



World Academy of Art  
and Science



## 14<sup>TH</sup> INTERNATIONAL CONFERENCE ON SUSTAINABLE DEVELOPMENT AND ECOINNOVATION

organised by the AGH University of Science and Technology Open University in co-operation with the World Academy of Arts and Science, Scientific Council of the Goetel's School of Environmental Protection Engineering and Team of Environmental Biotechnology and Ecology at the AGH University of Science and Technology in Krakow, Poland

6<sup>TH</sup>–8<sup>TH</sup> SEPTEMBER 2012

### PROGRAMME

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#### 6<sup>th</sup> September (Thursday)

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- 8.15 – 9.15      Registration – Al. Mickiewicza 30, A-0, 1<sup>st</sup> floor – in front of the  
Aula (the main hall of AGH-UST).
- 9.15 – 14.00    Plenary Session – Aula – Al. Mickiewicza 30, A-0, 1<sup>st</sup> floor
- 9.15 – 9.30      Opening ceremony
- 9.30 – 9.45      Introduction by the Conference Chairman Prof. J. W. Dobrowolski,  
Ph.D. D.Sc. (AGH-UST)

- 9.45 – 11.15 **Panel Session of the World Academy of Art and Science:**  
**President Prof. I. Šlaus, Ph.D.**, Chairman of the Board of Trustees, Chief Executive Officer **Prof. G. Jacobs, Ph.D.**  
 General Secretary Prof. Z. Bochniarz, Ph.D. – **Building human and social capital for 21st century: a challenging task for Academia, from sustainability and sustainable development to sustainable business: challenges and opportunities**
- 11.15 – 11.40 Coffee break
- 11.40 – 12.10 Key-note-lecture: President of the International Clean Energy Consortium **Prof. G. R. Grob, Ph.D.** (Dean em. REDWOOD, Organizations: ISEO, ICEC, ISO, GEOCOGEN, STARWIND) – **Clean, sustainable energy sources, carriers and storage evolution.**
- 12.10 – 12.40 **Dr. J-L. Delplancke** (Programme Head of Unit Fuel Cells and Hydrogen Joint Undertaking, New Word of Energy Brussels) – **Europe’s fuel cells and hydrogen joint undertaking.**
- 12.40 – 13.10 **President S. Tokarski** (TAURON Wytwarzanie S.A.) **Low emission investment strategy in Tauron Polska Energia S.A.**
- 13.10 – 13.35 **Prof. A. Stasch, Ph.D. D.Sc.** (Foundation of German Business Ltd., Bonn FRG; Senior Experten Service; Stiftung der Deutschen Wirtschaft, Bonn; John Paul II Catholic University Lublin), **Dr. J. Przybytniowski** (John Paul II Catholic University Lublin, Poland, European Business Club Association e.V., Castel Oedheim, FRG ) **Investment in eco-efficient technologies in Germany and Switzerland – the chance of avoiding of global ecological collapse.**
- 13.35 – 14.00 **Prof. L. Preisner, Ph.D. D.Sc.** (President of the European Association of Environmental and Natural Resource Economists – Polish Division, AGH-UST), **Dr T. Pindór** (AGH-UST). **Research and teaching activity of the Department of Economics, Finance, And Environmental Management AGH, Faculty of Management in Krakow related to the concept and rules of sustainable development.**
- 14.00 – 15.00 Lunch break
- 15.00** Participation at the **opening ceremony** of the National Conference “OCHRONA I INŻYNIERIA ŚRODOWISKA –ZRÓWNOWAŻONY ROZWÓJ” (**Environmental Protection and Engineering – Sustainable Development**) – **building B-2**

**15.30 – 18.45 Session in building B2 room 110**

- 15.30 – 16.00 **Prof. A. Makarenko, Ph.D.** (Institute. for Applied System Analysis at National Technical University of Ukraine).  
**(1) Lessons from Bruntland’s Commission Report and further tasks: Knowledge as the main resource for sustainable development.**  
**(2) Development and prospects of mathematical modelling and GIS applications for natural, social, technical systems.**
- 16.00 – 16.30 **Prof. A. Stasch, Ph.D. D.Sc.**(Foundation of German Business Ltd., Bonn FRG; Senior Experten Service; Stiftung der Deutschen Wirtschaft, Bonn; John Paul II Catholic University Lublin) **Tschernobyl, Fukushima and...**
- 16.30 – 16.45 Coffee break
- 16.45 – 17.05 **H. Miteva, M.Sc.** (Univ. of Tasmania, Australia) **Education for sustainability and professional responsibility.**
- 17.05 – 17.20 **Prof. L. Woźniak, Ph.D. D.Sc., Dr. S. Dziedzic** (Rzeszow University of Technology, Department of Enterprise, Management and Eco-innovation) **Ecoinnovation as a factor in the progress of science, technology and quality of life.**
- 17.20 – 17.40 **Dr. S. Dziedzic** (Rzeszow University of Technology) **Quality of life – the concept of new solutions.**
- 17.40 – 18.00 **Dr. E. Sadurska-Duffy** (Warsaw University of Life Sciences) **“How sustainable is your research?” Linking higher education research policies to sustainability.**
- 18.00 – 18.20 **Dr. J. Kobylarczyk** (Cracow University of Technology) **Small urban centres in the context of sustainable development.**
- 18.20 – 18.30 Discussion
- 19.00 Dinner and culture programme

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**7<sup>th</sup> September (Friday)**

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**Sessions in building B-2 room 110**

- 9.00 – 9.30 Drs. J. Benedi-González, C. Romero-Álvarez, M. I. Sánchez Reus, J. L. Sebastián-Franco, J. M. Miranda, S. Muñoz San Martín, F. J. Camacho (University of Madrid, Spain), **Prof. B. Ribas Ozonas, M.D., Ph. D.** (General Secretary of the Royal Academy of Pharmacy Institute of Spain, Madrid) **Cell proliferation and absence of statistical signification of enzymatic activities in PC12 cultures exposed to weak radiofrequency electromagnetic fields.**

- 9.30 – 10.00 **Drs. N. Bákony** (Univ. of Debrecen, Hungary), S. Bott (Univ. of Hohenheim, Stuttgart, Germany), É. Gajdos (Univ. of Debrecen), A. Szabó (Univ. of Debrecen), A. Jakab (Univ. of Debrecen), B. Tóth (Univ. of Debrecen), P. Makleit (Univ. of Debrecen), Sz. Veres (Univ. of Debrecen) **Using bio-fertilizer to improve seed germination and early development of maize**
- 10.00 – 10.35 **Dr. J. Przybytniowski** (John Paul II Catholic University Lublin, Poland, European Business Club Association e. V., Castel Oedheim, FRG), **Prof. A. Stasch, Ph.D. D. Sc.** (Foundation of German Business Ltd., Bonn FRG; Senior Experten Service Stiftung der Deutschen Wirtschaft, Bonn; John Paul II Catholic University Lublin) **Ecological safety and the dark side of the unsustainable technologies.**
- 10.35 – 11.00 **Prof. R. Dong, Ph.**, Ji Fang, Ms.Sc., Liu Wenhao, M.Sc. (China Agriculture University, Beijing) **Perspectives of poultry manure value-added treatment.**
- 11.00 – 11.20 Coffee break
- 11.20 – 11.50 **Dr. Petr Sauer**, Dr. Jaroslav Kreuz (University of Economics, Prague) **Mitigation of air pollution in Moravian-Silesian region: public intervention programmes.**
- 11.50 – 12.10 **Dr. M. Zabochnicka-Świątek** (University of Technology in Częstochowa), Prof. J. W. Dobrowolski, Ph.D. (AGH-UST) **The application of laser bio-stimulation on the growth of *Chlorella vulgaris*.**
- 12.10 – 12.30 Zhou Mo, M.Sc., **Dr. J. Dach, D.Sc.**, Dr. K. Pilarski, Prof. J. Przybył, Ph.D. D.Sc., A. Lewicki, M.Sc., D. Janczak, M.Sc. (Poznan University of Life Sciences) **The maize straw usage as new co-substrate in agricultural biogas plants.**
- 12.30 – 12.50 **Dr. M. Zimnoch**, Eng., A. Jasek, M.Sc. Eng., Dr. T. Kuc, Eng., Dr. Z. Gorczyca, Eng., Dr. J. Necki, Eng., Dr. L. Chmura, Eng., M. Galkowski, M.Sc. Eng., D. Jeleń M.Sc. Eng., Prof. K. Różanski, Ph.D. D.Sc. (AGH-UST) **Urban metabolism: atmospheric loads and fluxes of carbon dioxide and methane in Krakow.**
- 12.50 – 13.55 Poster Session** (*the list of posters enclosed at the end of the programme*)
- 14.00 – 15.00 Lunch break
- 15.00 – 15.20 Dr. J. Kwiecień, Eng., **Dr. Malgorzata Pawul, Eng.** (AGH-UST) **Application of artificial neural networks to spring water quality prediction.**
- 15.20 – 15.40 **Dr. Augustyniak**, Prof. T. Suchecki, Ph.D. D.Sc. (Wrocław University of Technology) **Ionic liquids as prosperous sorbents for flue gas control.**
- 15.40 – 16.00 Prof. K. Grabas, Ph.D. D.Sc., Prof. B. Kołwzan, Ph.D. D.Sc., A. Pawełczyk, Ph.D., M. Steininger Ph.D. (Wrocław University of Technology) **Bioremediation of grounds contaminated with petroleum products by heap method.**

- 16.00 – 16.40 **Col. Mieczysław Struś, Ph.D.** (Wroclaw University of Technology) **Ethyl biofuel for Diesel engines and mobile agri-refinery.**
- 16.40 – 17.00 Coffee break
- 17.00 – 17.20 **Ł. Adamkiewicz, M.Sc.**, A. Badyda, Ph.D. Eng, D. Mucha, M.Sc., A. Gayer, M.Sc. Eng. (Warsaw Univ. of Technology) – **Traffic intensity and traffic structure impact on noise exposure in urban area on the example of Warsaw**
- 17.20 – 17.40 **D. Mucha, M.Sc. Eng.**, A. Badyda, Ph.D. Eng., A. Gayer, M.Sc. Eng., Ł. Adamkiewicz, M.Sc. (Warsaw Univ. of Technology) – **The problem of traffic congestion and quality of life in large urban agglomeration on the example of Warsaw.**
- 17.40 – 18.00 **A. Badyda, Ph. D. Eng.** (Warsaw Univ. of Technology), Prof. A. Kraszewski Ph.D. D.Sc. Eng. (Warsaw Univ. of Technology), Col. P. Dąbrowiecki M.D. (Military Institute of Medicine, Institute Headquarters), Gen. W. Lubiński Ph.D. D.Sc. (Military Institute of Medicine), A. Gayer M.Sc. Eng. (Warsaw Univ. of Technology), Ł. Adamkiewicz M.Sc. (Warsaw Univ. of Technology), D. Mucha M.Sc. Eng. (Warsaw Univ. of Technology) **Traffic-related air pollution in Warsaw (Poland) as a risk factor of obstruction. Comparison between urban and rural areas.**
- 18.00 – 18.20 **A. Gayer, M.Sc. Eng.**, A. Badyda, Ph.D. Eng, D. Nowacka, M.Sc., Eng, Ł. Adamkiewicz, M.Sc., D. Mucha M.Sc. Eng. (Warsaw Univ. of Technology) – **Wildlife passages over Polish roads – the assessment of the effectiveness.**
- 18.20-18.30 Discussion
- 19.00 Dinner

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## 8<sup>th</sup> September (Saturday)

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### Aula – the main hall of AGH-UST Building A-0, 1<sup>st</sup> floor

- 9.00 – 9.30 **Prof. K. Górecka, Ph.D. D.Sc.** (Research Inst. of Horticulture, Vegetable Crops Research Division, Skierniewice), Prof. J. W. Dobrowolski , Ph.D. D.Sc. (AGH-UST) **Modern methods of in vitro culture in vegetable production.**
- 9.30 – 9.50 **A. Lewicki, M.Sc.**, Dr. J. Dach D.Sc., Dr. K. Pilarski, D. Janczak, M.Sc., W. Czekala, M.Sc., Dr. R. Mazur (Univ. of. Life Sciences in Poznań) **The influence of the reactor charge on the process dynamics and biogas efficiency of the glycerol**

- 9.50 – 10.05 **Dr. R. Mazur**, J. Mazurkiewicz, M.Sc. Eng., Dr. J. Klama, Eng. (Univ. of Life Sciences, Poznan) **Ecotoxicological study of salinity impact on the biocoenosis of activated sludge in the onsite wastewater treatment plant with SBR bioreactor.**
- 10.05 – 10.30 D. Mehmood, **A. Hagelquist, Ph.D.**, Prof. K. Granstrom, Ph.D. (Karlstad University, Sweden) **The impact of solids retention time in the aerated step of a pulp and paper mill effluent treatment on the biomethane potential of waste activated sludge**
- 10.30 -10.50 **Prof. S. Wicherek, Ph.D.**, N. Origo (UMR 8185 CNRS/ Environment and Sustainable Development, University Paris IV Sorbonne) **Depollution grounds with phytoremediation method**
- 10.50 – 11.10 Coffee break
- 11.10 -11.40 **Dr. A. Stokłosa** (Department of Agrotechnology and Agricultural Ecology, University of Agriculture, Krakow, Poland), Dr. A. Żuraw (Franciszek Górski Institut of Plant Physiology, Polish Academy of Sciences, Krakow, Poland) **Eco-friendly weed control using natural-product herbicides.**
- 11.40 – 12.00 **Dr. A. Lenart** , Prof. Dr. T. Zajęc, Dr. P. Boroń, Dr. A. Klimek-Kopyra (University of Agriculture in Krakow) **The effectiveness of bacterial inoculation of pea (*Pisum sativum L.*) plants as sustainable agriculture procedure determined with nodc-based detection of *Rhizobium* spp. strains.**
- 12.00 – 12.20 **Dr. D. Koreleski** (University of Agriculture, Krakow) **Competitive potential of rural areas in the chosen regions of south-eastern Poland.**
- 12.20 – 12.50 **Prof. A. Samek, Ph.D., Sc.** (AGH-UST) **Sustainability and nature oriented design – the future of machines.**
- 12.50 – 13.20 **R. Tomaszewski, Eng.** (President of P-F Apipol Krakow), **Prof. J. W. Dobrowolski , Ph.D. D.Sc.**(AGH-UST) **Good experiences and perspectives of eco-friendly and pro-health applications of the modern beekeeping system Apipol for sustainable development in Poland and in the world.**
- 13.20 – 13.40 Exhibition of **Apipol's products** and introduction to their applications beneficial for health of consumers and management of the rural environment
- 13.45 – 14.45 Lunch break
- 15.00 – 15.20 **A. Wagner, Ph.D.** (AGH-UST) **The Management of the industrial area of Nowa Huta (Kraków, Poland), focus on water bodies.**
- 15.20 – 15.50 **Prof. J. W. Dobrowolski, Ph.D. D.Sc.** (AGH-UST) **44 years of problem-solving training of students and education of knowledge-based society as subject of voluntary action focused on promotion sustainable management of the natural resources and the human environment.**

15.50 – 17.00 **Workshop** focused on Recommendation of the strategy and **new proposals for promotion sustainable development and bio-based Green Economy** innovative research-training and education toward common action of experts and knowledge-based society.

17.00 Tea/Coffee

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## LIST OF POSTERS

1. Dr. M. Adamski, Prof. J. Przybył, Ph.D. D.Sc., Prof. R. Gaj, Ph.D. D.Sc., Dr. Z. Dworecki, D. Wojcieszak, M.Sc., N. Mioduszevska, M.Sc. (Univ. of Life Sciences, Poznań, Poland) **Studies on the effectiveness of the desulphurisation process by iron oxide using the dry method without deposit regeneration.**
2. Dr. S. Cerbin (Adam Mickiewicz University, Poznań), Dr. J. Dach, D.Sc. (Poznan University of Life Sciences, Poland), Prof. R. Dong, Ph.D. (China Agriculture University, Beijing), M. Dziuba, M.Sc. (Adam Mickiewicz University, Poznań), A. Lewicki M.Sc. (Poznan University of Life Sciences), Ji Fang, M.Sc. (China Agriculture University, Beijing), Zhou Mo, M.Sc. (Poznan University of Life Sciences), Dr. K. Pilarski (Poznan University of Life Sciences) **Digested pulp from biogas plant as a medium for bio-mass growth of *Chlorella vulgaris* and *Scenedesmus obliquus*.**
3. W. Czekąła, M.Sc., Dr. J. Dach, D. Sc., Dr. K. Pilarski, A. Lewicki, M.Sc., D. Janczak, M.Sc., D. Wojcieszak, M.Sc., N. Mioduszevska M.Sc. (Poznan University of Life Sciences) **Research on anaerobic and aerobic technologies of manure management.**
4. Dr. J. Dach, D.Sc., Dr. K. Pilarski, A. Lewicki, M.Sc., D. Janczak, M.Sc., W. Czekąła, M.Sc., Dr. Robert Mazur (Univ. of Life Sciences, Poznań, Poland) Plumage as a substrate for biogas production – advantages and disadvantages.
5. Dr. R. Jasiński, Eng., K. Głąb, Dr. P. Michorczyk, Eng., Dr. R. Rachwalik, Eng., J. Socha, Eng., G. Goliasz M.Sc. Eng (Cracow University of Technology) **A concept of one-pot synthesis of trihalonitroalcohols by nitroaldol reaction over mesoporus SBA-15/CaO AND SBA-15/MgO catalyst.**
6. Dr. T. Kałuża, Eng., Prof. K. Szoszkiewicz, Ph.D. D.Sc, Dr. Natalia Walczak, Eng. (Univ. of Life Sciences, Poznań, Poland) **Assessments of depositing fine plant debris in river floodplain channels.**
7. Dr. R. Kawa (SPZ Poland, sp-a z o.o.) **The example of the application of the computer image analysis in ecological research.**
8. Dr. Krzysztof Kud (Rzeszów University of Technology, Poland) **The influence of alluvial process on the content of phosphorus in the riparian environment as a determinant of the use of space of river valleys**
9. Dr. A. Lenart, Dr. Katarzyna Wolny-Kołodacka (University of Agriculture in Krakow) **The determination of the occurrence and genetic diversity of *Azotobacter* spp. isolated from industrial and agricultural soils in Nowa Huta, Cracow.**

10. O. Leniv (Ivano-Frankivsk National Technical University of Oil and Gas), B. Patuła, M.Sc. (AGH-UST), K. Suzuki (Tokyo University, Japan), A. Wagner, Ph.D. (AGH-UST) **Eco-Tourist potential of the community of Liszki, district of Krakow, Poland.**
11. Dr. M. Makowska (Univ. of Life Sciences, Poznań, Poland) **Characterisation and fractionation of organic substrates in sewage processed in small treatment plants.**
12. J. Mazurkiewicz M.Sc. Eng., R. Mazur Ph.D., J. Bykowski Ph.D. Eng. (Univ. of Life Sciences, Poznań, Poland), P. Zakrzewski Ph.D. Eng. (Poznań University of Technology) **Technical and economic assessment of SBR on-site wastewater treatment plants with the computer simulation.**
13. Dr. K. Pilarski, Dr. J. Dach, D.Sc., Dr. R. Mazur, A. Lewicki, M.Sc., D. Janczak, M.Sc., W. Czekala, M.Sc., J. Mazurkiewicz, M.Sc. Eng. (Univ. of Life Sciences, Poznań, Poland) **The influence of different treatments of slurry on physico-chemical changes and gaseous emissions**
14. M. Pluta, M.Sc. Eng., J. Janowicz, M.Sc. Eng. (Univ. of Life Sciences, Poznań, Poland) **Studies on the European wheat stem sawfly (*Cephus pygmaeus* L.**
15. Prof. J. Przybył, Ph.D. D.Sc., Prof. R. Gaj, Ph.D. D.Sc., Prof. Dr. J. Dach, D.Sc., Dr. M. Adamski, N. Mioduszevska, M.Sc., D. Wojcieszak, M.Sc., Dr. R. Mazur (Univ. of Life Sciences, Poznań, Poland) **Possibilities of using pulp from a biogas plant in sustainable agriculture**
16. M. Rymarczyk, M.Sc. (AGH-UST), Dr. P. Lewicki (Cracow University of Technology), M. Rasała, M.Sc. (AGH-UST) **Enhancement of the efficiency of biodegradation of petroleum contamination of soil by laser stimulation of native microorganisms.**
17. Dr I. Schneider, Prof.Dr.Y. Topalova (Faculty of Biology, Sofia St. Kliment Ohridski University) **Dairy wastewater management: basic principles and innovative ecological decisions for problem-solving.**
18. Dr M. Śliwka, Eng., Dr. A. Baran, Eng. (AGH-UST) **Evaluation of the ecotoxicological properties of flotation tailings in the reservoirs Gilów Deposited.**
19. Drs. A. Szabó, R. Kemper, A. Balla-Kovács, N. Bákonyi , A. Jakab, I. Vágó (Univ. of Debrecen) **Effects of application different compost rates on the water balance of test plant (*Lolium perenne* L.**
20. Dr. T. Tymiński, Eng. (Wrocław University of Environmental and Life Sciences) , Dr. Tomasz Kałuża, D.Sc., Eng. (Poznań University of Life Sciences) **Laboratory investigation on flow conditions in the “near-natural” fishways focused on vegetation**
21. Dr. K. Urbański, Eng. (AGH-UST) **The use of multilayer perceptrons in imaging spatial distribution of soil pollution with zinc**
22. Prof. Dr. T. Yamamoto, Ph.D. (Dept. of Life Sciences and Bioengineering, Faculty of Engineering, University of Toyama) **Extraction of mixed organic acids using dioctylamine dissolved in organic diluent from aqueous solution.**
23. Zhou Mo, M.Sc., Dr. J. Dach, D.Sc., Dr. K. Pilarski, Prof. J. Przybył, Ph.D. D.Sc., Dr. A. Lewicki, M.Sc., D. Janczak, M.Sc. (Univ. of Life Sciences, Poznań) **The maize straw usage as new co-substrate in agricultural biogas plants.**