E+22 seJ/yr.recognition process for Cu^{2+}. The detection limits of L1 were 1.5 x 10-4 M and 1.7 x 10-5 M of Cu^{2+} using the visual color changes and Ultraviolet-visible spectroscopy changes respectively. Test strips based on L1 were fabricated, which could act as a convenient andefficient Cu^{2+} test kit.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S0007 Presentation 2 (13:45~14:00)

The Response of Human Thermal Perception and Skin Temperature to Step-Changed Activity Level

Diyi Tan, Hong Liu, and Yuxin Wu

Chongqing University, China

Abstract—Considerable researches have been conducted on human thermal comfort under steady state while studies on human thermal perception under non-steady-state is not sufficient. This paper investigates thermal perception of people who alternated between sedentary exercise and walking on a treadmill in 20oC and 25oC. Experiments in a well-controlled climate chamber, including both physiological measurements and subjective questionnaires, were conducted. The procedure of the experiments was as follows: subject sat for 30min in climate chamber to calm down before entered into stage of activity level step changing, which comprised 30min of walking at 0.9m/s followed by 30min of sitting and then walking at 1.2m/s followed by 30min of sitting. 20 subjects were involved. The results indicate that there is poor correlation between thermal sensation vote and skin temperature in activity level transient periods, and the PMV is not suitable to predict the thermal sensation of people occupying dynamic activity when their thermal sensation does not achieve to steady state. However, there is approximately linear correlation between thermal sensation vote and variation rate of temperature with time in the first few minutes after subjects stopped walking.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S0019 Presentation 3 (14:00~14:15)

Crafting Climate Resilience for People at Bottom of Pyramid Using Digital Innovation

Himanshu Verma, Florian Moder, and Zakir Hussain Shaik

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH, India

Abstract—Indian agriculture sector accounts for 13.9 per cent of India's gross domestic product (GDP) and employs about 54.6 per cent of the country's workforce. ICT tools are common these days to support agriculture sector. Close to 46.000 farm graduates were trained on ICT between 2002 and 2016, more than 19.000 ventures begun till 2016 in this sector and currently 25 Kisan call centers (farmer hotline) are located in different parts of the country utilizing ICT. In spite of so much ICT interventions, farmers are still at bottom of economic and social pyramid in India. The project CCKN-IA (Climate Change Knowledge network in Indian Agriculture implemented by the German Development Cooperation - GIZ) has made an attempt to identify lacunas and multiple needs of the farmers and come up with a unique, innovative and pragmatic idea to bridge the knowledge gap applying state of the art ICT.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S0020 Presentation 4 (14:15~14:30)

Thermal Comfort Study Based on Questionnaire Survey Among Occupants in Different Climate Zones in China

Xuyuan Zhao, Wei Yu and Diyi Tan

Chongqing University, China

Abstract—In order to understand current state of the thermal sensation and environment control strategy in different climate zones of China, a questionnaire survey was conducted on the internet during extreme weather in summer. The questions in the survey were designed based on ISO 7730 and previous literatures on adaptive thermal comfort. A total of 927 valid questionnaires were acquired, which involved respondents from 29 provincial-level administrative regions of China in different climate zones. The result, which is based on the compilation of responses from the survey, indicates that the occupants living in the hot summer and cold winter zone are more dependant on the air conditioner, and occupants living in south of the hot summer and cold winter zone are more adaptable to extreme weather in summer. The most common adaptive behavior is reducing clothes for all the investigated zones. Compared with male respondents, more female respondents would like to use hand fans to improve their thermal comfort. This paper provide speaking proof that different thermal comfort standard is needed for different climate zones in China.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S0016 Presentation 5 (14:30~14:45)

ADSORPTION MECHANISM PROCESSES OF SOME SELECTED HEAVY METAL IONS AND METHYLENE BLUE BY CHEMICALLY MODIFIED LUFFA CYLINDRICA

AKANIMO EMENE

THE UNIVERSITY OF SHEFFIELD, UK

Abstract—Adsorption is a low cost, efficient and economically viable wastewater treatment process. Utilisation of this treatment process has not been fully applied due to the complex and not fully understood nature of the adsorption system. To optimise its process is to choose a sufficient adsorbent and to further study the experimental parameters that influence the adsorption design system. Chemically modified adsorbent, Luffa cylindrica, was used to adsorb heavy metal ions and an organic pollutant, methylene blue, from aqueous environmental solution at varying experimental conditions. Experimental factors, adsorption time, initial metal ion or organic pollutant concentration, ionic strength and pH of solution were studied. The experimental data were analysed with kinetic and isotherm models. The antagonistic effect of the methylene and some heavy metal ions were recorded. An understanding of the use of this treated Luffa cylindrica for the removal of these toxic substances will establish and improve the commercial application of the adsorption process in treatment of contaminated waters.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S1004 Presentation 6 (14:45~15:00)

Grey Water Recycle System for a University Building: A Case Study in Thailand

Wannawit Taemthong and Phongphiphat Phenphon

King Mongkut's University of Technology North Bangkok, Thailand

Abstract—This research investigated three alternatives in recycling grey water from washbasin for reusing in toilet flushing system. Grey water were collected from all washbasins from 2nd floor to 9th floor of a 9 stories university building. The water were treated in three experiment systems in order to reuse in flushing systems such as men urinals and toilets. A recommended grey water treatment system is a set of a sedimentation tank, an aeration tank, a sand and carbon filtering tank, and a final sedimentation tank. Water quality after the treatment has SS, BOD_5, and turbidity of 1.67 mg/l, 3.33 mg/l, and 3.33 NTU, respectively. Fecal coliform bacteria and E.Coli were not found in the treated water. Efficiency in reducing SS, BOD_5, and turbidity are 90%, 78%, and 75%, respectively. In conclusion, grey water can be recycled and reused in flushing systems to use water more efficiently in buildings.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S1005 Presentation 7 (15:00~15:15)

Water Supply Risk Analysis Using Fault Tree Analysis

Suwan Park, Kimin Kim and Minje Kang

Pusan National University, Republic of Korea

Abstract—Fault Tree Analysis(FTA) has been used to estimate the frequency of accidents and expected accident scenarios during a risk assessment of a system under planning or operation. For a normal FTA a top event is defined as the main cause of the disablement of the system as a whole. However, if a FTA is conducted for the maintenance of a water supply system, the top event in this case should be defined differently from the conventional definition of a top event.

Since the conventional definition of a top event for the case of a water supply system should mean contamination of water source or a problem in a transmission pipeline linked to water source or water treatment plant, the top event defined in this way makes it difficult to analyze problems occurred in pipes and nodes in a water distribution network.

In the calculation of risk of water distribution, the status of water supply for each node in a water distribution system is as important as the operational status of a water treatment plant or transmission pipeline. In this study, therefore, the top event for the FTA of a water supply system was defined as the case for which water is not supplied to a specific demand point. In this study, a technique for estimating the risk of a water distribution network was developed by utilizing the FTA for individual nodes in a case study water supply system.

In order that water is supplied to a node, all pipes that exist between a water source and a node should work well without leaks. Therefore, a computational algorithm was developed to realize the paths of water supply for each node. The water supply paths were established by enumerating all of the pipes and valves on all possible paths leading up to a node or by considering the upstream and downstream flow relation of water supply which may be revealed among areas of water supply suspension by valve closures during leak incidents.

A computational algorithm was also developed to find segments in a water distribution pipe

network which was first introduced by Walski(1993a, b). The developed algorithm identifies pipes that are isolated together in the event of a leak repair due to valve closures. In addition, a computational algorithm to find an unintendedly isolated segments, which is a segment connected to only one upstream segment, was developed. The hierarchy tree was constructed on a spreadsheet program using the segments and unintendedly isolated segments of the case study system. The FTA was conducted using the hierarchy tree of the segments and unintendedly isolated segments to estimate the nodal water supply risks.

The nodal water supply risks in a segment was calculated by considering the deterioration scores of the pipes that were the pipeline performance diagnostic results of the case study water distribution network and the effects of water supply suspension due to pipe break. As a result, the most critical node and pipe for the case study system was identified.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S1006 Presentation 8 (15:15~15:30)

Sludge Reduction and General Performance in a Combined US+OSA System

P. M. Romero-Pareja, C. A. Aragon-Cruz, J. M. Quiroga-Alonso, and D. Coello-Oviedo

University of Cadiz, Spain

Abstract—The reduction of sewage sludge generated in wastewater treatment plants is one topic of interest due to the high cost related to the management of this waste and the rising amount of volume at which sludge is produced worldwide. Within the techniques to reduce sludge, the Oxic-Settling-Anaerobic (OSA) process is one of the most promising due to its simplicity and to the absence of negative consequences for system. In the OSA process the recycled sludge is submitted to an anaerobic stage prior to flow again into the biological reactor. In this study, OSA process is run in a lab scale pilot plant together with a lysis step by ultrasound treatment, applied daily to a certain fraction of the total sludge of the system previously to the anaerobic holding tank. Results point to an enhancement of sludge reduction rate for the two sonication applied regimes (45.72% and 78.56%). Also the TN removal rate increases from 21.95% during control stage to 47.28% during the first of the two ultrasound regimes applied (US1). A too intense sonication treatment during the second synergic stage (US2) is reported to lead to a serious damage of system. Increases of dehydrogenase activity were described during both stages.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S2009 Presentation 9 (15:30~15:45)

Mixing of Fly Ash in Coal Mine Overburden Dump: An Eco-friendly Method of Fly Ash Disposal

A. S. Rathore, **Manoj Pradhan** and Shirish V. Deo

National Institute of Technology, Raipur, India

Abstract—India depends on coal to meet its power requirement. The coal based thermal power plant shares approximately 62.0 % of the total installed capacity of power generation. Indian coal is high in ash content and low in calorific value. This implies that for generation of same unit of energy, Indian thermal power plants consume more coal and generate more fly ash as compared to the other countries. Unscientific disposal of fly ash degrades the land, pollute the air and the surface water sources. Toxic metals leached from the fly ash may also pollute the underground water resources. The Government of India has taken several initiatives to convert this waste material to useful material through the development and application of new technologies, despite these efforts the fly ash utilization has reached to only 55% in the year 2014-15. The major utilization of fly ash is in cement sector, bricks and tiles manufacturing, reclamation of low lying area, roads and embankments filling, and in agriculture. The above sectors in India do not have potential to ensure 100% utilization of fly. Thus, there is a need to dispose unutilized fly ash in bulk quantities in safe scientific, economic and environment friendly manner. Disposal of fly ash in coal mine overburden dump is a potential area where fly ash in bulk quantities can be disposed in an enviro-friendly manner. This paper presents a case study of an open cast coal mine where fly ash has been successfully disposed in overburden dump material.

Afternoon, February 9, 2017 (Thursday)

Time: 13:30~16:00

Venue: 110 in the Building Four

Session 2: 10 presentations-Topic: "Environmental Engineering and Management"

Session Chair: To be added

S2010 Presentation 10 (15:45~16:00)

Ambient Air SO_2 Patterns in Relation to Meteorological Conditions in a Tropical Andean City

Andrea Cuesta-Mosquera, Carlos Gonzalez-Duque, Beatriz Aristizabal-Zuluaga

Universidad Nacional de Colombia, Colombia

Abstract—Distinct short and long-term trends in SO_2 concentrations were linked to meteorology, anthropogenic emissions and volcanic activity in the tropical Andean city of Manizales, Colombia. In the short term trend, it is emphasized the influence of SO_2 emissions from volcano and traffic activity, and boundary layer dynamics. SO_2 stability and accumulation during a period of water deficit were identified in a long term. From a 13-month period of continuous 5-minute of observation data, three trends were identified and analyzed. First, daily distribution of SO2 concentrations suggests the influence of road traffic, where higher concentrations were found at the beginning (07h00 – 3.8 $\mu g \cdot m^{-3}$) and the end of the workday (19h00 - 4 $\mu g \cdot m^{-3}$), where significant traffic flow takes place. Lower concentrations of SO2 (1 $\mu g \cdot m^{-3}$) were measured at noon, suggesting a dominant effect of meteorological conditions with the increase of mixing layer height, in spite of a high traffic flow in the city during this hour. Secondly, the highest SO_2 concentration registered in the 13-month of observations (114 $\mu g \cdot m^{-3}$), is associated with a higher volcanic emission from Nevado Del Ruiz, located 29.9 km away from the city. In a comparison with the seismograph of volcanic activity, peak SO_2 concentration arrived 15 hours and 10 minutes (2 $km \cdot hr^{-1}$ approximate velocity) after peak seismic activity and was associated with an abrupt decline in mixing layer altitude as estimated by the WRF model. Finally, third analysis corresponds to a long term trend, where daily minimum SO_2 concentrations, steadily increased at a rate of 0.03 $\mu g \cdot m^{-3} \cdot d^{-1}$ over a 4-month period of water deficit or drought, resulting in the highest observed daily minimum concentration of 3.7$\mu g \cdot m^{-3}$. This study contributes a data set and analysis for better understanding short-term and seasonal factors important to SO_2 exposure, not only for the millions of people living near active volcanoes, but also for those living in regions, like Colombia, that will experience drought conditions associated with global

warming. Further development of these atmospheric physio-chemical dynamics in Manizales will develop bottom-up measurements to better calibrate models of not only short and long-term trends in SO_2 exposures, but also dynamics associated with local and regional SO_2 public health impacts.

16:00-16:15	**Coffee Break**

Session 3

Tips: The schedule for each presentation is for reference only. In case of missing your presentation, we strongly suggest that you attend the whole session.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:15

Venue: 109 in the Building Four

Session 3: 8 presentations-Topic: "Renewable Energy and Energy Chemistry"

Session Chair: Prof. Hartmut Hinz

E3010 Presentation 1 (16:15~16:30)

Determination of Densities and Viscosities of Canola Oil Biodiesel-Diesel Fuel-Isopropyl Alcohol Blends

Mert Gülüm and Atilla Bilgin

Karadeniz Technical University,Turkey

Abstract—The aims of this study are to (1) investigate effects of isopropyl alcohol content on changes of densities and kinematic viscosities for canola oil biodiesel-diesel fuel-isopropyl alcohol ternary blends, and (2) derive models as a function of alcohol content in order to estimate densities and viscosities of the ternary blends. For these aims, canola oil biodiesel was produced by means of transesterification reaction, and blended with commercially available diesel fuel at the volume ratio of 20%. Isopropyl alcohol was added to this biodiesel-diesel fuel blend at different volume ratios of 2, 4, 6, 8, 10, 15 and 20%. Densities and kinematic viscosities of the prepared each fuels were measured at 15oC and 40oC, respectively, according to international standards. Finally, regression models were derived based on changes of density and viscosity versus alcohol content.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:15

Venue: 109 in the Building Four

Session 3: 8 presentations-Topic: "Renewable Energy and Energy Chemistry"

Session Chair: Prof. Hartmut Hinz

E0003 Presentation 2 (16:30~16:45)

Multi-effect solar water still with evaporation pressure self-reduction capability

Nabil Elsharif and Khamid Mahkamov

Northumbria University at Newcastle, United Kingdom

Abstract—The objective of this paper is to investigate the operation of multi-effect water still coupled to an evacuated heat pipe tube solar collector and small fluid piston energy converter. The solar collector is used to provide heating of the saline water in the still and also to drive the fluid piston converter. This converter operates as a pump to evacuate air from the still and reduce pressure inside the still which would result in the increased saline water evaporation rate. The mathematical model of operation of the proposed water desalination system was developed using a set of equations to describe the mass and energy balance for each stage of the still. A simulation was carried out in Matlab/Simulink environment in order to calculate the distillate productivity and temperatures in all stages of the still. The preliminary results demonstrate that the total productivity of the multi-effect still is strongly affected by the pressure inside the still. Currently, the physical model of the system being assembled on the test rig to validate theoretical results.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:15

Venue: 109 in the Building Four

Session 3: 8 presentations-Topic: "Renewable Energy and Energy Chemistry"

Session Chair: Prof. Hartmut Hinz

E0008 Presentation 3 (16:45~17:00)

Microwave-assisted, Ionic liquid based Catalytic Conversion of non-edible Lignocelluloses to Bioethanol

Souvik Kumar Paul and Saikat Chakraborty

Indian Institute of Technology, India

Abstract—This work presents a fast, efficient process for catalytic conversion of non-edible lignocelluloses to platform chemicals such as 5-hydroxy-methylfulral (HMF), levulinic acid (LA) and formic acid (FA), as well as glucose and bioethanol. We perform a microwave-assisted ionic liquid ([BMIM]Cl) based copper chloride catalyzed conversion of lignocellulosic biomass at 160-200^{0}C. Ionic liquid helps in dissolving the lignocellulosic substrate and the microwave reactor helps in aligning the dipoles in the electromagnetic field created by the combination of ionic liquid and microwave radiation, thus drastically reducing the total reaction time to only 36-51 min. The lignocellulosic substrate is first depolymerized into glucose through hydrolysis reaction. The glucose is then either microbially fermented to bioethanol using the yeast Saccharomyces cerevisae or dehydrated to HMF for producing gasoline. HMF is further rehydrated to produce LA and FA, which can be converted to fuels such as C_8-C_{20} alkenes. The maximum yields of glucose, HMF, LA and FA are obtained as 78.70%, 26.8%, 44.9% and 10.8%, respectively under optimized process conditions. The maximum bioethanol yield of 75.6% is obtained after 15 hours of yeast-mediated fermentation, and the ionic liquid is separated and recycled for further use for cost-effective biofuel production.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:15

Venue: 109 in the Building Four

Session 3: 8 presentations-Topic: "Renewable Energy and Energy Chemistry"

Session Chair: Prof. Hartmut Hinz

E0009 Presentation 4 (17:00~17:15)

Electricity production during distillery wastewater treatment in a microbial fuel cell equipped with low cost PVA-Nafion-borosilicate membrane

B. R. Tiwari and M. M. Ghangrekar

Indian Institute of Technology Kharagpur, India

Abstract—Microbial fuel cell (MFC) fabricated using Polyvinyl alcohol (PVA)-Nafion-borosilicate membrane was evaluated for distillery wastewater treatment at three different organic loading of 2300 mgL-1 (OL-1), 4200 mgL-1 (OL-2) and 6300 mgL-1 (OL-3) under 96 h batch mode of operation. The linear sweep voltammetry (LSV) study of the MFC revealed that anodic activity was enhanced when the amount of metabolite available was higher. The LSV results supported the power output achieved from MFC during polarization. Maximum power density of 4.3 Wm-3 was obtained at substrate loading of 6300 mgL-1, which was 1.2 folds and 1.6 folds higher than that obtained at OL-2 and OL-1, respectively. Along with power output, MFCs were capable of efficiently degrading organic matter present in wastewater in the range of 54.5 % to 64.25 %. Successful reduction of organic matter from distillery wastewater apart from power generation establishes MFC using PVA-Nafion-borosilicate membrane as a suitable low cost technology for real wastewater treatment.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:15

Venue: 109 in the Building Four

Session 3: 8 presentations-Topic: "Renewable Energy and Energy Chemistry"

Session Chair: Prof. Hartmut Hinz

E0015 Presentation 5 (17:15~17:30)

Hydraulic cell compression for performance preserving upscaling of PEM electrolyzers

Florian Josef Wirkert, Jeffrey Roth, Ulrich W. Rost, and Michael Brodmann

Westfälische Hochschule University of Applied Sciences, Germany

Abstract—The technology of polymer electrolyte membrane (PEM) electrolysis provides an efficient way to produce hydrogen. In combination with renewable energy sources, it promises to be one of the key factors towards a carbon-free energy infrastructure in the future. Today, PEM electrolyzers with a power consumption higher than 1 MW and a gas output pressure of 30 bar (or even higher) are already commercially available. Nevertheless, fundamental research and development for an improved efficiency is far from being finally accomplished, and mostly takes place on a laboratory scale. Upscaling the laboratory prototypes to an industrial size usually cannot be achieved without facing further problems and/or losing efficiency. With our novel system design based on hydraulic cell compression, a lot of the commonly occurring problems like inhomogeneous temperature and current distribution can be avoided. In this study we present first results of an upscaling by a factor of 30 in active cell area.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:15

Venue: 109 in the Building Four

Session 3: 8 presentations-Topic: "Renewable Energy and Energy Chemistry"

Session Chair: Prof. Hartmut Hinz

E0020 Presentation 6 (17:30~17:45)

Enhancing the performance of sediment microbial fuel cell using graphene oxide – zeolite modified anode and V_2O_5 catalyzed cathode

Md. T. Noori, D. Paul, M.M. Ghangrekar, and C.K. Mukherjee

Indian Institute of Technology Kharagpur, India

Abstract—Sediment microbial fuel cells (SMFCs) are the auspicious technology, which can recover energy from wastes in low-cost, but the low-level power recovery from these devices is great obstacle towards its community acceptance. The performance of SMFC could be prominently improved by using graphene oxide – Zeolite modified anode (GZMA) and application of V_2O_5/Vulcan XC composite catalyst on cathode. The SMFC with GZMA and V_2O_5/Vulcan XC composite catalyst (SMFC-4) was able to recover a power density of 15.2 mW/m^2 from fresh water aquaculture pond. This power density was found 2.49-times higher than the SMFC using GO modified anode (GMA) and without catalyzed cathode (SMFC-1). However, GMA and V_2O_5/Vulcan XC composite catalyzed cathode in SMFC-2, the power density of 6.02 mW/m^2 obtained from SMFC-1 could be enhanced to 10.6 mW/m^2 for SMFC-2, which was found slightly higher than the SMFC using GZMA and without catalyzed cathode (SMFC-3, 10 mW/m^2). The wastewater treatment efficiency in terms of chemical oxygen demand and total kjeldahl nitrogen from aquaculture water was found highest in SMFC-4 with a value of 89.5 ± 1.9% and 64.2 ± 1.7%, respectively. In addition, at the end of each batch cycle i.e. after 15 days of continuous operation, all the SMFCs were found to be capable of reducing the ammonia nitrogen up to desired level (i.e. < 1 mg/L) for culture of India major carp.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:15

Venue: 109 in the Building Four

Session 3: 8 presentations-Topic: "Renewable Energy and Energy Chemistry"

Session Chair: Prof. Hartmut Hinz

E0029 Presentation 7 (17:45 ~18:00)

Graphene Oxide/Polytetrafluoroethylene composite anode and *Chaetoceros* pre-treated anodic inoculum enhancing performance of microbial fuel cell

Rajesh Padinhatta Purayil, Md. T. Noori and M.M. Ghangrekar

Indian Institute of Technology Kharagpur, India

Abstract—Electricity generation from microbial fuel cell (MFC) can be enhanced by proper manifestation of electrogenic bacterial growth on anode surface. Effect of graphene oxide (GO)/ Polytetrafluoroethylene (PTFE) composite bio-anode and *Chaetoceros* pre-treated anodic inoculum on electricity generation in MFC was investigated in the present work. MFC using GO/PTFE composite bio-anode demonstrated a maximum power density of 20.52 W/m^3; whereas, MFC using bare carbon felt anode without modification produced a maximum power density of 10.25 W/m^3 and this was 3.43 W/m^3 for MFC using carbon felt anode inoculated with mixed anaerobic sludge without pre-treatment. Coulombic efficiency (CE) of 41.82 % was obtained in MFC with modified bio-anode using *Chaetoceros* algae pre-treated mixed anaerobic sludge as anodic inoculum. This CE obtained is far superior than the values reported earlier using mixed anaerobic sludge as inoculum. Increased catalytic current and lower charge transfer resistance were observed during linear sweep voltammetry (LSV) and electrochemical impedance spectroscopy (EIS) for MFC with GO/PTFE modified anode as compared to MFC using unmodified anode. Thus, GO/PTFE modified carbon felt anode with *Chaetoceros* pre-treated mixed anaerobic sludge as inoculum could be used in MFC to enhance the power harvested by this device while simultaneously offering effective treatment to wastewater.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:15

Venue: 109 in the Building Four

Session 3: 8 presentations-Topic: "Renewable Energy and Energy Chemistry"

Session Chair: Prof. Hartmut Hinz

E0031 Presentation 8 (18:00 ~18:15)

Experimental investigation of using animal fat based biodiesel-diesel blends in a diesel engine

Abdülvahap Çakmak and Rasim BehÇet

Ondokuz Mayis University, Turkey

Abstract—The goal of this study is to investigate the utilization of waste animal fats as fuel in a diesel engine. Because of higher viscosity and density of waste animal fats, it is not suitable for use them purely as diesel engine fuel. For that reason, in this study fish fat biodiesel (FFB) and chicken fat biodiesel (CFB) were produced by transesterification method from waste fish fat and waste chicken fat. Then, standard diesel fuel (SDF) and two types of fuel blends called as FFB50 and CFB50 obtained by blending the FFB and CFB with the SDF with a ratio of 50% on volume basis. After that, SDF, FFB50 and CFB50 were used as fuel in a single-cylinder, four stroke, direct injection and air-cooled diesel engine and the effects of fuels on engine performance and exhaust emissions have been comparatively investigated with SDF. Engine tests showed that performance losses and an increase in NOx emissions were experienced with the animal fat based fuel blends operation. It is calculated that the average powers that decreased for FFB50 and CFB50 were 3.10% and 4.61% respectively. The mean torque values for FFB50 and CFB50 were 1.27% and 2.04% lower than that of SDF. Also, mean break specific fuel consumptions (BSFC) increased up to 2.06% and 4.59% for the FFB50 and CFB50 compared to SDF fuel, respectively. Furthermore, it is determined that FFB50 and CFB50 operation result in less HC and CO emissions than SDF operation.

Session 4

Tips: The schedule for each presentation is for reference only. In case of missing your presentation, we strongly suggest that you attend the whole session.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E0004 Presentation 1 (16:15~16:30)

An Improved Dynamic Modeling of Permanent Magnet Synchronous Machine with Torque Ripple Characteristics

S. A Kim, J. H Song, S. W Han, and **Yun Hyun Cho**

Dong-A University, Republic of Korea

Abstract—A mechanical vibration and acoustic noise of permanent magnet synchronous machines (PMSM) are caused by the torque ripple due to the non-sinusoidal back electromotive force (BEMF). The accurate modeling with a torque ripple is essential to improve the torque characteristics of PMSM. The torque ripple that appears because of the interaction between the flux of the PM and the stator teeth. A general dynamic modeling of PMSM has only a magnetic torque and a reluctance torque. Therefore, the dynamic modeling of the PMSM is a need to apply the influence of the harmonics. This paper proposes an improved modeling of the PMSM considering the torque ripple characteristics. The theoretical basis of the torque ripple and individual definition of the model block is explained. The effectiveness of this proposed modeling is verified by the simulation and experiment according to the comparison of the output characteristics between the traditional and proposed modeling.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E0010 Presentation 2 (16:30~16:45)

Numerical Study about Improving the Proficiency of an Earth Air Heat Exchanger system (EAHE) employing Ground Cover Material

Haitham Alkhalaf, Md Najib Ibrahim, and Wanglin Yan

Keio University, Japan

Abstract—This research presents an investigation into the performance of Earth Air Heat Exchanger (EAHE) in Malaysian climate. The passive cooling technology, where the ground is used as a heat sink to produce cooler air, it is an emerging of area of interest in Malaysia. This system is an important concept of sustainable design for Green House which enhance energy saving and reducing of Green House Gases emission. The aim of this study is to find the best ground cover in improving the (EAHE) proficiency through thermal model using computer simulation. The pipe which was used in thermal model have same parameters of real case which were 3-inch diameter and the material of pipe was PVC, the velocity of flow air was 1 m/s, the pipe was buried in 4m depth and had 50m length. The performance of the EAHE was simulated using loam, clay, sand, silty clay, sandy clay loam as back fill material. It was found that sandy soil is the best ground cover material.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E0012 Presentation 3 (16:45~17:00)

A study for an optimization of a hybrid renewable energy system as a part of decentralized power supply

Yavor Stefanov, K. Ivanov, and P. Petrov

Technical University of Gabrovo, Bulgaria

Abstract—The objective of this paper is to describe the optimization of a hybrid renewable energy system. The system is intended to supply a residential neighborhood with thermal and electrical power. A software based model has been developed to serve as an experimental tool for calculations and comparison. The aim of the research is to find an optimal size per each element of the system due to the demand to keep the system as independent from the public grid as it is possible. The proposed system model consists of a combined heat and power plant, thermal boiler and a photovoltaic array with an additional lithium-ion battery for electrical energy storage. A methodology based on optimal power production for maximal covering of consumer`s demands is applied in a combination with approximate prizes per natural gas, prizes per purchased and sold back electrical energy from and to the utility grid. Results formed as graphs and comparable cases are expected as outcomes, based on the most optimal calculations for lowest net present cost per purchases from the utility grid.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E0016 Presentation 4 (17:00~17:15)

Influence of Solid State Fault Current Limiter on Grid Connected Photovoltaic System Protection

Jagdish Prasad Sharma, H. Ravishankar Kamath

JK Lakshmipat University, India

Abstract—Distributed generation (DG) are connected to the grid via a power electronic interface that regulates the amount of power injection to the grid by regulating point of coupling (PCC) voltage or converter control circuit. The PCC parameters are used to decide the operational mode of DG. The power electronic interface badly affected by at current and voltage in the event of a fault. The focus of this paper is at describing how solid-state fault current limiter (SSFCL) may be considered for voltage sag mitigation and fault current control of a parallel distribution feeder connected to a 100 KW photovoltaic system. This 100 KW photovoltaic system is connected to said feeder with a 100 KVA transformer. To avoid any damage to power electronic interface, it is required to determine prospective fault current and voltage sag mitigation at point of coupling (PCC). The performance of SSFCL is assessed with prospective fault current, voltage sag mitigation and suppression of fault current for unsymmetrical /symmetrical faults on a parallel distribution feeder connected to photovoltaic system.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E0025 Presentation 5 (17:15~17:30)

Self-sufficient wind turbine condition monitoring system

Rana N. Badran, Ihab Adly, and Hani Ghali

Indian Institute of Technology, Kharagpur, India

Abstract—Unpredictable failures of wind turbines and the associated costs; have contributed to the development of condition monitoring systems. The availability of ultra-low power devices has contributed in creating autonomous systems that operates on energy harvested from the surrounding environment. This research aims to develop a design of a self-sufficient condition monitoring system, that is able to run on renewable energy. Energy is harvested from an electromagnetic energy harvester that harnesses the rotational motion of the wind turbine blades and converts it to useful power. After conditioning and storing the harvested energy, the maximum available power is 435 mW. The energy harvested is used to charge a lithium ion battery for backup as well as power the condition monitoring system. The system is validated by both simulation models and experimental measurements on a wind turbine prototype model.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E0026 Presentation 6 (17:30~17:45)

The future of the Indian electricity supply: a path towards sustainable growth

Jagruti Thakur, Sebastian Rauner, and Basab Chakraborty

Indian Institute of Technology, Kharagpur, India

Abstract—With an ambitious target of 175 GW of renewable energy by 2022, India wishes to move towards the path of sustainable growth and reduce the emissions of greenhouse gases. As the nation targets to reduce its emission intensity per unit GDP by 33 to 35 percent in 2030, decarbonization of electricity generation through clean energy technology would lead to a sustainable electricity supply, thereby mitigating climate change impacts. The extension of renewables is critical to achieve sustainable economic growth while managing cost implications. In this paper, a bottom up unit commitment model is used to model the different energy mix scenarios with a varied share of renewable energy. For this analysis, a state of India is chosen as a case study. After optimizing the power system, the emissions resulting per kWh were calculated for all the technologies. The objective of the paper is to evaluate the amount of carbon mitigation through increased renewable energy generation. It is observed that there was a 20% reduction in CO_2 equivalent emissions as compared to the goal scenario where the solar capacity was increased to around 40%, which could have an impact on stabilizing or even reducing GHG emissions.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E0036 Presentation 7 (17:45~18:00)

Active and Reactive Power Control of Doubly Fed Induction Generator Wind Turbines to answer Grid Codes Requirements

Mbarek TALEB and Mohamed CHERKAOUI

EMI RABAT MOROCCO, MOROCCO

Abstract—Recently, wind energy becomes one of important and promising sources of renewable energy despite its important fluctuations due to wind time varying nature. These fluctuations affect the power quality in the grid, mainly in term of frequency and voltage stability. Thus, Grid Managers are now dictating dynamic profiles for active and reactive powers that must be respected at the Point of Common Coupling (PCC) to make wind installations able to support the control of grid frequency and grid voltage.

In this paper, it is detailed one of the most important types of Wind Energy Conversion System (WECS) consisting on Turbine associated with Doubly Fed Induction Generator (DFIG). Vector control concept using stator flux orientation is adopted to allow independent control of active and reactive powers to answer easily Grid Codes requirements.

This work is limited to present the PI control with its direct and indirect approaches that are compared by using MATLAB-SIMULINK software. Except its limited robustness, PI Controller stays a simple and easy solution to control the power flow between WECS farms and electrical network. It should be noticed, however, that Indirect approach based on currents control gives better results in term of overshooting rates.

This work constitutes a good basis to implement any other PQ control strategy.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E3002 Presentation 8 (18:00~18:15)

Systematic Integration of PV Plants and Energy Storage Systems into Low Voltage Grid

Ralph Samulowitz

Frankfurt University of Applied Sciences, Germany

Abstract—This paper shows a practical comparison of the project planning of a grid connected photovoltaic system with bifacial solar modules with an east west orientation and a saltwater storage systems. First is the Data collection to evaluate the performance of a PV system the knowledge of the load profile. Second is the Solar irradiation and plant design. The Frankfurt University of Applied Science connects high-resolution 3D photos with the cadastral land of the property registers The lay-out on self-consumption and autarky is compared to verify an optimum for a single-family household. The saltwater battery seems to be a promising alternative to lithium-ion batteries. A different study shall be consulted for the planning as a comparison and then be carried out in a practical plant.

Afternoon, February 9, 2017 (Thursday)

Time: 16:15~18:30

Venue: 110 in the Building Four

Session 4: 9 presentations-Topic: "Motor, Power System and Automation"

Session Chair: To be added

E3007 Presentation 9 (18:15~18:30)

Hydro Green Engine

Rana Tejashwee and Rahul Kumar Singh

Magadh University, India

Abstract—This innovative approach relates to the Hydrogen based Internal Combustion engine in which hydrogen is produced and stored when a vehicle is in the state of motion. This system includes a Sodium Silicide (NaSi) membrane which is used to separate hydrogen from water at the cheapest cost. When the hydrogen gas is passed through distributor to the Internal Combustion engine, compressed air is released. As a result the fuel, i.e. hydrogen, burns and there is an ignition in the spark plug and the vehicle starts. The control circuit is used for controlling the consumption of the burnt fuel which is approximately needed by the engine to run a vehicle. And the excess amount of unburnt hydrogen is again combined with the oxygen to produce water. Hence it is clear from the overview that the complete process is recyclable.

Poster Session

Tips: The poster session will last from 9：00 to 18:30. Please provide your home-made poster to the conference specialist in advance before the conference beginning.

February 9, 2017 (Thursday)

Time: 9:20~18:30

Venue: 109-111 in the Building Four

F0010 （9:20~18:30）

Detection of Anti-Tuberculosis Antibody on The Nanostructured Polymeric Surface Using a Liquid Crystal-Based Sensor

Hyeong Jin Kim and Chang-Hyun Jang

Department of Bionanotechnology, Gachon University

Abstract—Tuberculosis still remains as a severe health problem because of lack of effective, rapid, and simple diagnostic tools. In this study, we established a new type of liquid crystal (LC) sensing system for detection of anti-tuberculosis antibody. The LCs (4-cyano-4’-pentylbiphenyl) uniformly aligned in parallel with the nanostructured plane of polymeric surface, showing the uniform optical LC image observed under a cross-polarized light microscope. After tuberculosis antigen was immobilized onto the polymeric surface, the uniform orientation of LC was maintained. However, when anti-tuberculosis antibodies interacted with tuberculosis antigens immobilized on the surface, the LC randomly arranged onto the polymeric surface. The orientational transition of LCs was reflected to its optical image from uniform to random. Only specific tuberculosis antigen-antibody reaction caused the optical change of LC image that was confirmed by control experiments. Through this LC-based sensing system, anti-tuberculosis antibody could be successfully detected. We expect that this simple LC-based sensor could be applied to the diagnosis of tuberculosis.

February 9, 2017 (Thursday)

Time: 9:20~18:30

Venue: 109-111 in the Building Four

F0011 （9:20~18:30）

Imaging Catalase Activity Through Liquid Crystals Confined In Microcapillaries

Jinseob Rim, Zongfu An, and Chang-Hyun Jang

Department of Chemistry, Gachon University, South Korea

Abstract—Hydrogen peroxide (HP) is one of signaling molecules in several biological processes. However, HP have a potential to damage cells and tissues because of its strong oxidizing activity. To avoid accumulation of HP, almost every aerobic organism immediately produces catalase (CAT), which decomposes HP. Thus, detecting enzymatic activity of CAT may be one way to detect and follow HP production indirectly. In this study, we developed a simple detector which involved aldehyde-doped liquid crystals (4-cyano-4'-pentylbiphenyl, 5CB) confined in a surface-modified microcapillary. As aldehydes doped in 5CB were oxidized by HP into amphiphilic carboxylic acids, those molecules were arranged at the aqueous-liquid crystal interface, leading 5CB to orient normal to the interface. On the other hand, when CAT decomposed HP in the solution, aldehyde molecules could not be oxidized, and 5CB molecules were left to be parallel to the interface. Each orientational state of 5CB was observed under a polarized optical microscope as one of two distinct patterns. This result suggests further studies to be on microcapillary system to develop simple and sensitive sensors for biochemical interactions.

Dinner	
18:30	**SCHANDIS PERSIAN RESTAURANT**

Conference Venue

Frankfurt University of Applied Sciences, Germany

http://www.frankfurt-university.de/english/the-university.html

Located in Germany's principal international airport hub and bustling business centre, the Frankfurt University of Applied Sciences is a state university with a history of successful practice-oriented, yet academically sound study programmes.

Founded in 1971, Frankfurt University of Applied Sciences now consists of four faculties: Architecture, Engineering, Business and Law, and Health and Social Work. 250 full-time professors and part-time teaching staff, chosen for their relevant professional experience as well as their academic qualifications, guarantee that our students receive a top quality training. They are complemented by 700 administrative staff, who, for instance, support students throughout the application process and in their day-to-day dealings with the university, or see to it that the implemented quality management translates into thoroughly monitored, and constantly improved programme delivery.

One-Day Academic Visit in Frankfurt

Date	February 10, 2017
Contents	Siemens Switchgear Plant for Gas-Insulated System
Address	Siemens AG, Power Transmission and Distribution, Schaltanlagenwerk Frankfurt, Carl-Benz-Straße 22, 60386 Frankfurt am Main
10.00h	Welcome and Introduction
11.00h	Medium Voltage Testing Laboratory Visit
12.00h	Lunch
13.00h	Show Room Visit
14.00h	Plant Tour
15.30h	Concluding Discussion
16.00h	End

Medium Voltage Testing Laboratory

The Laboratories of "Testing Laboratory Medium Voltage Frankfurt am Main" is an independent Test Laboratory in accordance with the standard DIN EN ISO/IEC 17025 with decades of competence in testing switchgear and components for electrical power engineering.

The Laboratories of Testing Laboratory Medium Voltage Frankfurt am Main is a plant section of Siemens AG, Division Power Transmission and Distribution, Subdivision Medium Voltage and is as such a part of the Siemens Aktiengesellschaft, Berlin and Munich, and does not constitute a separate legal entity. It is a member laboratory of PEHLA and PEHLA is a member of STL (Short-Circuit Testing Liaison).

Our excellent relations with other testing laboratories, collaboration in committees and further active training guarantee a constantly high level of knowledge and facilities. Of course we treat all test results as confidential.

Address-Siemens AG, Power Transmission and Distribution, Schaltanlagenwerk Frankfurt, Carl-Benz-Straße 22, 60386 Frankfurt am Main

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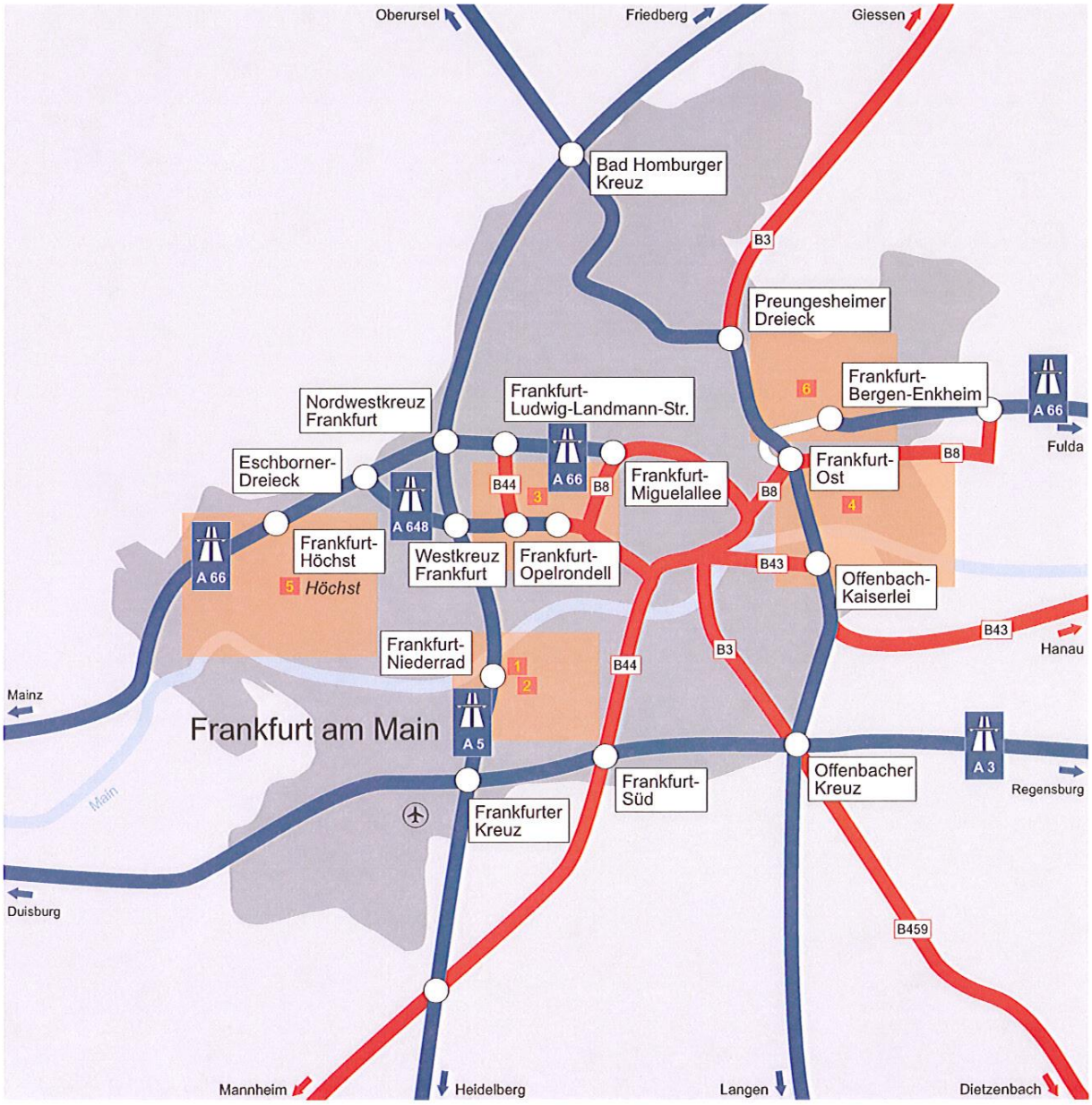
Anfahrtsplan Frankfurt



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Anfahrtsplan Frankfurt

Siemens AG
Power Transmission and Distribution
Schaltanlagenwerk Frankfurt
Carl-Benz-Straße 22
60386 Frankfurt am Main
Tel (0 69) 40 08 - 0
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CBEES Forthcoming Conferences

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

CONFERENCE INFORMATION		PUBLICATION
March 13-15, 2017, Prague, Czech Republic		
ICCBS 2017	2017 4th International Conference on Chemical and Biological Sciences (ICCBS 2017) http://www.iccbs.org/	International Journal of Pharmacy and Pharmaceutical Sciences (IJPPS, ISSN 0975 - 1491) Or International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221)
March 28-30, 2017, Osaka, Japan		
ICCFE 2017	2017 4th International Conference on Chemical and Food Engineering (ICCFE 2017) http://www.iccfe.org/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221) Or International Journal of Food Engineering (IJFE, ISSN: 2301-3664)
April 11-13, 2017, Seoul, South Korea		
ICESE 2017	2017 7th International Conference on Environment Science and Engineering (ICESE 2017) http://www.icese.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618)

April 24-26, 2017, Kuala Lumpur, Malaysia		
ICEII 2017	2017 7th International Conference on Environment and Industrial Innovation (ICEII 2017) http://www.iceii.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618)
May 25-27, 2017, Beijing, China		
ICCPE 2017	2017 6th International Conference on Chemical and Process Engineering (ICCPE 2017) http://www.iccpe.org/	AIP Conference Proceedings (ISSN: 0094-243X, E-ISSN: 1551-7616)
ICCMP 2017	2017 3rd International Conference on Chemical Materials and Process (ICCMP 2017) http://www.iccmp.org/	AIP Conference Proceedings (ISSN: 0094-243X, E-ISSN: 1551-7616)
June 12-14, 2017, Madrid, Spain		
ICPIE 2017	2017 6th International Conference on Petroleum Industry and Energy (ICPIE 2017) http://www.icpie.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618)
ICEST 2017	2017 8th International Conference on Environmental Science and Technology (ICEST 2017) http://www.icest.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618)
June 25-27, 2017, Hong Kong		
CCEA 2017	2017 8th International Conference on Chemical Engineering and Applications (CCEA 2017) http://www.iccea.net/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221)

July 14-16, 2017, Barcelona, Spain		
ICCCE 2017	2017 8th International Conference on Chemistry and Chemical Engineering (ICCCE 2017) http://www.iccce.org/	International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221)
July 18-20, 2017, Rome, Italy		
ICEEA 2017	2017 8th International Conference on Environmental Engineering and Applications (ICEEA 2017) http://www.iceea.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618)
ICGET 2017	2017 2nd International Conference on Green Energy Technology (ICGET 2017) http://www.icget.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618)
August 20-22, 2017, Kitakyushu, Japan		
ICGES 2017	2017 6th International Conference on Geological and Environmental Sciences (ICGES 2017) http://www.icges.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618)
ICEEB 2017	2017 6th International Conference on Environment, Energy and Biotechnology (ICEEB 2017) http://www.iceeb.org/	International Proceedings of Chemical, Biological and Environmental Engineering(IPCBEE, ISSN: 2010-4618) Or International Journal of Environmental Science and Development (ISSN: 2010-0264)

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Note

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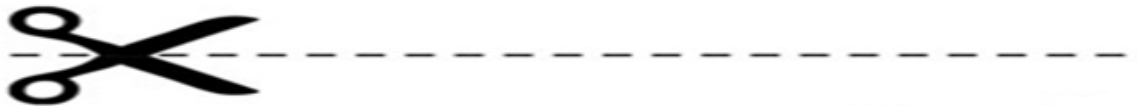

Feedback Information

(Please fill this form and return it to conference specialist during the conference days.)

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Affiliation					
Please indicate your overall satisfaction with this conference with "√"					
	Very Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied
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Did the conference fulfill your reason for attending?	Yes– Absolutely □ Yes- But not to my full extent □No□ (If "No", please tell us the main reason)
Would you please list the top 3 to 5 universities in your city?	
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Thank you for taking time to participate in this conference evaluation. Your comments will enable us to execute future conferences better and tailor them to your needs!