



3rd International Conference on the Sustainable Energy and Environmental Development
October 16-18, 2019 – Kościuszko Mound in Kraków (Poland)

CONFERENCE PROGRAM

Day 1 – October 16, 2019 (Wednesday)

| TIME | POSITION |
|-------------|--|
| 8.30-10.00 | REGISTRATION |
| 10.00-10.30 | <p>OPENING CEREMONY</p> <ul style="list-style-type: none"> - K. Szramowiat – <i>Chair of the Organizing Committee</i> - M. Filipowicz – <i>Chair of the Scientific Committee</i> - M. Rokosz - <i>President of Kościuszko Mound Committee</i> - M. Skóra – <i>representative of Kościuszko Mound in Krakow</i> |
| 10.30-11.30 | <p>OPENING SESSION I</p> <p><i>Chairman: K. Szramowiat-Sala, R. Figaj</i></p> <ul style="list-style-type: none"> - F. Calise, M. Vicidomini University of Naples Federico II <i>Polygeneration systems fed by renewables: a novel paradigm for a sustainable production of electricity, heat, cool and water</i> - P. Bielaczyc BOSMAL Automotive Research and Development Institute Ltd <i>Global development of emissions reduction from light duty vehicles and its impact on propulsion technology</i> |
| 11.30-11.40 | COFFEE BREAK |
| 11.40-12.00 | <p>SPONSOR PRESENTATION</p> <ul style="list-style-type: none"> - Wojciech Szwed, Andreas Vilshöver, G.U.N.T. Gerätebau GmbH <i>Energy&Environment – professional equipment for engineering education</i> |
| 12.00-12.45 | <p>ENERGY SYSTEMS AND MARKETS</p> <p><i>Chairman: F. Calise, P. Bielaczyc</i></p> <ul style="list-style-type: none"> - R. J. Thorne, E. Figenbaum, D. Pinchasik, I.B. Hovi TØI Institute of Transport Economics <i>Norwegian electric vehicle market: barriers and enablers to growth</i> |

| | |
|-------------|--|
| | <p>- P. Benalcazar, A. Suski, J. Kamiński Polish Academy of Sciences <i>The effects of financial incentives and subsidy policies on the optimal design of stand-alone hybrid energy systems</i></p> <p>- M. Pluta, A. Wyrwa, W. Suwała, J. Zyśk AGH University of Science and Technology <i>Unit commitment and dispatch model of the Polish power system</i></p> |
| 12.45-13.30 | LUNCH |
| 13.30-14.30 | <p style="text-align: center;">COMBINED HEAT AND POWER APPLICATIONS</p> <p>Chairman: <i>M. Filipowicz, P. Benalcazar</i></p> <p>- A. Macaluso, L. Vanoli, M. Sasso, F. Ceglia University of Naples "Parthenope" <i>Pre-Feasibility Assessment of a Geothermal Polygeneration System in the Sub-Urban Area of Naples</i></p> <p>- R. Figaj, M. Filipowicz AGH University of Science and Technology <i>Energy-economic analysis of a small-scale hybrid trigeneration system including biomass-fired steam cycle and wind turbine</i></p> <p>- K. Sornek, M. Filipowicz AGH University of Science and Technology <i>Experimental analysis of the prototypical micro CHP system powered by biomass-fired boiler and operates according to a modified Rankine Cycle</i></p> <p>- M. Jankowski, A. Borsukiewicz West Pomeranian University of Technology <i>A novel exergy indicator for maximizing energy utilization in low-temperature ORC</i></p> |
| 14.30-15.15 | POSTER SESSION I/ COFFEE BREAK |
| 15.15-16.15 | <p style="text-align: center;">BIOMASS BASED ENERGY SOURCES AND FUELS</p> <p>Chairman: <i>S. Di Fraia, S. Baral</i></p> <p>- S. Fabozzi, S. Di Fraia University of Naples "Parthenope" <i>A novel methodology to evaluate the potential biomass from agricultural and forest residues for a south Mediterranean region</i></p> <p>- S.N. Ugwu, Ch. Enweremadu University of South Africa <i>Ranking of Energy Potentials of Agro-industrial Wastes: Bioconversion and Thermoconversion Approach</i></p> <p>- M. Dołżyńska University of Białystok <i>Agglomeration and combustion of plum stones</i></p> <p>- M. Karczewski AGH University of Science and Technology <i>Industrial wastes as a substitute for catalytic material during steam gasification</i></p> |

| | |
|-------------|--|
| 16.15-16.30 | COFFEE BREAK |
| 16.30-17.30 | <p>TRANSPORT APPLICATIONS AND EMISSIONS</p> <p><i>Chairman: M. König, M. Karczewski</i></p> <p>- A. Adam, F. Othman, N. Syuhaida, K. Kamarulzaman Universiti Malaysia Pahang <i>Performance and Emission Characteristics of Single Cylinder Diesel Engine Fueled with Organic Germanium</i></p> <p>- N. Baycan Dokuz Eylul University <i>Determination of carbon footprint of automobile origin in Izmir city</i></p> <p>- K. Rudykh, M. Struglik, J. Wiszniewski AGH University of Science and Technology <i>Analysis of photovoltaic cells for powering a solar airplane and evaluation of the impact on the environment</i></p> <p>- K. Kurtyka, J. Pielecha, J. Merkisz Poznan University of Technology <i>The evaluation of NO_x emissions in RDE tests including dynamic driving condition</i></p> |
| 17.30-20.00 | FREE TIME |
| 20.00-23.00 | <p>OFFICIAL GALA DINNER</p> <p>Kościuszko Mound in Kraków</p> |

Day 2 – October 17, 2019 (Thursday)

| TIME | POSITION |
|------------|---|
| 8.30-9.00 | REGISTRATION |
| 9.00-10.00 | <p>OPENING SESSION II</p> <p><i>Chairman: M. Marczak, W. Goryl</i></p> <p>- S. Di Fraia, N. Massarotti, L. Vanoli University of Naples "Parthenope" <i>Energy efficiency in wastewater treatment plants</i></p> <p>- A. Lewandowska, M. Staniszevska, K. Wiśniewska, M. Machuta, K. Bodziach University of Gdańsk <i>Toxic and hazardous substances in PM₁ and PM_{2.5} aerosols over Gdynia</i></p> |

| | |
|-------------|---|
| 10.00-10.15 | COFFEE BREAK |
| 10.15-11.15 | <p style="text-align: center;">SIMULATION OF ENERGY SYSTEMS I</p> <p><i>Chairman: S. Fabozzi, P. Olczak</i></p> <p>- M. Vicidomini, F. Calise, J. Schumacher, U. Eicker University of Naples Federico II <i>Wastewater treatment plant: model of an activated sludge process for the energy demand analysis</i></p> <p>- F. Diawuo, P.C. Baptista, C.A. Silva, S. de la Rue du Can Instituto Superior Tecnico <i>Assessing the impact of demand response on peak demand in a developing country: The case of Ghana</i></p> <p>- M. Żołądek, K. Sornek, R. Figaj, K. Papis, M. Filipowicz AGH University of Science and Technology <i>Techno-economic analysis of a straw-fired CHP system</i></p> |
| 11.00-11.15 | COFFEE BREAK |
| 11.15-12.30 | <p style="text-align: center;">ATMOSPHERE EMISSIONS AND ENVIRONMENTAL IMPACT</p> <p><i>Chairman: A. Lewandowska, N. Baycan</i></p> <p>- S. Manjare Birla Institute of Technology and Science <i>Studies on dispersion of fugitive emissions of bauxite particles released from handling of cargo at lower heights</i></p> <p>- J. Zyśk AGH University of Science and Technology <i>Impact of reduction of CO2 emissions in the households and tertiary sector on air quality and human health</i></p> <p>- M. Gis, J. Pielecha Motor Transport Institute <i>The legitimacy of using the Mild Hybrid system in passenger cars equipped with downsized engines</i></p> <p>- P. Rybowicz, A. Adamski Jagiellonian University <i>Key parameters of fly ashes generated from industrial energy sector decisive for their pro-ecological applications</i></p> <p>- M. Rzeszutek, A. Szulecka AGH University of Science and Technology <i>Assessment of the AERMOD dispersion model in a complex terrain with different types of digital elevation data</i></p> |

| | |
|-------------|---|
| 12.30-13.15 | LUNCH |
| 13.15-13.30 | GROUP PHOTO |
| 13.30-14.30 | <p style="text-align: center;">RENEWABLE AND ALTERNATIVE FUELS</p> <p><i>Chairman: R. Jasiński, P. Rybowicz</i></p> <ul style="list-style-type: none"> - S. Baral, M. Dileep, K. Janaki, A. Moses Birla Institute of Technology and Science <i>Hydrogen production potential from the paper and pulp industries wastewater in India</i> - M. Filipowicz AGH University of Science and Technology <i>Cold nuclear fusion in metal deuterides environment as possible energy technology?</i> - M. König, I. Hartmann DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH <i>Emission reduction process for the energetic use of biogenic residues</i> - T. Mirowski, M. Jach-Nocoń, T. Konkol Polish Academy of Sciences <i>Legal and technical barriers for non-wood biomass fuels used in 5-class small boilers</i> |
| 14.30-14.45 | COFFEE BREAK |
| 14.45-15.45 | <p style="text-align: center;">SIMULATION OF ENERGY SYSTEMS II</p> <p><i>Chairman: A. Macaluso, M. Jankowski</i></p> <ul style="list-style-type: none"> - M.A. Aydin, Gul K. Oral Istanbul Technical University <i>Energy efficiency in the settlement texture through the use of BIM</i> - P. Olczak, D. Matuszewska Polish Academy of Sciences <i>Evaluation of using gas turbine to increase efficiency of organic Rankine cycle (ORC)</i> - B. Twaróg Cracow University of Technology <i>CFD analysis for an eco-friendly Alden turbine system</i> - K. Papis, M. Szubel, M. Filipowicz AGH University of Science and Technology <i>Variant analysis of hybrid solar collector construction using CFD</i> |
| 15.45-16.30 | POSTER SESSION II/ COFFEE BREAK |

| | |
|-------------|--|
| | EFFICIENCY AND RENEWABLE ENERGY APPLICATIONS <i>Chairman: M. Vicidomini, M.A. Aydin</i> - B. Radomski , F. Kowalski Poznan University of Technology <i>The air direct-contact, gravel, ground heat exchanger - application in single-family residential passive buildings</i> - M. Drygaś , K. Kapusta, J.F. Janik, S. Stelmakh, S. Gierlotka, B. Palosz AGH University of Science and Technology <i>Sintered nitride nanopowders in the system AlN/GaN/AlxGa1-XN – new materials for highly efficient light emitters</i> - R. Duda Cracow University of Technology <i>The long-term use of solar energy for cooling in the adsorption cycle</i> - H. Stinia , K. Kukliński, A. Jaiswal, R. Fadnavis, N. Dhote, G. Gadge, M. Dudek, A. Razniak AGH University of Science and Technology <i>The Light-On Project: Design and Construction of a Sun-Tracking System Using Image Processing</i> |
| 16.30-17.30 | |
| 17.30-17.40 | CLOSING CEREMONY |
| 17.40-20.00 | FREE TIME |
| 20.00-23.00 | NOT-SO-FORMAL EVENING House of Beer Saint Tomasz Str. 35, Krakow |

Day 3 – October 18, 2019 (Friday)

| TIME | POSITION |
|-------------|--|
| 9.00-11.00 | TECHNICAL VISIT AT AGH UST Start: Faculty of Energy and Fuels (AGH UST in Krakow) Mickiewicza Av. 30, building D-4, room 101 |
| 11.30-15.00 | TRIP AROUND KRAKOW Start: Main Square in Krakow |

POSTER SESSION 1 – October 16, 2019 (Wednesday)

| NO. | POSITION |
|-----|---|
| 1 | <p>- M. Popek Gdynia Maritime University <i>The concept of sustainable development of maritime transport</i></p> |
| 2 | <p>- A. Korzeniewska, K. Szramowiat-Sala, K. Sornek, J. Gołaś, M. Filipowicz AGH University of Science and Technology <i>Chemical composition of products emitted in residential heating</i></p> |
| 3 | <p>- A. Korzeniewska, K. Szramowiat-Sala, J. Gołaś AGH University of Science and Technology <i>Comparison of chemical properties of solid particles emitted in residential heating of wood and briquette</i></p> |
| 4 | <p>- J. Jurca, P. Horák Brno University of Technology <i>Observation of sustainable building development scenarios regarding to carbon footprint and overall global warming</i></p> |
| 5 | <p>- M. Marczak AGH University of Science and Technology <i>Effect of temperature on gas-phase mercury adsorption process with the use of organic sorbents</i></p> |
| 6 | <p>- F. Wierońska-Wiśniewska, D. Makowska AGH University of Science and Technology <i>Investigation of the mode of occurrence of arsenic in coal</i></p> |
| 7 | <p>- M. Orczyk, F. Tomaszewski Poznan University of Technology <i>Measurement and analysis of acoustic phenomena occurring in public transport buses based on surveys and field study</i></p> |
| 8 | <p>- W. Gis Motor Transport Institute <i>Comparative studies of road emission of pollution emission of urban city bus with an engine powered with compression ignition powered by diesel fuel and, an engine with spark ignition powered by CNG in real traffic conditions</i></p> |
| 9 | <p>- J. Pielecha, M. Gis, K. Skobiej, K. Kurtyka Poznan University of Technology <i>The ecological evaluation of Euro 5/Euro 6 passenger cars regarding particulate emissions</i></p> |
| 10 | <p>- R. Jasiński Poznan University of Technology <i>Methodology of ultrafine particles emission assessment from combustion engines for various applications</i></p> |
| 11 | <p>- P. Rybowicz, A. Adamski Jagiellonian University <i>Challenging pathways of exploitation of fly ashes generated from energy sector as the prominent example of circular economy</i></p> |
| 12 | <p>- W. Goryl, M. Filipowicz AGH University of Science and Technology in Krakow <i>Dedicated straw dryer: measurements of straw drying and thermography</i></p> |

| | |
|----|--|
| 13 | <p>- M. Gis Motor Transport Institute <i>Initial assessment of the legitimacy of limiting the maximum permissible speed of vehicles on thoroughways and motorways based on tests of road exhaust emissions these vehicles in real traffic conditions</i></p> |
| 14 | <p>- B. Puchałka, B. Adamiak, A. Szczotka, P. Bielaczyc BOSMAL Automotive Research and Development Institute Ltd <i>The influence of the fuel on the exhaust emissions and fuel consumption of a vehicle equipped with a large displacement spark ignition engine</i></p> |
| 15 | <p>- K. Szramowiat-Sala, K. Styszko, L. Samek, M. Kistler, M. Macherzyński, A. Korzeniewska, P. Bielaczyc, A. Kasper-Giebl, J. Gołaś Technische Universität Wien <i>The difference in chemical properties of particulate matter from stationary and mobile sources – the preliminary case study</i></p> |
| 16 | <p>- F. Wierońska-Wiśniewska, D. Makowska AGH University of Science and Technology in Krakow <i>Impact of selected factors on the partitioning of thallium in coal combustion process</i></p> |
| 17 | <p>- W. Pacura AGH University of Science and Technology <i>Identification of the factors affecting the scale of the particulate emission in gasoline vehicles</i></p> |
| 18 | <p>- A. Kot-Niewiadomska Polish Academy of Science <i>Possibilities of open-cast mining activity in landscape parks in Poland – case study</i></p> |
| 19 | <p>- M. Karczewski AGH University of Science and Technology <i>Industrial wastes as a substitute for catalytic material during steam gasification</i></p> |
| 20 | <p>- S. Budzyń, K. Kogut, M. Marczak, T. Olkusi, B. Tora AGH University of Science and Technology <i>Coal floatability – investigation on hydrophily on surface</i></p> |
| 21 | <p>- P. Blasinski Vysoké učení technické v Brně <i>Energy saving during fan operation based on prediction of internal CO₂ concentration growth</i></p> |
| 22 | <p>- D. Kurczyna, J. Wiercioch, W. Gębarowski, I. Swatek AGH University of Science and Technology <i>Improving the power efficiency of solar powered electric boat on an example of AGH Solar Boat</i></p> |
| 23 | <p>- M. Peplowska, D. Kryzia, L. Gawlik Polish Academy of Sciences <i>Mining in national accounts</i></p> |
| 24 | <p>- J. Markowski, M. Dudek, M. Walkowiak, M. Nowacki, G. Gramza, J. Mądry, B. Firlik Poznan University of Technology <i>Evaluation of the possibility of using a hybrid energy generation system with fuel cell for driving diesel locomotives</i></p> |
| 25 | <p>- S. Di Fraia, S. Fabozzi, A. Macaluso, N. Massarotti, L. Vanoli University of Naples “Parthenope” <i>Energy potential of residual biomass from agro-industry in Campania region (southern Italy): economic and environmental sustainability</i></p> |

POSTER SESSION 2 – October 17, 2019 (Thursday)

| NO. | POSITION |
|-----|--|
| 1 | <p>- M. Oettingen AGH University of Science and Technology <i>Monte Carlo methods for numerical simulations of the Lead-Cooled Fast Reactor</i></p> |
| 2 | <p>- D. Kryzia, M. Kopacz, K. Kryzia Polish Academy of Sciences <i>The valuation of the operational flexibility of the energy investment project based on gas power generation technology</i></p> |
| 3 | <p>- P. Kut, S. Rabczak Rzeszow University of Technology <i>The impact of the wind farm on the voltage level in the point of connection to the power grid</i></p> |
| 4 | <p>- D. Proszak- Miąsik, K. Nowak Rzeszow University of Technology <i>The use of straw for energy purposes</i></p> |
| 5 | <p>- S. Rabczak, P. Kut, S. Sikora Rzeszow University of Technology <i>Comparison of energy and cost efficiency of selected types of low heat source heat exchangers for heat pump</i></p> |
| 6 | <p>- A. Drygała Silesian University of Technology <i>Influence of TiO₂ film thickness on photovoltaic properties of dye-sensitized solar cells</i></p> |
| 7 | <p>- K. Guzik, A. Burkowicz Polish Academy of Sciences <i>The major factors influencing a security of the critical raw materials supplies for the renewable energy sector in the EU</i></p> |
| 8 | <p>- Sz. Kuczyński, K. Liszka, M. Laciak, A. Oliinyk, A. Szurlej AGH University of Science and Technology <i>Experimental investigations and operational performance analysis on compressed natural gas home refueling system (CNG-HRS)</i></p> |
| 9 | <p>- M. Drygaś AGH University of Science and Technology <i>Approach to make kesterite quantum dots – a perspective material for photovoltaics</i></p> |
| 10 | <p>- C. Czosnek, H. Osip, J. Janik AGH University of Science and Technology <i>Silicon nitride-based materials prepared by the aerosol-assisted synthesis method as potential components of solar energy gain systems</i></p> |
| 11 | <p>- R. Korzeniowska-Ginter Gdynia Maritime University <i>Influence of the pot and lid type on the amount of energy consumed for cooking dishes</i></p> |
| 12 | <p>- P. Benalcazar, J. Kaminski Polish Academy of Sciences <i>Operational flexibility of combined heat and power plants with thermal energy storage</i></p> |
| 13 | <p>- D. Olejniczak, M. Nowacki, G. Wieczorkiewicz Poznan University of Technology <i>Problems of energy recovery in the process of plastics gasification</i></p> |

| | |
|----|---|
| 14 | - J. Markowski , M. Dudek, M. Walkowiak, D. Olejniczak, J. Mądry, G. Wieczorkiewicz, R. Roszak Poznan University of Technology <i>Methanol reforming as a source of hydrogen for vehicle propulsion</i> |
| 15 | - M. Wichliński Czestochowa University of Technology <i>Low-temperature thermal treatment of Polish brown coals</i> |
| 16 | - P. Olczak, D. Matuszewska Polish Academy of Sciences <i>An assessment of solar-powered organic Rankine cycle systems for combined heating and power for Polish condition</i> |
| 17 | - M. Kumor , S. Porada AGH University of Science and Technology <i>Polish LNG terminal influence on natural gas quality available in the polish gas transmission network</i> |
| 18 | - K. Krasowska , A. Heimowska Gdynia Maritime University <i>Behaviour of polylactide during degradation in natural aqueous environment</i> |
| 19 | - A. Heimowska , K. Krasowska Gdynia Maritime University <i>Comparison of degradation time of selected packaging materials in the Baltic Sea</i> |
| 20 | - M. Bogalecka Gdynia Maritime University <i>Mitigation of sea accident consequences</i> |
| 21 | - R. Oleniacz , T. Gorzelnik, M. Bogacki AGH University of Science and Technology <i>Impact of urban, suburban and industrial background on air pollution levels of dust substances in North-Eastern part of Krakow (Poland)</i> |
| 22 | - K. Sornek , A. Korzeniewska, K. Szramowiat-Sala AGH University of Science and Technology <i>Energy and environmental aspects of operation of the micro-CHP unit with wood-fired stove and thermoelectric generator</i> |
| 23 | - M. Morawska , A. Kukułowicz Gdynia Maritime University <i>Investigation of physicochemical and antimicrobial properties of modified kuzu starch films for wound dressing</i> |
| 24 | - K. Nowak Rzeszow University of Technology <i>Initial comparative analysis of gas pollution concentrations of an engine running on LPG and gasoline</i> |
| 25 | - A. Dereszewska , S. Cytawa Gdynia Maritime University <i>A proposal of low-cost technology for nutrient recovery from leachate of anaerobic digester at a biological wastewater treatment plant</i> |
| 26 | - G. Czerski , K. Zubek AGH University of Science and Technology <i>Assessment of the risk of poisoning by combustion products from gas appliances using CFD modeling</i> |
| 27 | - M. Żołądek , R. Figaj AGH University of Science and Technology <i>Mechanical and chemical properties of leaf- and scobs made pellets</i> |