

# 2014 APCBEES GDAŃSK CONFERENCES SCHEDULE

2014 6th International Conference on Bioinformatics and Biomedical Technology (ICBBT 2014)  
2014 5th International Conference on Environmental Science and Technology (ICEST 2014)  
2014 3rd International Conference on Petroleum Industry and Energy (ICPIE 2014)

Gdańsk, Poland

Gdańsk University of Technology

May 14-16, 2014

Sponsored and Published by

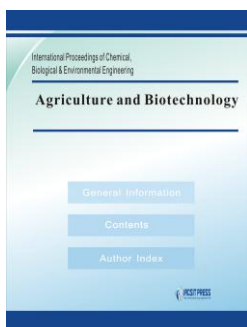


[www.cbees.org](http://www.cbees.org)

# Conferences Introduction

Welcome to CBEES 2014 conferences in Gdańsk, Poland. The objective of the Gdańsk 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 Bioinformatics and Biomedical Technology, Environmental Science and Technology, Petroleum Industry and Energy.

## 2014 6th International Conference on Bioinformatics and Biomedical Technology (ICBBT 2014)



- \* **Paper publishing and index:** All papers of ICBBT 2014 will be published in the **Volume of Journal ( IPCBEE, ISSN: 2010-4618)**, and all papers will be included in the Engineering & Technology Digital Library, and indexed by Ei Geobase(Elsevier), CABI, Ulrich's Periodicals Directory, EBSCO, CNKI, WorldCat, Google Scholar, Cross ref and sent to be reviewed by Compendex and ISI Proceedings.
- \* **Conference website and email:** <http://www.icbbt.org/>; [icbbt@cbees.org](mailto:icbbt@cbees.org).

## 2014 5th International Conference on Environmental Science and Technology (ICEST 2014)



- \* **Paper publishing and index:** All papers of **ICEST 2014** will be published in the **Volume of Journal ( IPCBEE, ISSN: 2010-4618)**, and all papers will be included in the Engineering & Technology Digital Library, and indexed by Ei Geobase(Elsevier), CABI, Ulrich's Periodicals Directory, EBSCO, CNKI, WorldCat, Google Scholar, Cross ref and sent to be reviewed by Compendex and ISI Proceedings.
- \* **Conference website and email:** <http://www.icest.org/>; [icest@cbees.org](mailto:icest@cbees.org).

## 2014 3rd International Conference on Petroleum Industry and Energy(ICPIE 2014)



- \* **Paper publishing and index:** All papers of **ICPIE 2014** will be published in the **Journal of Industrial and Intelligent Information (JIIE, ISSN: 2301-3745)** as one volume, and will be included in the Engineering & Technology Digital Library, and indexed by EBSCO, Ulrich's Periodicals Directory, Google Scholar and Electronic Journals Digital Library, and sent to be reviewed by Ei Compendex and ISI Proceedings.
- \* **Conference website and email:** <http://www.icpie.org/>; [icpie@cbees.org](mailto:icpie@cbees.org).

### Excellent Paper Award

- \* One paper will be selected from each oral presentation session, and the presenter of this paper will obtain the Excellent Paper Certificate.
- \* The final result and certificates will be issued at the end of each session on 15 May, 2014

## Instructions for Oral Presentations

### **Devices Provided by the Conference Organizer:**

Laptops (with MS-Office & Adobe Reader)  
Projectors & Screen  
Laser Sticks

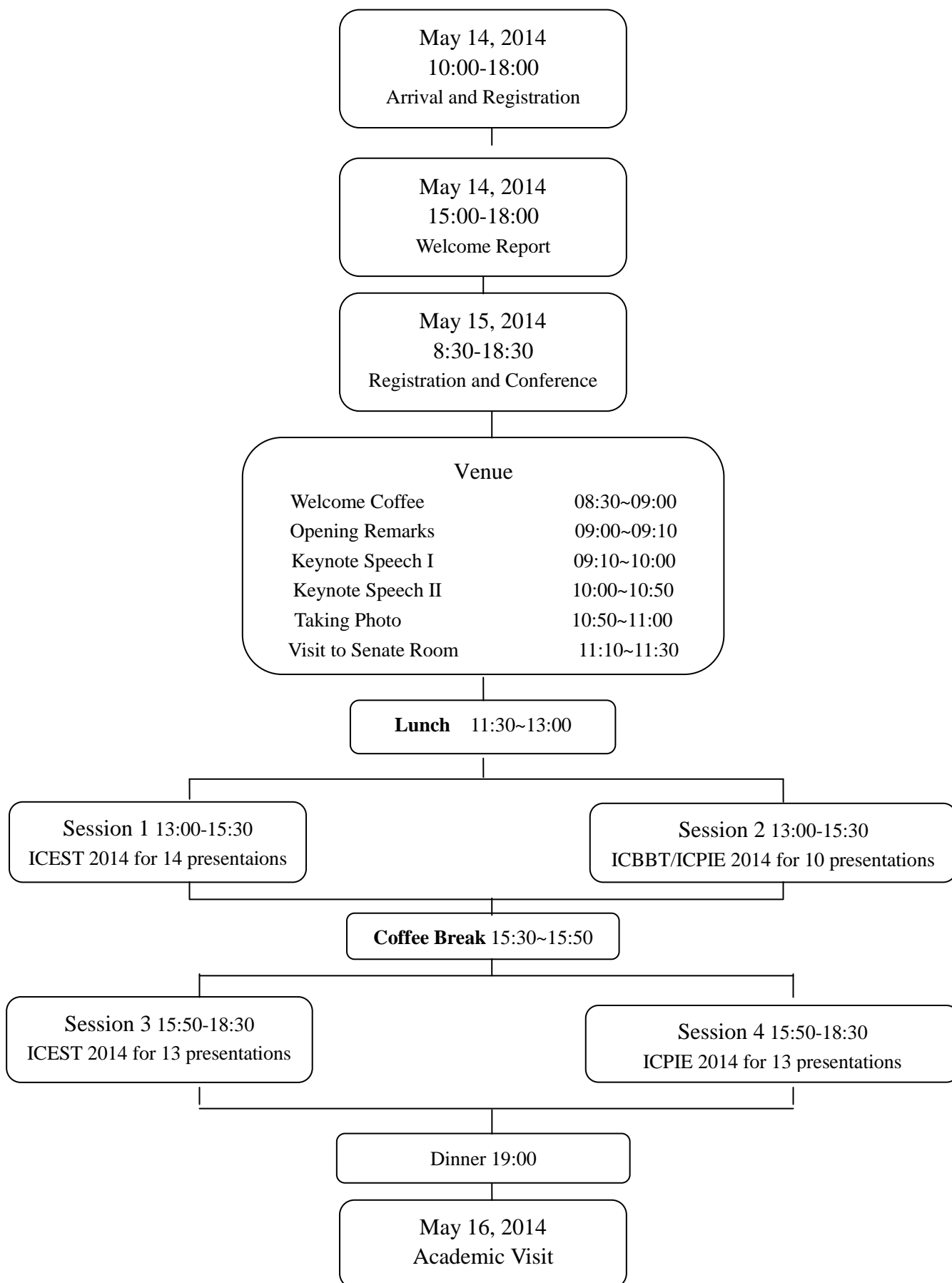
### **Materials Provided by the Presenters:**

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

### **Duration of each Presentation (Tentatively):**

Regular Oral Presentation: about 10 Minutes of Presentation and 5 Minutes of Q&A  
Keynote Speech: 40 Minutes of Presentation and 10 Minutes of Q&A

## Brief version



# Detailed Schedule for Conference

May 14, 2014 (Wednesday)

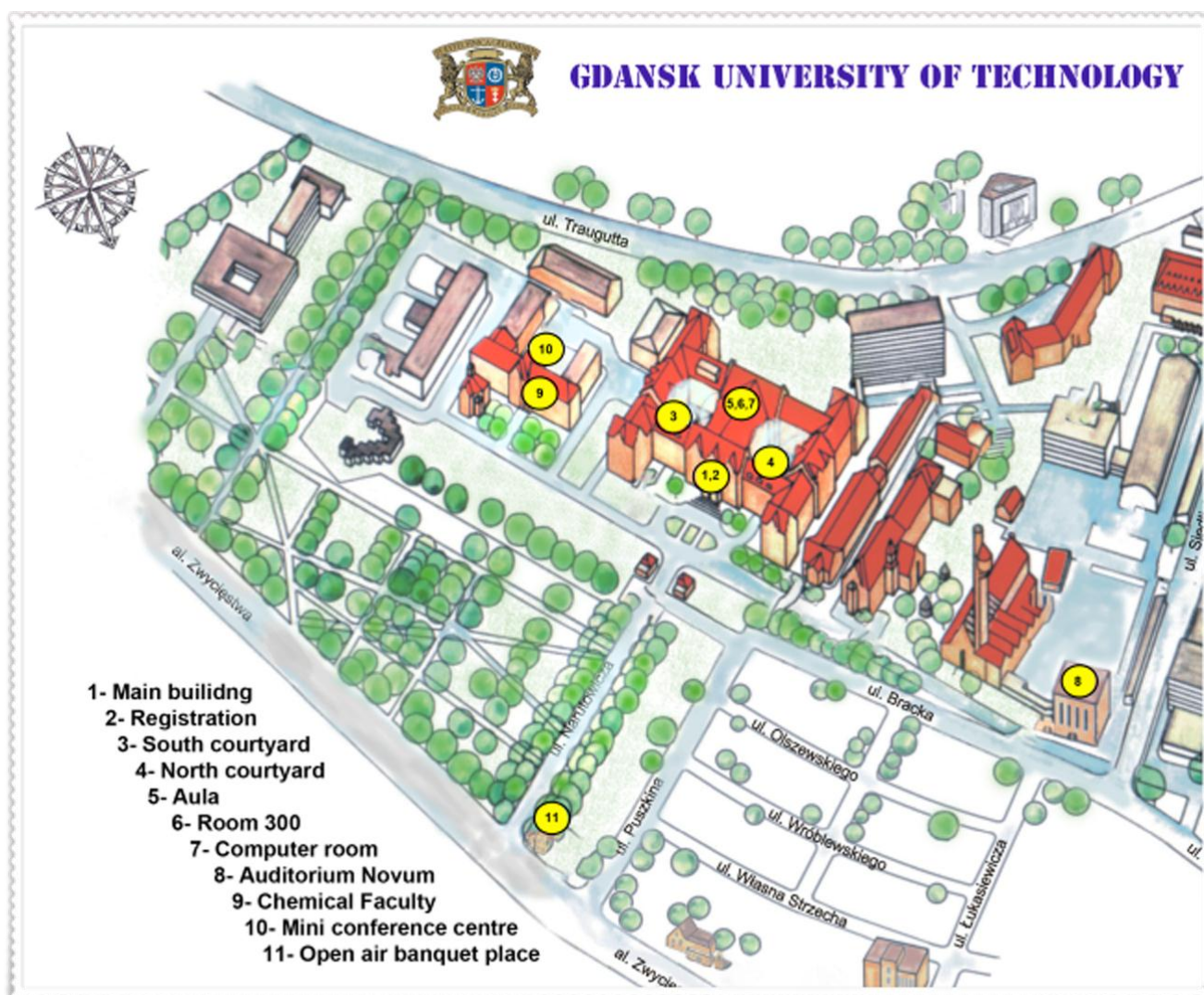
## Main Building (1<sup>st</sup> Floor)

<p>10: 00–12: 00 13: 30–18: 00</p>	<p><b>Arrival and Registration</b></p>
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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 will be awarded at the end of each oral session on May 15, 2014.

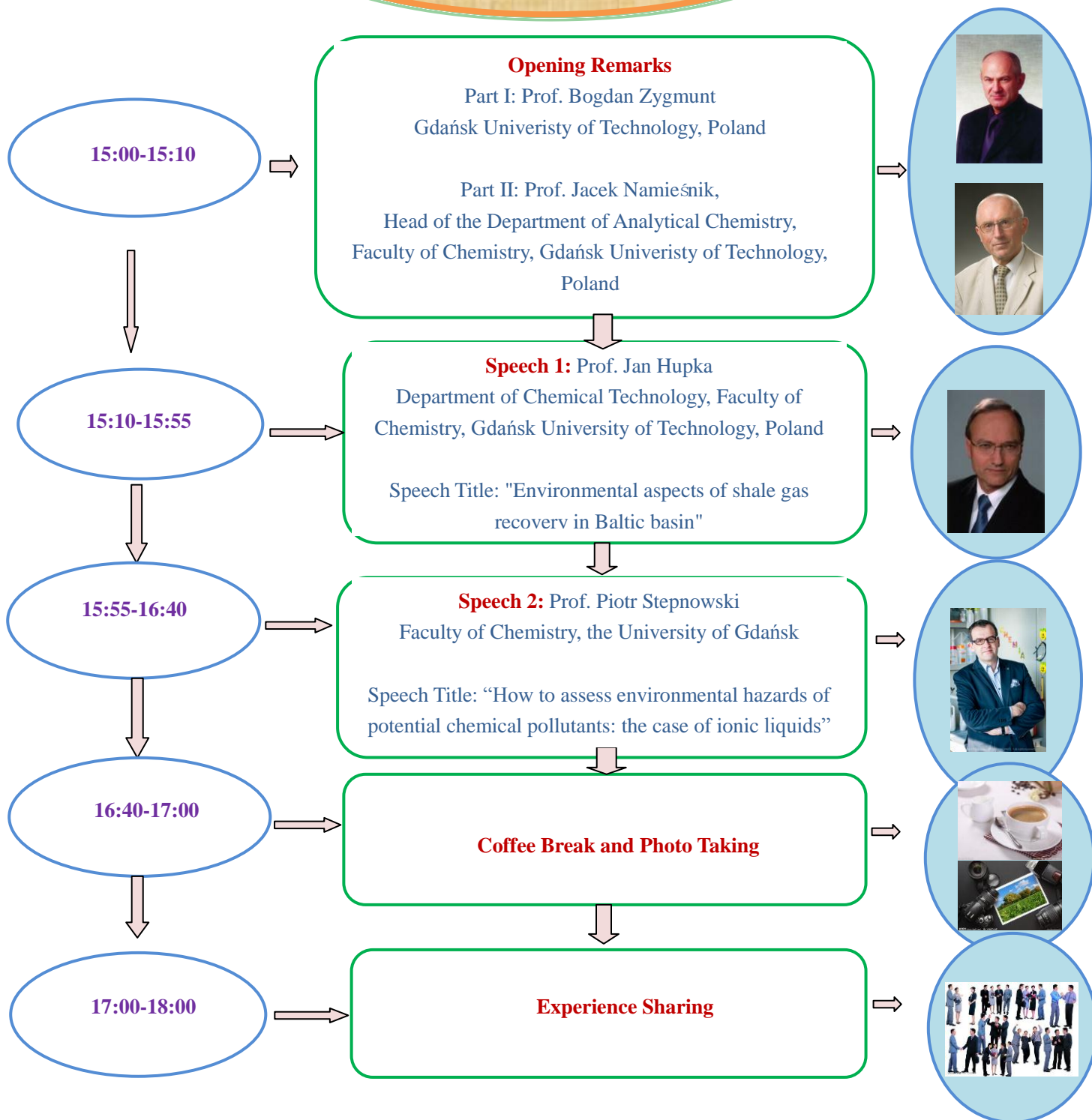


Afternoon, May 14, 2014 (Wednesday)

Welcome Report at MAIN AULA (3<sup>rd</sup> Floor)



# Brief Schedule

## May 14, 2014



**May 15, 2014**

Venue: MAIN AULA (3rd Floor)

<b>08:30-09:00</b>	<b>Welcome coffee</b>
<b>09:00- 09:10</b>	<b>Opening Remarks</b> Representative of Authorities of Gdańsk University of Technology
<b>09:10-10:00</b>	 <b>Keynote Speaker I</b> Prof. Ewa Klugmann-Radziemska, Department of Chemical Apparatus and Theory of Machines, Faculty of Chemistry, Gdańsk University of Technology, Poland Speech Title: "Environmental Impacts of Renewable Energy Technologies"
<b>10:00–10:50</b>	 <b>Keynote Speaker II</b> Prof. Jacek Namieśnik Department of Analytical Chemistry, Faculty of Chemistry, Gdańsk University of Technology, Poland Speech Title: "Green Sample Preparation Techniques for Chromatographic Determination of Small Organic Compounds"
<b>10:50-11:00</b>	<b>Take Photo</b>
<b>11:00-11:30</b>	<b>Visit to Senate Room</b>

<b>11:30–13:00</b>	<b>Lunch</b>
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**Afternoon, May 15, 2014 (Thursday)****SESSION-1 (ICEST)****Venue: MAIN AULA (3rd Floor)**

Session Chair: Prof. Piotr Stepnowski

**Time: 13:00–15:30**

A0007	<p>Modeling Soil Temperature Using Artificial Neural Network  <b>Esam Mahmoud Mohammed</b>, Shahlla abd alwahab, Hasmek Antranik Warttan          Foundation of Technical Education / Mosul Technical College</p> <p><i>Abstract-</i>In this study, implementation of artificial neural network model has been done to estimate soil temperatures at various depths and different measuring times, in terms of soil surface temperature, by using the back propagation algorithm model. The data of soil temperature is taken from research department of soil and water / Nineveh province for the period from 1980 to 1983 and it include daily measurements of soil at depths of 5,10, 20, 30,50 and 100 cm and for three periods at 9, 12 and 15 clock for cultivated and</p>
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	<p>non-cultivated soil. The data of two years was used to train the network and the data of one year was used for evaluation and compare its output with the measured data, three performance functions, namely root mean square errors (RMSE), determination coefficient (<math>R^2</math>) and mean square errors (MSE), were used to evaluate the neural models and to find the adequacy between estimated data and the outputs of neural network for one year, the values of <math>R^2</math> ranging between 0.95 - 0.99 and the values of MSE and RMSE decreased significantly for all cases of estimation. The results shows the possibility of using neural networks in the composition of the model that can be used in the estimation of deep soil temperatures by using of surface soil temperature for three times of measurement, the successful use of neural networks in the composition of the model that can be used to estimate the deep soil temperatures through the use of soil-surface temperatures, which are measured at different time periods. Successful construction of General ANN model that predict soil temperature at any depth and time by using soil surface temperature of any time have been constructed.</p>
A0010	<p>Superimposed Ice as Nutrient Storage  <b>Krystyna Koziół, Katarzyna Kozak, Żaneta Polkowska</b>  Gdańsk University of Technology</p> <p><i>Abstract</i>-Nutrient cycling in the glacial environment is known from the perspective of meltwater release and snowpack elution processes, but the superimposed ice temporary storage remains poorly understood. In this study, the enrichment of superimposed ice in nutrient ions: nitrite, nitrate and ammonium was studied in more detail. The release of these ions from superimposed ice into a supraglacial stream was considered also, additionally considering phosphorus, which was not detected in the snowpack profile, but must have been more abundant elsewhere in the catchment. Nitrite and ammonium were enriched in the superimposed ice layer, and their peak concentrations in discharge formed by melting superimposed ice were also occurring later than for nitrate and phosphate. These two latter species were characterized by another concentration peak, which occurred after the glacial ice became exposed in the catchment.</p>
A0012	<p>Photolytic and Photocatalytic Recreational Water Treatment  <b>Andreas Hänel, Aleksandra Ptaszyńska, Aleksandra Korkosz and Jan Hupka</b>  Gdańsk University of Technology</p> <p><i>Abstract</i>-Disinfection is one of the most important steps during recreational water treatment. Nevertheless, disinfection by-products are formed by conventional disinfectants, which pose several health threats. The concentration of disinfection by-products can be decreased by photolytic and photocatalytic treatment. Medium-pressure mercury lamp, UV-LEDs and solar irradiation were investigated and evaluated considering emitted wavelength, light intensity and operational costs. It was found that medium-pressure mercury lamps are superior for photolytic and photocatalytic recreational water treatment.</p>
A0015	<p>Annual Changes of Basic Parameters of Bottom Sediments from Klodnica River Catchment  <b>Ewa Olkowska, Marek Ruman, Żaneta Polkowska</b>  Gdańsk University of Technology</p> <p><i>Abstract</i>-The Klodnica River Catchment is heavily contaminated ecosystem located in area of the Upper Silesia Industrial Region. In this area various forms of human activity can be</p>



	<p>observed (e.g. mining coal underground, metallurgy, power/heat plants, wastewater discharged directly into the river). The impact of industrial and municipal wastes on this aquatic system causes to changes in the hydrographic network of river and the waters quality. In present study, the annual changes of basic physicochemical parameters (pH, electrical conductivity, inorganic ions, different type of organic compounds e.g. cationic surfactants) of bottom sediments collected in area of the Klodnica River Catchment were investigated. These research aims can provide the knowledge to expand areas of research in order to protect abiotic and biotic elements of the environment and the possibility of using them in a sustainable manner.</p>
A0017	<p>Cleaning filter beds by Fluidization: Comparison of fluidization characteristics of filter sand and filtralite  <b>Gahtan Algahtani</b>, R.W. Lovitt  Swansea University</p> <p><i>Abstract</i>-An optimisation study was carried out to compare and model the fluidisation of a bed filter by using a novel low density synthetic particle material, filtralite, and conventional filter sand. This paper reports experiments that were carried out to compare fluidisation characteristics of the two media and to compare and validate the data theoretically. The study showed good agreement with theory under a range of operating temperatures. However, the study also showed that the novel filter can be fluidized with low velocities due to its low density and voidage the filtralite bed filter expands more than sand bed due to larger diameter of novel filtralite particles. The significance of these data are discussed in the context of the potential economic cleaning of the filter bed and the use filtration media.</p>
A0018	<p>Application of diagnostic ratios of PAHs to characterize the pollution emission sources  <b>Marek Tobiszewski</b>  Gdańsk University of Technology</p> <p><i>Abstract</i>-The paper summarizes the potential of application of parent polycyclic aromatic hydrocarbons (PAHs) to identify their emission sources. Four parent PAHs diagnostic ratios are used for this purpose: anthracene/(anthracene + phenanthrene), fluoranthene/(fluoranthene + pyrene), benzo[a]pyrene /(benzo[a]pyrene + chryzene) and indeno[1,2,3-c,d]pyrene/(indeno[1,2,3-c,d]pyrene + benzo[g,h,i]perylene). The compounds of each ratio have the same molar mass and similar physicochemical parameters, so they are characterized by similar environmental fate. Thus, the ratios ideally remain constant from the moment of emission to sample collection and analysis. The ratios allow to identify PAHs emissions from unburned petroleum, petroleum combustion and biomass burning. The example of application to surface water samples is presented.</p>
A0019	<p>Sorption of chlorinated solvents on pine and oak sawdust  <b>Marek Tobiszewski</b>  Gdańsk University of Technology</p> <p><i>Abstract</i>-The article presents assessment of pine and oak sawdusts as sorbents for removal of chlorinated solvents from water. Sawdusts as potential sorbents were characterized with elemental analysis and BET analyses. Sorption capacity was determined for both pine and oak sawdust towards 1,1,2-trichloroethane, tetrachloroethene and 1,1,1,2-tetrachloroethane.</p>

	<p>Pine sawdust was able to adsorb greater amounts of chlorinated solvents compared to oak sawdust. Pine sawdust was characterized by larger surface area and its surface was less polar, what promotes sorption. The less polar compounds were sorbed on sawdust surface in greater amounts. Sawdust is weak but cheap sorbent for the removal of chlorinated solvents from water. Its sorption properties could be possibly improved by chemical or physical modification of its surface.</p>
A0023	<p>Monoterpenes Emissions from Different Samples of Wood-Based Materials – Laminated Chipboards and Medium-Density Fiberboards (MDF)  <b>Mariusz Marć</b>, Bożena Zabiegała  Gdańsk University of Technology</p> <p><i>Abstract</i>-The paper presents the results of studies on emission rates of monoterpenes, carried out with the use of a new type of device - Markes' Micro-Chamber/Thermal Extractor™ (μ-CTE250). Subject of studies were different types of wood-based materials such as: laminated chipboards and medium-density fiberboards (MDF). Based on the results obtained one can conclude that the laminated chipboards may affect the indoor air quality in much higher degree than the medium-density fiberboards (MDF) in the term of monoterpenes content.</p>
A0025	<p>Integrated Solid Waste Management System in Kuwait  <b>Abdallah Alsulaili</b>, Bazza AlSager, Hessa Albanwan, Aisha Almeer and Latifa AlEsa  Kuwait University</p> <p><i>Abstract</i>-Waste generation is increasing dramatically in Kuwait. The increase in waste generation adversely affects the environmental, financial, and social situation. Most of the waste in Kuwait is dumped in insanitary landfills in an uncontrolled manner. Landfills occupy extensive land area. In small countries such as Kuwait, the scarcity of land is a challenge and is the main motivation for this study. To overcome the waste problem, an Integrated Solid Waste Management System (ISWMS) was adopted to apply the “4 Rs” strategy, in conjunction with a sanitary landfill. The strategy is a systematic solution to minimize and benefit from waste material. The first two R's are Reduce and Reuse, which can be accomplished through an awareness campaign. The remaining two R's are Recycle and Recover, which formed the core of the study and were accomplished by designing seven recycling and recovery plants that separately deal with the following waste materials: plastic, tires, paper, metal, glass, and organic and construction and demolition (C&amp;D) waste materials; these plants are in addition to a sorting plant for the primary sorting of mixed materials. The demand resulting from the quantities of waste that will be generated in the next 25 years is estimated by a forecast used to design the recycling and recovery plants. The last and least preferable option for dealing with waste is landfilling. A sanitary landfill was designed based on international scientific standards. Findings derived from this study showed that 76% of Kuwait's waste are recyclable. The raw materials produced by the recycling plants will be sold to gain a revenue of \$ 134 million USD annually, whereas the non-recyclable materials will be sent to a sanitary landfill.</p>
A0026	<p>Direct-Ultrasonic Assisted Microextraction Coupled with RTL-GC-FID/GC-MS as a Future Standard Procedure for Monitoring 26 potentially Allergenic Fragrances in Water Samples  <b>Aleksandra Szreniawa-Sztajnert</b> and Bożena Zabiegała</p>

	<p>Gdańsk University of Technology</p> <p><i>Abstract</i>-This research topic grew up as a result of awareness of constant anthropogenic and natural input to the environment constituents of personal care products (PCPs) residues. This group of emerging pollutants encompasses a wide range of chemicals, including potentially allergenic fragrance compounds. The aim of the present study was to investigate presence of 26 fragrance allergens in water samples. Simple and rapid methodology based on direct-ultrasonic assisted liquid-liquid microextraction (USALLME) followed by gas chromatography with flame ionization detector (GC-FID) and gas chromatography with mass spectrometry (GC-MS) using Retention Time Locking has been developed. GC-MS analyses were performed with inlet pressure adjusted at 7.29 psi to lock a retention time at 27.500 min for n-pentadecane. GC-FID analyses were performed with inlet pressure adjusted to give a retention time of 70.000 min for n-pentadecane which was set up at 38.032 psi. Finally several real water samples were investigated with the application of the proposed method.</p>
A1006	<p>Spatial and Temporal Analysis of Air Pollution in Makkah, the Kingdom of Saudi Arabia  <b>Turki Mohammed Habeebullah</b>  The Custodian of the Two Holy Mosques Institute for Hajj and Umrah Research, Umm Al-Qura University</p> <p><i>Abstract</i>-Spatial – temporal analysis of air pollutants is fundamental to the process of air pollutants related risk and damage assessment. This paper analyses spatiotemporal variability of air pollutants in Makkah, using data from 4 monitoring sites during the Hajj (Pilgrimage) 1433 (October, 2012). The analysis is based on graphical presentations, correlation analysis and analysis of variance. The analysis of variance showed significant difference (<math>p</math>-value <math>&lt; 0.05</math>) between various monitoring sites and dates for all pollutants. Both diurnal and weekly cycles of the air pollutants demonstrated considerable variations at different sites. Correlation coefficients (<math>R</math>) between <math>PM_{10}</math> concentrations measured at different monitoring sites were mostly positive and ranged from 0.01 to 0.45. Correlation analysis showed mostly negative and much weaker association between <math>SO_2</math> measured at different monitoring sites (<math>R = -0.02</math> to <math>-0.21</math>). <math>O_3</math> demonstrated the strongest positive correlation between different monitoring sites and ranged from 0.55 to 0.86. The correlation coefficients of CO monitored at different monitoring sites ranged from 0.21 to 0.63, whereas those of NO and <math>NO_2</math> ranged from 0.39 to 0.71 and 0.20 to 0.60, respectively. The strongest spatial correlation of <math>O_3</math> is probably due to the fact that <math>O_3</math> is a regional pollutant and is more related to the regional emissions of precursors and meteorological parameters. This is the first attempt to analyse the spatial variability of air pollutants in Makkah, however the study is based over a shorter period of time, therefore further work is required to analyse these trends over a greater range of time and space.</p>
A1008	<p>Environmental and Economical Oil and Groundwater Recovery and Treatment Options for hydrocarbon contaminated Sites  <b>Hamad Al-Mebayedh</b>  Kuwait Oil Company</p> <p><i>Abstract</i>-This paper describes a decision framework for selecting appropriate remediation technologies at hydrocarbon contaminated sites in a controlled method. Assessment modules</p>

	<p>include site characterization and product recovery. The decision framework provides a systematic process to formulate solutions to complex problems and documents the foundation for selecting remediation technology/systems designed to achieve cessation at hydrocarbon contaminated sites.</p> <p>The environmental safety of soil has become significant in Kuwait with the enhancement of industrialization and urbanization. In this paper, on the basis of investigating the status of soil contaminated in Kuwait, the remediation technologies of soil contaminated by hydrocarbon and heavy metals, including physical remediation, chemical remediation and biological remediation were focused.</p> <p>The summary for each technology includes a broad description of the technology, its implementation, applicability based on contaminants and site characteristics, general limitations, costs, and status of the technology's application. Information in this paper is intended to give project managers a comprehensive understanding of the technology and guidance on the design and operation of these technologies that will allow for further consideration of its applicability.</p>
A1013	<p>Influence of meteorological conditions on PM<sub>10</sub> Concentration in Gdańsk  <b>Michalina Bielawska</b>, Waldemar Wardencki  Agency of Regional Monitoring Atmosphere of Gdańsk Agglomeration</p> <p><i>Abstract</i>-Nowadays particulate matter (PM) is one of the most problematic pollutants in terms of harm to human health. The main objective of the study was to determine the influence of meteorological conditions on the concentration of PM<sub>10</sub> in Gdańsk in 2011 year. The paper presents investigated episodes of high concentration of PM<sub>10</sub> in Gdańsk during 2011. The first part of the article describes average daily concentration of PM<sub>10</sub>, number of exceedances in 2011 and variability of concentrations during the whole year. The second part of the work is focused on finding a correlation between high episodes of PM<sub>10</sub> and meteorological conditions. The results of study have shown the most crucial factors for high episodes of PM<sub>10</sub> are: anticyclone atmospheric circulation, stable atmosphere conditions, low wind velocity and the occurrence of inversion layer.</p>
A1015 KN	<p>How to Assess Environmental Hazards of Potential Chemical Pollutants: The Case of Ionic Liquids  <b>Piotr Stepnowski</b>, Stefan Stolte, Anna Białk-Bielińska, Marta Markiewicz  University of Gdańsk</p> <p><i>Abstract</i>-Research and development in the field of ionic liquids (ILs) is gaining momentum and industrial implementation became a fact. Increasing presence of those remarkable chemicals in our lives has to be accompanied by a sound assessment of their fate to avoid contamination of the environment. The solution overcoming the problem of the toxicity/persistence of some ILs has to be based on design of compounds with acceptable environmental impacts guided by technological applicability. Herby we present a short overview of key parameters involved in fate assessment of ILs: ecotoxicity, biodegradability, sorption/mobility in the environment and a summary of analytical methods that can be used to assess them.</p>

**Afternoon, May 15, 2014 (Thursday)**

**SESSION-2 (ICBBT&ICPIE)**

**Venue: CLASSROOM 300 (3<sup>rd</sup> Floor)**

Session Chair: Prof. Maciej Bagiński

**Time: 13:00–15:30**

ICBBT 2014	
E0002	<p>Focal Structure Analysis in Large Biological Networks            Fatih Sen, Rolf T. Wigand, Nitin Agarwal, Mutlu Mete and <b>Rafal Kasprzyk</b>            Wojskowa Akademia Techniczna</p> <p><i>Abstract</i>—After the completion of the Human Genome Project, identifying relevant protein structures became an important factor for detecting new disease-related structures. The newly available large-scale networks of molecular structures within the cell have made it possible to study protein function(s) in the context of a network. Those Protein-Protein Interaction (PPI) networks have been studied through the identification of clusters or communities by researchers. Proteins, however, interact in smaller and more pertinent groups. A new methodology, called Focal Structures Analysis (FSA), is presented to identify focal structures, i.e., smaller and more relevant structures. This research advances our understanding of the role and impact of the focal structures and can help researchers with discovering protein related diseases.</p>
E0004	<p>A novel algorithm to reconstruct phylogenies using gene sequences and expression data  <b>Krzysztof Bartoszek</b> and Pietro Lio            Department of Mathematics, Uppsala University</p> <p><i>Abstract</i>—Phylogenies based on single loci should be viewed with caution and the best approach for obtaining robust trees is to examine numerous loci across the genome. It often happens that for the same set of species trees derived from different genes are in conflict between each other. There are several methods that combine information from different genes in order to infer the species tree. One novel approach is to use information from different “omics”. Here we describe a phylogenetic method based on an Ornstein–Uhlenbeck process that combines sequence and gene expression data. We test our method on genes belonging to the histidine biosynthetic operon. We found that the method provides interesting insights into selection pressures and adaptive hypotheses concerning gene expression levels.</p>
E0005	<p>On progress in developing a system for individual planning and aiding tumor resection and bone reconstruction in the maxillo-facial area  <b>Ewelina Swiatek-Najwer</b>, Marcin Majak, Michal Popek and Magdalena Zuk            University of Technology</p> <p><i>Abstract</i>—The paper concerns progresses on developing a system for individual planning and aiding oncological surgeries in the maxillo-facial area. The surgery consists of two phases: resective and reconstructive. State of the art is that these two phases are performed as disconnected operations separated with procedure of planning and producing an individual</p>

	<p>implant basing on CT. Another option is to apply bone autograft adjusted to the bone loss after manual resection. There exists no complete system supporting oncological treatment both in planning and real surgery. Our system enables performing the whole treatment during one surgery, because after the individual image-based planning of tumor resection and bone reconstruction, the manufactured implant fits exactly to the bone loss resulting from resection performed under control of computer navigation. The system has been developed to produce bioimplant with a scaffold of designed geometry and to implement it after precise and radical tumor resection.</p>
E0006	<p>A complex system for optimal individual planning and supporting implant-prosthetic treatment for oncological patients after resective-reconstructive surgery  <b>Marcin Majak</b>, Ewelina Świątek-Najwer, Michał Popek and Magdalena Żuk  Wroclaw University of Technology</p> <p><i>Abstract</i>—The main goal of this paper is to describe implantprosthetic module implemented in Maxillo-Facial Surgery (MFS) System and show its application in oncological treatment. Advancements in navigation systems and image processing algorithms have evolved image-guided surgery domain which has resulted in higher surgery accuracy and smaller risk of recurrence. Nowadays, more and more people are diagnosed with malicious tumor cases with different symptoms. This paper addresses maxillo-facial instances which are very challenging in treatment. The basic approach in this kind of oncological surgeries assumes resection of tumor tissue and later proper bone reconstruction to preserve aesthetic face look. Another very important aspect which cannot be neglected is the dental structure restoration after resection surgery. In MFS System this procedure is divided into two steps: virtual planning and intra-operative phase. Each of them relies on CT dataset and STL 3D model.</p>
E0010	<p>X-ray based planning of implant-prosthetic treatment for oncological patients after post-resective maxilla/mandible reconstruction - quantitative evaluation of implantation results  <b>Magdalena Żuk</b>, Marcin Majak, Ewelina Swiatek-Najwer, Michał Popek and Daniel Szram  Wroclaw University of Technology</p> <p><i>Abstract</i>—The aim of this work was to develop a tool for X-ray based planning of implant-prosthetic treatment for oncological patients after post-resective maxilla or mandible reconstruction. To extend the possibilities of the currently developed system, in cooperation with oncologists and dentists we designed a module of qualitative analysis of pre and postoperative CT image datasets. The surgeon can fuse pre and postoperative images basing on matching markers identified in both datasets. After a proper transformation, matched datasets can be analysed in order to evaluate applied treatment. Using the software the surgeon can measure such parameters as: the accuracy of implants axes locations and orientations, the diameters, lengths and depth of applied implants in comparison to the designed in preoperative planning. It is rational to apply X-ray images to analyse the efficiency of implantprosthetic treatment, since the oncological patients need to be examined regularly to supervise the risk of neoplasm recurrence. The paper presents also our concept to apply Cone Beam Computed Tomography (CBCT), as a significantly less invasive imaging technique in comparison to the standard CT. The 3D dataset reconstructed will be applied similarly to the currently applied in the software CT.</p>

E0011	<p>Improved prediction of protein-small organic ligand binding sites via consensus-based ranking with linear regression  <b>Ibrahim Hijazi and Lukasz Kurgan</b>  University of Alberta</p> <p><i>Abstract</i>—Prediction of binding of small organic ligands to proteins based on the knowledge of protein structures finds applications in rational drug discovery and elucidation of various cellular-level processes. Recent work shows that predictive quality of computational predictors of these binding events can be improved with the use of a consensus-based approach that combines predictions from several base predictors. We designed a novel type of a consensus, called ConSitePred, which uses a regression-based meta-predictor to (re)rank predictions from four well-performing base methods. The regression uses a vector of six custom-designed and empirically selected features that quantify atomic composition of the protein nearby the predicted binding site and presence and quality of other binding site predictions that are close to the predicted site. We empirically show that ConSitePred's predictions improve over the predictions of a comprehensive set of ten existing predictors, including its four base methods. Our method provides an alternative to other consensus-based approaches that are based on clustering predictions from the base methods.</p>
E3001	<p>Controlled Red-Ox Reactions of Certain Cephalostatin analogs with anti-Cancer Activity  <b>Mansour Nawasreh</b>  Al-Balqa Applied University</p> <p><i>Abstract</i>—We broadened the transformation varieties of some bis-steroidal pyrazines as analogs to cephalostatine 1, which is a remarkable antineoplastic natural product isolated from the marine algae <i>Cephalodiscus gilchristi</i>. It is a small molecule with a unique cytotoxicity profile in the in vitro screen system of the National Cancer Institute, suggesting that it may affect novel molecular target(s). In this part of the work, the regioselectivity of F-ring reductive-opening was discovered for an analog and improved for another analog by using some borane-complexes. Looking for enhancement of biological activity, an <math>\alpha,\beta</math>-unsaturated carbonyl was generated by oxidation of allylic position of a methylene group at C-12 to be as Michael receptor.</p>
ICPIE 2014	
C0001	<p>Experimental Study on the Effect of Micro Pore-throat Structure on Stress Sensitivity  <b>Xiaofeng Tian</b>, Linsong Cheng, Qiang Guo, Wenqi Zhao, Yiqun Yan and Xiaohui He  China University of Petroleum Beijing, China</p> <p><i>Abstract</i>—The characteristics of stress sensitivity is the theoretical foundation to determine the formation pressure level in the tight oil reservoir. Therefore many studies focus on it. However, no existing study explains the mechanism of stress sensitivity in nature. Therefore this paper is to solve the problem. In this paper, experiments were conducted to study the characteristics of stress sensitivity in the tight oil reservoir. Then casting thin section, scanning electron microscope and constant-speed mercury injection experiments were performed to study the diagenesis and pore-throat structure. It is found that due to the support of ferrocalsite and quartz, the compressive strength of tinier throats is larger. The gas</p>

	<p>stress sensitivity is determined by the maximal throat radius. And the relative location of minimal throats for liquid to flow to the peak of pore-throat distribution is the key factor to determine the liquid stress sensitivity.</p>
C0010	<p>Production Forecasting of Multistage Hydraulically Fractured Horizontal Wells in Shale Gas Reservoirs with Radial Flow  <b>Shuang Ai</b>, Linsong Cheng, Hongjun Liu, Jin Zhang and Shijun Huang  China University of Petroleum Beijing, China</p> <p><i>Abstract</i>—Transient linear flow is commonly considered as the dominant flow regime in multistage hydraulically fractured horizontal wells in shale gas reservoirs. A slab transient dual porosity model was built and skin effect was studied to interpret the early period production performance. However, the mechanism of early period performance characteristics is not revealed by skin effect. When flow from the vertical fracture into the horizontal wellbore, gas converges in the near-wellbore-zone due to the decreasing flow area. In other words, besides linear flow, there is another flow behavior in vertical fracture: radial flow. This paper presents a slab transient dual porosity model with radial flow effect in natural fractures. The model is consists of three flow regimes: fracture radial flow, fracture linear flow and matrix linear flow. Analytical solution is obtained by Laplace transformation and type curves are drawn. The results show that different from skin effect model, the radial flow effect not only results in severe reduction of early period production performance, but also the late period production performance.</p>
C0003	<p>A New Approximate Gradient Algorithm Applied in Constrained Reservoir Production Optimization  <b>Shaolei Wei</b>, Linsong Cheng and Wenjun Huang  China University of Petroleum, Beijing, China</p> <p><i>Abstract</i>—In this paper, a new approximate gradient method is proposed for constrained reservoir production optimization. The new algorithm method is gradient-free, which is a compromised solution to finite-difference method. To get a quick evaluation of the gradient, all parameters are perturbed at one time stochastically and the calculated gradient is also stochastic. Based on the relationship between gradient and direction derivative, we construct a new search direction with the stochastically generated perturbation vector. It is proved that the stochastic gradient is always an uphill direction, ensuring that a better solution can be found along the stochastic gradient direction. Besides, projected gradient method is incorporated into the new algorithm to deal with constraints in production optimization. A comparison is made between the new algorithm and simultaneous perturbation stochastic approximation (SPSA) algorithm using a synthetic reservoir case. The results show that the new method outperforms SPSA in constrained production optimization problem. After optimizing the production strategy for a synthetic reservoir, the economic benefit improves about 20%.</p>



15:30-15:50

Coffee Break

Outside of the conference rooms

**Afternoon, May 15, 2014 (Thursday)****SESSION-3 (ICEST)****Venue: MAIN AULA (3rd Floor)**

Session Chair: Prof. Waldemar Wardencki

**Time: 15:50–18:30**

A1023	<p>Macro- and Microelements in Green Tea and Its Infusions  <b>Justyna Brzezicha</b>, Małgorzata Grembecka, Piotr Szefer          Medical University of Gdańsk, Department of Food Sciences</p> <p><i>Abstract</i>-The aim of studies was to determine 14 elements, i.e. magnesium (Mg), calcium (Ca), Potassium (K), sodium (Na), phosphorus (P), iron (Fe), copper (Cu), zinc (Zn), manganese (Mn), chromium (Cr), cobalt (Co), nickel (Ni), lead (Pb) and cadmium (Cd) in green tea from China. According to the latest RDA standards, percentage of realization of daily intake for analysed elements was calculated. Determination of heavy metals such as Pb and Cd allowed on estimation of health hazard associated with green tea consumption in view of the provisional tolerable weekly intake (PTWI) regulations.</p>
A1025 CC	<p>Emission and Determination of Malodorous Compounds from Municipal Solid Waste Sites and Wastewater Treatment Plants          Marta Wasielewska, Anna Banel, <b>Bogdan Zygmunt</b>          Gdańsk University of Technology</p> <p><i>Abstract</i>-Odor in the vicinity of municipal solid waste and waste water treatment plants has often been a real nuisance for the people living in the neighborhood. The attempts were made to identify volatile fatty acids (VFAs) regarded as, at least partially, responsible for the malodorous atmosphere. The procedures, based on solid phase microextraction (SPME) to isolate VFAs from the air and leachate and gas chromatography-mass spectrometry (GC-MS) to separate and identify the VFAs extracted were described. SPME parameters such as extraction temperature and time, and also salt addition and pH of the sample were optimized. PDMS/CAR fiber was selected for extraction. VFAs were determined in the leachate and identified in the air of a municipal solid waste site.</p>
A1026 KN	<p>Environmental Impacts of Renewable Energy Technologies  <b>Ewa Klugmann-Radziemska</b>          Gdańsk University of Technology</p> <p><i>Abstract</i>-Nowadays, fossil fuels are the main sources energy from which electricity is obtained. But these sources will not last forever, so in due course renewable energies will have to replace them in this role. All energy sources have some impact on our environment. Fossil fuels — coal, oil, and natural gas — do substantially more harm than renewable</p>

	<p>energy sources by most measures, including air and water pollution, damage to public health, wildlife and habitat loss, water use, land use, and global warming emissions. A brief overview of the potential for release of some global warming substances, hazardous materials into the environment and the land and water use for different renewable energy utilization devices is presented.</p>
A1029	<p>Fixed-bed Column Packed with Low-Cost Spent Tea Leaves for the Removal of Crystal Violet from Aqueous Solution.  <b>Mohamed Sulyman</b>  Gdańsk University of Technology</p> <p><i>Abstract</i>-Textile dyeing is considered as one of the large water consuming industries and produces large volumes of (color) wastewater in dyeing and finishing process. The effluents of such industry poses a serious environmental problem as it causes harm to the biota of receptor water. In this study, it is intended to conduct an experimental attempt to estimate the breakpoint and exhaustion times for a fixed-bed column packed with the low-cost and household waste product of Spent Tea Leaves (STL) while adsorbing Crystal Violet (CV) basic type of dyes. For optimizing the experimental conditions, the initial concentration of CV (10–30) mg l<sup>-1</sup>, height of adsorbent bed (10–20) cm and flow rate (5–15) mlmin<sup>-1</sup> were investigated. Fourier transform infrared (FT-IR) spectroscopy and thermal analysis (TGA) of the raw material were also studied.</p>
A3001	<p>Analysis and Fate Assessment of Sulphonamides in the Environment  <b>Anna Bialk-Bielińska</b>, Stefan Stolte, Jolanta Kumirska, Piotr Stepnowski  University of Gdańsk</p> <p><i>Abstract</i>-Since the last ten years there has been a growing interest in the research focused on the residues of all pharmaceuticals in the environment. It has been proven, that the residues of these substances may pose a real threat not only to ecosystems, but also to human health, as for example antimicrobials lead to the formation of the dangerous phenomenon of bacteria resistance and thereby decrease in efficacy of the treatment of many bacterial diseases. For these reasons there is an ongoing research aimed at better understanding of the potential adverse environmental effects, including the degree of contamination, mobility, bioavailability and effects on the environment. Therefore, the aim of our study is to present the overview on our previous studies concerning the development of analytical methods used in the exposure assessment as well as on the evaluation of the environmental fate (including soil sorption, hydrolysis and ecotoxicological studies) of the residues of sulphonamides (SAs) – pharmaceuticals widely used in veterinary.</p>
A3010	<p>Reducing the Risk of Fire Danger in Lebanon Based on Predictive Analysis and Preliminary-Proactive Actions  <b>Ali Karouni</b>, Alaa Hilal, Bassam Daya &amp; Pierre Chauvet  Universite d'Angers</p> <p><i>Abstract</i>-Forest fire prediction and management is a worldwide concern that aims to reduce and limit fire occurrence and caused damage. These domains gained lately important attention in Lebanon due to the high percentage of fires across the Lebanese forests. It was reported that about 95% of forest fires in Lebanon were deliberated due to human-related</p>

	<p>induced factors and hence necessary actions are demanded. To solve this problematic several studies have been conducted in order to develop a fire danger meter, based on meteorological and topographic parameters, which measures the risk of having a fire. Sequentially this fire danger risk meter is used to predict when and where a forest fire is highly expected to happen. Following our previous work where a hybrid fire danger risk meter is developed and optimized to the Lebanese forests nature, we develop in this paper a set of actions that are necessary to reduce the fire danger risk. Fire danger index values are first quantified into 6 levels with increasing danger rating. Next algorithmic proactive actions are developed that serves as a first-level fire preventive measures. These preliminary actions constitute a danger-level specific protocol and a first action trigger necessary to anticipate significant fire activity. The proposed actions are optimized to the Lebanese forest nature and following recommendations observed from forest fire cases in Lebanon.</p>
A3012	<p>A Review of Small Scale Distributed Power Generation Technologies Using Solar Energy Driven Stirling Engine  <b>SALEM GHOZZI</b>  The University of Nottingham</p> <p><i>Abstract</i>-Traditionally, off-grid power generation and supply in remote and inaccessible areas is provided by fossil fuelled technologies such as diesel gensets. Currently the emphasis however has shifted towards deploying renewable energy technologies which are becoming increasingly an important part of many countries power generation infrastructure. Small scale solar energy projects are mainly dominated by PV technology whereas large schemes use Concentrated Solar Power (CSP). This paper gives an insight into current solar energy technologies that can be deployed for power generation either as stand-alone or connected to the main power grid. Then an alternative technology using Stirling Cycle will be described giving its potential application and limitation. A conceived new design of Free Piston Stirling Engine is under research will be discussed and introduced.</p>
A0003	<p>Evaporation Reduction in Water Resources: Effect of Hexadecanol Concentration on Evaporation Rate under Algerian Arid Conditions  <b>Saggai Sofiane</b>, Boutoutaou Djamel, Hancock Nigeland Bachi Oum Elkheir  University KASDI MERBAH OUARGLA</p> <p><i>Abstract</i>-The evaporation rate of Algerian arid zones open water bodies is extremely large and reaches 3.8 m per year. To minimize these losses in water reservoirs monolayers of Hexadecanol are used. To check the efficiency of Hexadecanol monolayer and determine the adequate quantity of substance to use, a comparison was performed between the evaporation rate of water across two kinds of interfaces, namely an air/water interface and an air/monolayer/water interface (using Hexadecanol monolayer). Trials were conducted under natural conditions by using three tanks of one meter square surface which were partially buried. The first tank surface was covered by Hexadecanol at a concentration of 0.09 g/m<sup>2</sup>, the second by Hexadecanol at a concentration of 0.15 g/m<sup>2</sup>; and the third (the 'control') contained only water. Both monolayer treatments were applied to the respective water surface every three days.</p> <p>Daily observations spanning one month showed that films reduced the losses by evaporation and the rates of the evaporation reduction are significant (19% in the first tank and 24% in</p>

	the second tank). Analysis with respect to prevailing meteorological conditions is presented and implications for the use of Hexadecanol in the Algerian arid zone are discussed.
A1019	<p>Piston Bowl Effect on Biodiesel NO<sub>x</sub> Emissions  <b>Mustafa Ozcanli</b>, Abdulkadir Yasar, Kadir Aydin, Hasan Serin  Cukurova University</p> <p><i>Abstract</i>-Recently, the usage of biodiesel as an alternative energy source instead of fossil-based fuels becomes very popular because biodiesel is totally renewable and has more favorable combustion emission profiles except NO<sub>x</sub> emissions. Scientists are focusing on decreasing NO<sub>x</sub> emissions in compression ignition engines. In this paper, effects of different bowl geometries on biodiesel NO<sub>x</sub> emissions were theoretically studied in order to reach minimum NO<sub>x</sub> levels. Simulations were carried out with diesel No.2, soybean and rapeseed biodiesel fuels using the simulation software Diesel-rk. Seven different piston bowl type were used in the tests and datas were compared. Results showed that Hasselman, Pan and Mexican Hat bowl geometries concluded less NO<sub>x</sub> emissions then the other four. Air swirl velocities also showed that the bowl geometries were directly influence the NO<sub>x</sub> emissions by effecting in-cylinder combustion.</p>
A1020	<p>Emission Characteristics of Tea Seed/Soybean/Cotton Seed Biodiesel Blends  <b>Hasan Serin</b>, Kadir Aydin, Mustafa Ozcanli, Abdulkadir Yasar  Cukurova University</p> <p><i>Abstract</i>-This study examines fuel properties and emission characteristics of diesel engine fueled with three different biodiesel mixtures (tea seed, soybean, cotton seed oils) and their blends with diesel fuel. The fuel properties of biodiesel blends were measured according to ASTM and EN standards. Cetane number and pour point of tea seed-soybean-cotton seed (T-S-C) biodiesel blends were found out of standard ranges. Blend with tea seed (20%) - soybean (20%) – cotton seed (20%) - diesel (40%) reached acceptable fuel properties (kinematic viscosity 3.9 mm<sup>2</sup>/s, cetane number 52.8, pour point -6 °C). While CO and CO<sub>2</sub> emissions were reduced, NO<sub>x</sub> emissions were increased with increasing biodiesel contents in blends. As a result, diesel usage was minimized to 40% by blending it with trio biodiesel.</p>
A1021	<p>Compression Ratio and Injection Angle Effect on Performance and Emissions of a Diesel Engine Fuelled With Rapeseed Biodiesel and Diesel Fuel  <b>Abdulkadir Yasar</b>, Mustafa Ozcanli, Hasan Serin, Kadir Aydin  Cukurova University</p> <p><i>Abstract</i>-Diesel fuel is largely utilized in the transport, agriculture, commercial, domestic and industrial sectors for the generation of power energy. Vegetable oils present a very hopeful alternative fuel to diesel oil, since they are renewable, biodegradable and clean burning, having properties analogous to that of diesel. In this theoretical study, effects of different injection angles, compression ratios and different piston bowls on the engine performance and emissions were investigated by using two different fuels which are standard diesel (D2) and RME (Rapeseed Oil Methyl Ester). Simulations were carried out with DIESEL-RK software that calculates the parameters of engine power, torque, specific fuel consumption and the emissions of NO<sub>x</sub>, with an engine speed of 1500 rpm. It was shown that the increase of compression ratio and injector angle increased power and reduced specific</p>

	fuel consumption while having higher NO <sub>x</sub> emission negatively in all engine and fuel conditions. Additionally, the best optimization parameter having ZMZ-514 piston bowl with at 55° injection angle is considered as optimized parameters despite of high NO <sub>x</sub> emission value.
A1022	<p>Experimental Investigation of Engine Performance and Emission Characteristics of a Diesel Engine Using Blends Containing Microalgae Biodiesel, n-Butanol and Diesel Fuel Gökhan TÜCCAR, Tayfun ÖZGÜR, Abdulkadir YAŞAR, <b>Kadir AYDIN</b> Cukurova University</p> <p><i>Abstract</i>-An experimental research was conducted to evaluate the effects of n-butanol (normal butanol) addition to conventional diesel fuel and microalgae biodiesel (MB) blends on the performance and exhaust emissions of a diesel engine. Engine performance parameters and exhaust gas emissions such as nitrogen oxides, carbon monoxide were measured. It is revealed that; although n-butanol addition caused a slight reduction in torque and brake power values, the emission values of the engine were improved. Measured physical properties of n-butanol, MB and diesel blend (D70B20But10) satisfy EN 14214 standards. Therefore, n-butanol can be used as a very promising additive to diesel-microalgae biodiesel blends.</p>
A0024	<p>Communication Networks in the Service of the Environmental Monitoring Slawomir J. Ambroziak, Ryszard J. Katulski, Jacek Namiesnik, Jarosław Sadowski, <b>Jacek Stefanski</b> and Waldemar Wardencki</p> <p><i>Abstract</i>-In the paper selected issues relating to communication networks in the services of the environmental monitoring (EM) have been described. It is divided into two main parts: wire and wireless networks. The advantages and disadvantages of both solutions for EM application have been presented.</p>

**Afternoon, May 15, 2014 (Thursday)**

**SESSION-4 (ICPIE)**

**Venue: CLASSROOM 300 (3<sup>rd</sup> Floor)**

*Session Chair:* Prof. Ewa Klugman-Radziemska

**Time: 15:50-18:30**

C0013	<p>Radionuclides Activity and Effective Doses Referred to Geological Formations <b>Anna Mykowska</b> and Jan Hupka Gdańsk University of Technology, Poland</p> <p><i>Abstract</i>—Naturally occurring radioactive materials (NORM) are present in Earth's crust and they caused natural background radiation, variable in different regions. Liquid, gas and solid radionuclides emit three types of radiation – alpha, beta and gamma. Fluctuations of natural radioactivity in different geological formations in the world and in Poland were compared in</p>
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	<p>relation to radiological hazard. Also drilling cuttings from boreholes in Pomerania were investigated by a dosimeter to estimate absorbed doses associated with unconventional oil and gas exploration. It provides the possibility to verify the hazard of exposure to ionizing radiation from rocks during oil and gas activities in this area.</p>
C0014	<p>House of Energy Efficiency – A Supportive Conceptual Framework for Developing Countries: the Case of Iran  <b>Omid Maghazei, Sepehr Marzi</b> and Parnia Shafinezhad          Politecnico di Milano, Italy</p> <p><i>Abstract</i>—Sustainable development is conveying core messages in a broad sense in various countries with different industrial structures. Developing countries are facing multi-dimensional problems due to the lack of stability in operational aspects and strategic plans. Energy efficiency has been addressed by scholars from different perspectives; however, it has not been tackled from the CO<sub>2</sub> emission reduction point of view as an objective and the international mechanisms such as Clean Development Mechanism (CDM). This paper proposes a conceptual framework entitled “House of Energy Efficiency” in order to fill the aforementioned gap and also to suggest a supportive framework for the existing models attaining ultimate goal of sustainable development and the environment as a whole with respect to the oil and gas industries. The practicality of the model has been tested through a case study in National Iranian Gas Company (NIGC) and other case studies conducted by former scholars and consequently the results have been reflected into the proposed model.</p>
C0015	<p>Development of a Tool to Evaluate the Air Quality Impact of Utility Energy Emissions in Real-Time and Forecasting Mode: Application in Spain  <b>Roberto San Jose, Juan L. Pérez-Camaño, Alida Zamora, Amaya Yoldi</b> and Nieves Cifuentes          Technical University of Madrid, Madrid, Spain</p> <p><i>Abstract</i>—Energy utilities are important sources of pollution emissions. These sources are generally surrounding large, medium and small cities. The electricity demand is growing in all the world and the forecasts for this century are that energy demand will double and even triple during the rest of the century. The need for cleaner emissions and the control and understanding of the impact in air quality concentrations of the emissions of the modern power plants is a must. In this contribution we present a tool to map the forecasted exceedances of Air Quality EU Directive in a large area centered on the power plant and the contribution of different emission sources in a power plant to air concentrations. The tool is based on the MM5-CMAQ-EMIMO models system. The MM5 model is widely used all over the world and was developed by PSU/NCAR (USA). The CMAQ model is the so-called Community Multiscale Air Quality Modelling System developed by USEPA. EMIMO is an anthropogenic and biogenic air emissions model, which produces hourly emissions per pollutant per square kilometer. The system is accessed over the Internet by authorized personnel on a daily basis.</p>
C0021	<p>Experiment Research on Enhanced Oil Recovery by Intermittent Gas Injection in Low Permeability Oilfield  <b>Dong Lifei, Yue Xiang'An, Wang Wei, Yang Hui</b> and Su Qun</p>

	<p>China University of Petroleum, Beijing, China</p> <p><i>Abstract</i>—The existence of low permeability, strong heterogeneity, developing fracture, small pore throat and high capillary forces by specific surface leads to the low water flooding recovery and high injection pressure in developing a low permeability oilfield. As the advantage of injectivity, the gas flooding is introduced. However, gas flooding is easy to cause fluid breakthrough flow. Considering the influence of gas channeling to recovery, the intermittent gas injection is accepted. Based on the theoretical analysis and study of core displacement experiments, the efficacy of intermittent gas injection to enhance oil recovery in low permeability oilfield is evaluated. Also, the influence to recovery caused by intermittent period length and times is analyzed. The results show that the intermittent gas injection can restrain the gas channeling and improve the recovery of low permeability reservoirs effectively. The improved recovery point in each intermittent period has a positive correlation with intermittent period length. And the highest improved recovery point appears at the second or the third intermittent period generally.</p>
C1003	<p>Concentric Dual-tubing Steam Injection: A New Model for Predicting Steam Pressure in the Annulus  <b>Hao Gu</b>, Linsong Cheng, Shijun Huang, Shuang Ai and Shaolei Wei  China University of Petroleum, Beijing, China</p> <p><i>Abstract</i>—It is not always easy to accurately predict bottomhole steam pressure, temperature and quality when we design concentric dual-tubing steam injection schemes due to the complexity of two-phase flow in the annulus, also, previous methods for estimating pressure gradient in annuli are time-consuming. In this study, a new model is established based on mass and energy balances to calculate steam pressure in the annulus. A more rigorous thermodynamic behavior of steam/water mixture is also taken into account. More importantly, one-to-one correspondence between pressure gradient and temperature gradient of saturated steam is reasonably developed and applied in further derivation. The results indicate that the proposed model is more accurate and convenient in predicting steam pressure than previous methods. Moreover, the steam pressure in the inner tubing drops faster than that of in the annulus even the wellhead mass flow rate of the former is lower. The variation law of steam quality in the inner tubing is different from that of in the annulus, depending on the net heat losses of mixture fluid in each tubing.</p>
C2001	<p>Waste Oil Recycling Using Microwave Pyrolysis Reactors  Hala M. Abo-Dief, <b>Amal A. Altalhi</b> and Ashraf T. Mohamed  Chemistry Dept., Faculty of Science, Al-Taif Univ., Al-Taif, KSA.</p> <p><i>Abstract</i>—Waste oil contains a variety of contaminants, including lead, magnesium, copper, zinc, chromium, arsenic, chlorides, cadmium, and chlorinated compounds. One gallon of waste oil can foul a million gallons of drinking water. This work identify a unique method by which the spent oil is adequately recycled for reuse, the cost of recycling is relatively low compared from its production from crude oil as the numbers of purification stages are reduced. The Waste automotive engine oil was pyrolyzed in a continuous stirred bed reactor using microwave energy as the heat source; the yield and characteristics of the incondensable gaseous products are discussed. Examination of the composition of the gases is carried out</p>

	<p>and investigated. The experiment was carried out in a microwave reactor over an activated carbon, which acts as a microwave receptor. Operating temperature (from 200 to 1000 °C), controlled by power of microwave reactor, was varied to observe the consequence on the pyrolysis products. The chemical composition and product yield of the pyrolysis products (liquid oil and gas) were analyzed by using gas chromatography/mass spectrometry (GC/MS). The effects of both N<sub>2</sub> and waste oil flow rates on both the aliphatic and aromatic components are carried out and investigated. The effect of the microwave pyrolysis temperature on the pyrolysis products and the microwave pyrolysis energy are obtained.</p>
C2004	<p>Calculation of Hole Collapse Pressure Considering the Influence of Borehole Diameter  <b>Jin Sun</b> and Jingen Deng  China University of Petroleum, Beijing, China</p> <p><i>Abstract</i>—To solve the wellbore instability problem of slimhole, this paper presents a calculation method of collapse pressure base on the scale effect theory of rock strength. Based on the empirical relation between the uniaxial compressive strength and the specimen diameter proposed by Hoek, a modified empirical relation is studied in which the size effect of internal frictional angle is considered. A modified Mohr-Coulomb failure criterion with the influence of scale effect of rock strength is established. The collapse pressure which considers the influence of borehole diameter is calculated, and two evaluation method of size effect of rock strength is presented. The results show that the collapse pressure of slimhole is related to the borehole diameter. Meanwhile, the scale effect of formation with different properties is also different. The reduction in strength is due to the nonhomogeneity and fracture development of rocks. This provides important reference for the evaluation of collapse risks of wells with different diameters.</p>
C2006	<p>Research on Fracture Height Containment in Poor and Thin Pay Zones  <b>Xiang Zhou</b>, Shicheng Zhang, Xinfang Ma and Kaiyu Liu  China University of Petroleum, Beijing, China</p> <p><i>Abstract</i>—So far, some of the domestic oil-fields have entered the high water cut stage after a long term production, and the objects of the exploration are shifting from thick and high quality pay zones to the thin and poor pay zones. For the development of thin and poor reservoir, hydraulic fracturing is an extremely effective measure to enhance production, but the fracture height always get out of control when stimulating these kind of pay zones. Considering the problem, the paper firstly summarized the factors affecting fracture height based on literature researches; then an orthogonal design including seven factors of five level was made according to the reservoir parameters and construction parameters of M Oil-field, and the fracture propagation under each situation was simulated with FracproPT. On the grounds of simulation results, further sensitivity analysis and single factor analysis were conducted. The results turn out that factors impacting fracture height are sequentially: in-situ stress contrast between barrier layer and target layer, total amount of fracture fluid, pumping rate, fracture fluid viscosity, Young modulus contrast, reservoir permeability and fracture toughness contrast. Finally, the paper gives strategies to confine the fracture vertical growth in the light of simulation results, and a field case was used to certify the feasibility of the strategy. The research can help to optimize the hydraulic fracturing design and guide the on-site treatment.</p>



C3003	<p>Investigating the Effect of Input Data Uncertainties in Material Balance Calculations for Hydrocarbon Reservoirs  <b>Mohammed S. Bageri, Dr. Hazim N. Dmour, Dr. Mostafa M. Kinawy</b>  King Saud University, Saudi Arabia</p> <p>Abstract—Material balance analysis is an interpretation method used to determine the original oil and gas in place and to predict petroleum reservoir performance based on production and static pressure data analysis, also to evaluate the remaining reserves by applying the principle of material balance to rate-time decline analysis. Material balance techniques are widely used throughout all phase of reservoir development, providing a dynamic measure of hydrocarbon volumes and an estimate of key reservoir parameters. The purpose of this study was the quantification of the uncertainties in the estimation of original hydrocarbon in place. An extensive sensitivity analysis was conducted to provide an insight into the features that must be accurately determined in order to obtain the value of the OGIP. Common tools that are frequently used in the petroleum industry such as Material Balance and Monte Carlo were used in combination to support investment decisions for field development. To deal with this challenge, an automated concept has been developed using Petroleum Experts MBAL™ software. The results showed that the estimation of OGIP by material balance calculations was very sensitive to the pressure and aquifer models data uncertainties. Therefore, the error in pressure data identified as the most significant source of the uncertainty in material balance estimations. Errors in Porosity distribution and net pay thickness are the main source of uncertainty in the properties of reservoir characteristics. Permeability was the important sources of uncertainty but not significant. Finally, encroachment angel and compressibility were the parameter with less uncertainty on material balance calculations. Therefore, the significant of this study is to investigate the effect of reservoir data uncertainties on material balance calculation</p>
C3004	<p>Optimization of the Hub Height of a Wind Turbine  <b>Jaehwan. Lee, Woojin. Cho and Kwan-Soo. Lee</b>  Hanyang University, Seoul, Korea</p> <p>Abstract—This paper presents a new method for optimizing the hub height of a wind turbine. In general, wind turbine energy production increases with the hub height, but so does the cost. Therefore, we must optimize the hub height. Here, we calculated the annual energy production using a wind probability function. This is a function of the hub height and the roughness, which is a surface characteristic. The wind turbine cost was also expressed as a function of the hub height. The objective function for the optimization process was formulated in terms of the annual energy production and wind turbine cost. Differentiation was used to carry out the optimization; the procedure is described in this paper. Finally, the results of a case study were used to illustrate the relationship between the optimum hub height and the roughness.</p>
C3005	<p>Potential of Residential Combined Heat and Power Systems in Korea  <b>Woojin. Cho, Jaehwan. Lee and Kwan-Soo. Lee</b>  Hanyang University, Seoul, Korea</p>

	<p>Abstract—We describe how 1-kWe combined heat and power (CHP) systems in the Korean residential sector affect the electrical grid. The maximum diffusible capacity of the CHP systems was determined based on user benefit, and these results were used to assess the domestic effect of CHP system diffusion. The maximum diffusible capacity was 840,000 kW, which should yield an annual reduction in fuel costs of 381 million USD, a 2.5-million-ton reduction in equivalent CO<sub>2</sub> emissions, and a reduction in the peak demand for electricity of 0.84 GW. The Korean government has recently announced its intention to increase the use of distributed power sources; on-site 1-kWe CHP systems are expected to be an important aspect of this.</p>
C3006	<p>Gas Well Deliquification –A Brief Comparison between Foam Squeeze and Foam Batch Approach  <b>O.Rauf</b>  Fangmann Energy Services, Salzwedel, Germany</p> <p>Abstract—With aging of gas fields in Germany, water accumulation and reduction in production was evident. Investigations suggested that the reduction in production in those fields were not merely a function of water accumulation but near wellbore damage also ally to that. Several conventional approaches were applied to cope with water accumulation and removing near well bore damage but they were not successful in all cases. An approach of pumping foam and additives has been tried in the field and named as foam batch (FB). It turns out to be successful but due to some limitation associated, it has been taken over by foam squeeze. Foam squeeze (FS) had been tested few years ago and it sets new standards to deliquify gas field and removing near wellbore damage in one treatment. Expanding the scope of application, FB was applied in whole field and it produced remarkable results by bringing dead wells (due to water flooding) back to production. Later FB treatment had been supplemented with additional additive pumping to achieve wide range benefits of near well bore damage removal and gas well deliquification.</p> <p>The paper will elaborate the difference between foam batch and foam squeeze. A case study will also be presented to show the difference among both approaches.</p>
C3008	<p>Effect of Clay Minerals on Miscible and Immiscible Viscous Fingering during Polymer Flooding  <b>Vishnudas.R</b> and Abhijit Chaudhuri  Indian institute Of technology Madras, India</p> <p>Abstract—During polymer flooding a considerable amount of polymer may be lost due to adsorption into the reservoir rock. These reservoir rocks contain clay minerals, which affect the propagation of injected polymers. In this numerical study we have investigated the effect of different clay minerals on dynamics of miscible and immiscible viscous fingering. Since polymer adsorption rate is different for different clay minerals, it is important to know that how clay minerals influence the fingering pattern at both miscible and immiscible interface during polymer flooding, which is followed by water flooding. Clay minerals play a major role in oil recovery process and it affects the displacement efficiency as well. There is lack of information regarding the nonlinear adsorption effect of polymer on instability in the literature. We provide numerical results for nonlinear adsorption of polymer onto the porous matrix, since a nonlinear Langmuir sorption isotherm is more suitable model for polymer</p>

	adsorption. By comparing the results for Kaolinite and Illite, it is observed that growth rate and number of miscible viscous fingers more for Kaolinite clay minerals. On contrary the number of immiscible viscous fingers at the saturation shock between connate water and oil is less for Kaolinite.

<b>May 15, 2014 19:00</b>	<b>Dinner and Closing Ceremony</b>
<b>Courtyard</b>	

## May 16, 2014

### Academic visit

9.00- 13.00



#### Visit to laboratories and technology halls of the Faculty of Chemistry, Gdańsk University of Technology, Gdańsk, Poland

Auditorium of Faculty of Chemistry, Renovated, according to its original look

Department of Polymer Technology: Modern instruments for thermal analysis of polymer based materials; apparatus for studies of rubber recycling

Department of Electrochemistry, Corrosion and Materials Engineering: Modern instruments for non-destructive diagnostics and monitoring of corrosion processes; electrochemical impedance scanning microscopy

Department of Analytical Chemistry: Modern instruments for environmental and food pollutant determination such as GC-GC-(TOF)MS, HPLC-MS/MS systems, thermal desorbers, ASE, etc. for sample preparation for chromatographic analysis, atomic absorption spectrometers, apparatus for measuring emission from building materials and furniture

Department of Chemical Technology: Mobile installations, mobile cyclone reactor; floating laboratory

Department of Chemical Apparatus and Theory of Machines: Modern instrumentation for the studies in the field of photovoltaics, biofuels and other renewable energy sources

Department of Chemistry, Technology and Biotechnology of Food: Instrumentation and apparatus for determination of rheological properties of food and laboratory for testing the biological potential of food components

Department of Organic Chemistry: Exhibition of Historical Apparatus Used in Organic Chemistry Laboratories

Department of Microbiology: Instrumentation for studies of biotechnological systems of protein enzyme overexpression; biotechnological systems of peptide drug production; design of PCR based diagnostic kits, etc.

Department of Pharmaceutical Technology and Biochemistry: Instrumentation for measuring intermolecular forces of biopolymers

Department of Chemical and Process Engineering: Laboratory of unit operations

Nuclear Magnetic Resonance Laboratory

*Conferences ending, thanks !*

## Conference venue

### Venue Place

#### Gdańsk University of Technology

(Narutowicza Street 11/12, 80-233 Gdańsk, Poland)

<http://www.pg.gda.pl/en/index.php/>





**Gdańsk University of Technology is located in Tricity, more precisely in Gdańsk – a city of a more than 1000-year historical tradition. Gdańsk is located at the mouth of the Vistula River on the Baltic Sea.**

**Much of the city's industry centers around shipbuilding and shipping. The city has two main port areas. The older New Port, is a major industrial centre for shipyards, metallurgical and chemical plants, timber mills, and food-processing facilities. The newer North Port is Poland's largest maritime development project. It handles coal exports and petroleum imports.**

**Gdańsk is the capital of the Pomeranian Voivodeship and has got nearly 500 000 inhabitants. There are numerous higher education institutions here. Among this quite considerable group Gdańsk University of Technology is the largest technical university in the area and one of the oldest technical universities in Poland.**

**In 1980, Gdańsk Shipyard was the birthplace of the Solidarity trade union movement, whose opposition to the Communist regime led to the end of Communist Party rule in 1989, and sparked a series of protests that successfully overturned the Communist regimes of the former Soviet bloc. Solidarity's leader, Lech Walesa (awarded the Nobel Peace Prize in 1983) became President of Poland in 1990.**

**For the last 10 years city of Gdańsk has been consequently implementing strategy of sustainable development in which main role is played by knowledge economy.**

## APCBEEES FORTHCOMING CONFERENCES

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

DATE	NAME		PUBLICATION
August 06-08, 2014, Singapore	<b>ICEAE 2014</b>	2014 4th International Conference on Environmental and Agriculture Engineering (ICEAE 2014) <a href="http://www.iceae.org/">www.iceae.org/</a>	Journal of Advanced Agricultural Technologies (JOAAT, ISSN: 2301-3737)
	<b>ICCCE 2014</b>	2014 5th International Conference on Chemistry and Chemical Engineering (ICCCE 2014) <a href="http://www.iccce.org/">www.iccce.org/</a>	International Journal of Chemical Engineering and Applications (IJCEA, ISSN:2010-0221)
	<b>IGGES 2014</b>	2014 3rd International Conference on Geological and Environmental Sciences (IGGES 2014) <a href="http://www.igges.org/">www.igges.org/</a>	Volume of Journal ( IPCBEE, ISSN: 2010-4618)
August 26-27, 2014, Taipei, Taiwan	<b>CCEA 2014</b>	2014 5th International Conference on Chemical Engineering and Applications (CCEA 2014) <a href="http://www.ccea.org/">www.ccea.org/</a>	Volume of Journal ( IPCBEE, ISSN: 2010-4618)
	<b>ICSEE 2014</b>	2014 International Conference on Substantial Environmental Engineering (ICSEE 2014) <a href="http://www.icsee.org/">www.icsee.org/</a>	International Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)
	<b>ICBBE 2014</b>	2014 International Conference on Biomedical and Bioinformatics Engineering (ICBBE 2014) <a href="http://www.icbbe.com/">www.icbbe.com/</a>	International Journal of Bioscience, Biochemistry and Bioinformatics (IJBBB, ISSN: 2010-3638)
Sep. 15-16, 2014, Paris, France	<b>ICBEE 2014</b>	2014 6th International Conference on Chemical, Biological and Environmental Engineering (ICBEE 2014) <a href="http://www.icbee.org/">www.icbee.org/</a>	Volume of Journal ( IPCBEE, ISSN: 2010-4618)

2014 APCBEES GDAŃSK CONFERENCES

	<b>ICECS 2014</b>	2014 7th International Conference on Environmental and Computer Science (ICECS 2014) <a href="http://www.icecs.org/">www.icecs.org/</a>	International Journal of Modeling and Optimization (IJMO, ISSN:2010-3697)
	<b>ICBEM 2014</b>	2014 4th International Conference on Biotechnology and Environment Management (ICBEM 2014) <a href="http://www.icbem.org/">www.icbem.org/</a>	International Proceedings of Chemical, Biological and Environmental Engineering (IPCBE, ISSN: 2010-4618)
Sep 27-28, 2014 Bali, Indonesia	<b>ICREE 2014</b>	2014 2nd International Conference on Renewable Energy and Environment (ICREE 2014) <a href="http://www.icree.net/">www.icree.net/</a>	Journal of Clean Energy Technologies (JOCT, ISSN: 1793-821X)
	<b>ICCAE 2014</b>	2014 2nd International Conference on Civil and Architecture Engineering (ICCAE 2014) <a href="http://www.iccae.net/">www.iccae.net/</a>	Volume of Journal ( IPCBEE, ISSN: 2010-4618)
	<b>ICBMS 2014</b>	2014 2nd International Conference on Biological and Medical Sciences (ICBMS 2014) <a href="http://www.icbms.org/">www.icbms.org/</a>	Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796)
Oct. 08-09, 2014, Jinju, South Korea	<b>ICAAS 2014</b>	2014 5th International Conference on Agriculture and Animal Science (ICAAS 2014) <a href="http://www.icaas.net/">www.icaas.net/</a>	Journal of Advanced Agricultural Technologies (JOAT, ISSN:2301-3737)
	<b>ICEBS 2014</b>	2014 4th International Conference on Environment and BioScience (ICEBS 2014) <a href="http://www.icebs.org/">www.icebs.org/</a>	International Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)
	<b>ICAFS 2014</b>	2014 International Conference on Advances in Food Sciences (ICAFS 2014) <a href="http://www.icafs.org/">www.icafs.org/</a>	Volume of Journal ( IPCBEE, ISSN: 2010-4618)
Oct 29-30, 2014 California,	<b>ICBEC 2014</b>	2014 5th International Conference on Biology, Environment and Chemistry (ICBEC 2014) <a href="http://www.icbec.org/">www.icbec.org/</a>	Volume of Journal ( IPCBEE, ISSN: 2010-4618)

2014 APCBEES GDAŃSK CONFERENCES

USA	<b>ICPBS 2014</b>	2014 2nd International Conference on Pharmaceutical and Biological Sciences (ICPBS 2014) <a href="http://www.icpbs.com/">www.icpbs.com/</a>	Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796)
	<b>ICSEA 2014</b>	2014 2nd International Conference on Sustainable Environment and Agriculture (ICSEA 2014) <a href="http://www.icsea.org/">www.icsea.org/</a>	Volume of Journal ( IPCBEE, ISSN: 2010-4618)
Nov. 12-13, 2014 Auckland, New Zealand	<b>ICFAS 2014</b>	2014 2nd International Conference on Food and Agricultural Sciences (ICFAS 2014) <a href="http://www.icfas.org">www.icfas.org</a>	Volume of Journal (IPCBEE, ISSN: 2010-4618),
	<b>ICMEB 2014</b>	2014 2nd International Conference on Medical, Environmental and Bio-technology (ICMEB 2014) <a href="http://www.icmeb.org">www.icmeb.org</a>	Journal of Medical and Bioengineering (JOMB, ISSN: 2301-3796)
	<b>ICEPP 2014</b>	2014 2nd International Conference on Environment Pollution and Prevention (ICEPP 2014) <a href="http://www.icepp.org">www.icepp.org</a>	International Journal of Environmental Science and Development (IJESD, ISSN:2010-0264)
Nov.29-30, 2014 Mauritius	<b>ICCEN 2014</b>	2014 3rd International Conference on Civil Engineering (ICCEN 2014) <a href="http://www.iccen.org">www.iccen.org</a>	APCBEE Procedia (Journal under Elsevier, ISSN: 2212-6708)
	<b>ICECB 2014</b>	2014 3rd International Conference on Environment, Chemistry and Biology (ICECB 2014) <a href="http://www.icecb.org">www.icecb.org</a>	Volume of Journal (IPCBEE, ISSN: 2010-4618)
	<b>ICFSH 2014</b>	2014 International Conference on Food Sciences and Health (ICFSH 2014) <a href="http://www.icfsh.org">www.icfsh.org</a>	Journal of Advanced Agricultural Technologies (JOAAT ISSN: 2301-3737)

Welcome to submit papers or participate in our upcoming conferences.





<b>Note</b>

<b>Note</b>