

PRELIMINARY CONFERENCE PROGRAM

The 10th IASTED European Conference on Power and Energy Systems (EuroPES 2011)

> June 22 - 24, 2011 Crete, Greece

LOCATION

Aldemar Knossos Royal Village Limenas Hersonissou 700, 14 Crete, Greece

POWER AND ENERGY SYSTEMS (EuroPES 2011)

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KEYNOTE SPEAKER

Prof. T. Korakianitis - Queen Mary University of London, UK

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PLEASE NOTE

- Paper presentations are 15 minutes in length with an additional 5 minutes for questions.
- Report to your Session Chair 15 minutes before the session is scheduled to begin.
- Presentations should be loaded onto the presentation laptop in the appropriate room prior to your session.
- End times of sessions vary depending on the number of papers scheduled.

PROGRAM OVERVIEW

Wednesday, June 22, 2011

- 07:00 Registration (Lobby)
- 08:00 EuroPES Welcome Address 08:15 (*Hermes Room*)
- 08:15 EuroPES Session 11 Strategy and Electricity Markets (Grand Room)
- 08:30 EuroPES Session 9 Reliability Modeling and Simulation (Hermes Room)
- 10:00 Coffee Break 10:30 (*TBA*)
- 10.30 (IDA)
- 10:30 EuroPES Session 9 Continued (Hermes Room)
- 10:30 EuroPES Session 12 Testing of Electrotechnical Apparatus (Grand Room)
- 12:00 Lunch Break (Self-Catered)
- 14:00 EuroPES Keynote Speaker "Global Energy Review, and the role of the Future Biofuels and Surrogate Fuels" – Prof. T. Korakianitis (Hermes Room)
- 15:00 Coffee Break
- 15:30 (TBA)
- 15:30 EuroPES Session 4 Distribution Systems (Hermes Room)

Thursday, June 23, 2011

- 08:15 EuroPES Session 5 Power Electronics (Hermes Room)
- 10:15 Coffee Break 10:45 *(TBA)*
- 11:00 EuroPES Session 13 Applications (Grand Room)

- 11:00 SIPA/EuroPES Keynote Speaker "Imaging Industrial Processes by Electrical Capacitance Tomography" – Prof. Wuqiang Yang (Orpheas Room)
- 12:00 Lunch Break (Self-Catered)
- 14:00 EuroPES Session 2 Renewable Energy I (Hermes Room)
- 14:00 EuroPES Session 6 Energy Storage (Grand Room)
- 15:00 Coffee Break 15:30 *(TBA)*
- 15:30 EuroPES Session 6 Continued (Grand Room)
- 16:15 EuroPES Session 7 Electrical Safety (Grand Room)
- 19:00 Dinner Banquet (*TBA*)

Friday, June 24, 2011

- 09:00 EuroPES Session 3 Renewable Energy II (Hermes Room)
- 10:30 Coffee Break 11:00 (*TBA*)
- 11:00 EuroPES Session 3 Continued (Hermes Room)
- 12:00 Lunch Break (Self-Catered)
- 14:00 EuroPES Session 10 FACTS (Hermes Room)
- 14:00 EuroPES Session 1 Power System Operation (Grand Room)
- 15:30 Coffee Break 16:00 *(TBA)*
- 16:00 EuroPES Session 1 Continued (Grand Room)
- 16:00 EuroPES Session 8 Energy Efficiency (Hermes Room)

Wednesday, June 22, 2011

07:00 – **REGISTRATION** *Location: Lobby*

08:30 – 08:15 EUROPES WELCOME ADDRESS Location: Hermes Room

08:15 – EUROPES SESSION 11 – STRATEGY AND ELECTRICITY Chair: TBA

Location: Grand Room

714-084

Determination of Tariff for Wheeling Contracts Considering Fairness Congestion Cost Allocation *Amir Bashian, Toktam Sharifian Attar, Mohammad Hossein Javidi, and Mehrdad Hojat (Iran)*

714-101

Environmental/Economic Load Dispatch under Carbon Reduction Policies with Particle Swarm Optimization

Jae-Kun Lyu, Wook-Won Kim, Yong-Tae Yoon, and Jong-Keun Park (South Korea)

714-159

An Investigation of Strategic Behavior by a Reserve Provider in the Joint Energy and Reserve Market *Kai Liu, Jin Zhong (PR China), David P. Camara (Spain), and Yunhe Hou (PR China)*

714-161

Co-Benefits of Internalizing Local Air Pollution Costs in India's Power Sector

Ryo Eto, Akinobu Murata, Yohji Uchiyama, and Keiichi Okajima (Japan)

714-013

A Fuzzy Controller based Demand-Side Management System Design for Optimization of Induction Furnaces

Lungile Nyanga and Samson Mhlanga (Zimbabwe)

714-077

A Statistical Approach in Determining the Electrical Short Term Demand in a Rapid Railway System *Grant Manuel and Jan-Harm C. Pretorius (South Africa)*

08:30 – EUROPES SESSION 9– RELIABILITY MODELLING AND SIMULATION Chair: TBA

Location: Hermes Room

714-044

Procedure for Investigating the Planned and Operational Reliability of Transmission Networks with *Ron Herman, Charles T. Gaunt, and Milton Edimu* (South Africa)

714-050

Appropriate Statistical Load Models for Light Industrial Electrification Pierre van Rhyn, Jan-Harm Pretorius, and Ronald Herman (South Africa)

714-051

Derivation of Electrical Design Algorithms for Light Industrial Parks Pierre van Rhyn, Jan-Harm Pretorius, and Ronald Herman (South Africa)

714-087

Physical Modeling and Laboratory Testing of Cairo-Aswan 3-Phase High Voltage Transmission Line *Rania M. Sharkawy (Egypt)*

714-129

Development of Methodology for Assessment of Reliability of Pipeline Networks Sigitas Rimkevicius, Algirdas Kaliatka, Mindaugas Valincius, Gintautas Dundulis, Albertas Grybenas, and Inga Zutautaite-Seputiene (Lithuania)

714-178

Modelling and Simulation of Combined Cycle Power Plants Participating in Network Frequency Mohammad Hadi Mazhab Jafari, Ali Mazhab Jafari, and Kamal Saidabadi (Iran)

714-191

Model Structure of Generalized Load and Combined Method for Parameter Determination Yuqing Jin, Changpei Gao, Bin Sun, Guosong Wang, Ping Ju, and Xiaowen Gu (PR China)

714-197

Numeric Oscillations Decreasing in Electromagnetic Transient Simulations due to the Variation of the Circuit Quantity used for the Transmission Line Representation

Leonardo S. Lessa, Afonso J. Prado, Sérgio Kurokawa, José Pissolato Filho, and Luiz F. Bovolato

10:00 – 10:30 COFFEE BREAK *Location: TBA*

10:30 – EUROPES SESSION 9 CONTINUED (Hermes Room)

10:30 – EUROPES SESSION 12 – TESTING OF ELECTROTECHNICAL APPARATUS *Chair: TBA*

Location: Hermes Room

714-017

Determination of Overvoltages in High Voltage Networks at Single Phase Faults by Numerical Simulation and Experiments *Curcanu George, Toader Dumitru, and Toaxen Vasile (Romania)*

714-086

Application of Modified Sequential Floating Forward Feature Selection to Partial Discharge Patterns *Rania M. Sharkawy and Karim I. Mohamedeen (Egypt)*

714-162

Partial Discharges Measurements on Coated and Non-Coated Solid Dielectric in Air George K. Soulinaris, Constantinos D. Halevidis, Fotini S. Karagrigoriou, Peris G. Halaris, and Perikles D. Bourkas (Greece)

714-109

Consumed Electrical Power in Fuse Cases of Low Voltage Electrical Boards Fotini S. Karagrigoriou, Panagiotis I. Mouzakitis, John D. Koustellis, Emmanuel I. Koufakis, and Constantinos G. Karagiannopoulos (Greece)

714-169

The Average Value of Electronic Energy during Dielectric Ageing of Polymeric Solid Insulators under HVAC Stress

Peris G. Halaris, John S. Katsanis, George K. Soulinaris, John D. Koustellis, and Aikaterini D. Polykrati (Greece)

12:00 – LUNCH BREAK

Self-Catered

14:00 – EUROPES KEYNOTE SPEAKER – "GLOBAL ENERGY REVIEW, AND THE ROLE OF THE FUTURE BIOFUELS AND SURROGATE FUELS"

Presenter: Prof. T. Korakianitis(UK) Location: Hermes Room

The current global power use is about 15 TW (annual energy use about 500 EJ), and about 14% of this use is for transportation. The global potentials are as follows: 1-2 TW hydroelectric; less than 1 TW wave and tidal; 70 TW wind; well over 100 TW solar photovoltaic; and much larger amounts in geothermal energy. Air, sea, and long-distance land transportation needs require the use of high power-density powerplants, and liquid fuels of energy density similar to current fossil fuels. Only about 25% of future transportation needs can be met with second- and higher-generation biofuels. In the future we will likely generate surrogate liquid fuels from electricity, derived in turn from sustainable energy sources (wind, solar and geothermal). It is concluded that: we have adequate sustainable-energy supply to meet the future global energy demands; and the real threat is future lack of water and food as a result of unsustainable human population growth.

Professor Theodosios Korakianitis (a.k.a. Theodosios Alexander) accepted the Chair of Energy Engineering at Queen Mary, University of London in 2006. From 2001-2006 he was the James Watt Professor of Mechanical Engineering at the University of Glasgow, Scotland, United Kingdom. Before Glasgow he was on the faculty of the Mechancial Engineering Department at Washington University in St. Louis, Missouri, USA. His research concentrates in thermal/fluid sciences and applications on the design of power and propulsion systems, energy conversion systems, renewable energy, engineering systems and components, with emphasis on analysis; design; and their steady, unsteady and transient performance. His personal research concentrates on unsteady thermo-fluid dynamics and unsteady transport phenomena within the above themes. He is active in several international consulting activities.

15:30 – EUROPES SESSION 4 – DISTRIBUTION SYSTEMS Chair: TBA

Location: Hermes Room

714-003 Fuzzy Modeled Load Flow Solution for Unbalanced Radial Power Distribution System *Mini S. Thomas, Rakesh Ranjan (India), and Roma Raina (UAE)*

A New BPSO based Approach for Locating of Fault Indicators in Distribution Networks Vahid Rashtchi, Ahmad Ashouri, and Amir Bagheri (Iran)

714-045

Considerations about a New Type of High Breaking Capacity Fuses *Adrian Plesca and Alina Scintee (Romania)*

714-068

Reasearch and Practise of Intelligent service restoration on county distribution system *Huajian Hu, Huan Qi, and Xuncheng Huang (PR China)*

714-071

Review of Magnetic Ballast Discharge Lamp Models Julio Molina (Venezuela), Juan Jose Mesas, and Luis Sainz (Spain)

714-072

Experimental Measurements of Fluorescent Lamp Harmonic Current Emissions and Their Impact on Neutral Current

Jordi Cunill-Solà, Juan Jose Mesas, and Luis Sainz (Spain)

714-056

The Economical PQMS Construction Case in the Distribution Power System

Young-Up Park, Byung-Sung Lee, and Won-Suk Choi (Korea)

714-200

The inclusion of a fuel cell model in a power flow algorithm Gladis G. Suarez-Velazquez, Jazmin Ortiz- Guerrero, and Cesar Angeles-Camacho (Mexico)

15:00 – 15:30 COFFEE BREAK *Location: TBA*

15:30 - EUROPES SESSION 4 CONTINUED

Thursday, June 23, 2011

08:15 – EUROPES SESSION 5 – POWER ELECTRONICS

Chair: TBA Location: Hermes Room

714-012

Study of a Three-Phase Shunt Active Power Filter Controlled using the Method of "Equivalent *Mihail H. Antchev, Vanjo T. Gourgoulitsov, Mariya P. Petkova, and Hristo M. Antchev (Bulgaria)*

714-116

Application of Wavelet Packets in Power Line Communications *Ehsan Sheybani and Nasser Rashidi (USA)*

714-145

Consumption of the Electric Energy at Tramway with Resistors and Transistors Control *Jiri Kubín (Czech Republic)*

714-156

Study, Design and Implementation of A High Efficiency AC-DC-AC SMPS with Soft Switching Characteristics *Fernando L. Tofoli and Carlos Alberto Gallo (Brazil)*

714-175

A Marine Electric Propulsion System with Poly-Phase Permanent Magnet Synchronous Motor under Full and Partial-Phase Operation *Mikhail V. Pronin, Aleksey G. Vorontsov, Grigorii A. Gogolev, and Lidia I. Osipova (Russia)*

714-179

A Decaying DC-Offset Filtering Scheme based on the Stationary Wavelet Transform Adedayo A. Yusuff, Adisa A. Jimoh, and Josiah L. Munda (South Africa)

10:15 – 10:45 COFFEE BREAK

Location: TBA

11:00 – EUROPES SESSION 13 - APPLICATIONS *Chairs: TBA*

Location: Grand Room

714-067 H2S Removal Capacity and Structural Properties of Iron-based Composite Sorbent Ailing Ren, Junyan Sun, Bin Guo, Yuhui Zhao, and Miaomiao Zhang (PR China)

Nano-Pt(Ni)/TiO2-NTs Electrocatalysts for Borohydride Oxidation Loreta Tamašauskaite-Tamašiunaite, Rasa Cekaviciute, Dijana Šimkunaite, and Algirdas Selskis (Lithuania)

714-158

Conversion of Glycerol to Gasoline Additive *Michio Ikura (Canada)*

11:00 – SIPA/EuroPES KEYNOTE SPEAKER – "IMAGING INDUSTRIAL PROCESSES BY ELECTRICAL CAPACITANCE TOMOGRAPHY"

Presenter: Prof. Wuqiang Yang (UK) Location: Orpheas Room

Electrical capacitance tomography (ECT) is an imaging technique for industrial applications. The basic principle of ECT is to measure capacitance from multiple capacitance electrodes, which surround a dielectric process, and to reconstruct cross-sectional images, aiming to visualise the dielectric process. The internal information, which can be obtained by ECT, is valuable for understanding complicated processes, verifying fluid dynamic computational (CFD) models. measurement and control. Compared with other industrial tomography modalities, ECT is the most mature and offers advantages of no radiation, rapid response, non-intrusive and non-invasive, withstanding high temperature and high pressure and low-cost.

ECT has been used for many challenging industrial applications, such as gas/oil/water flows in oil pipelines, wet gas separators, pneumatic conveyors, cyclone separators and fluidised beds. In particular, fluidised beds in the pharmaceutical industry are currently operated by trial-and-error, because of the lack of online measurement tools. As a result, the operation of the pharmaceutical fluidised beds cannot be optimised, the operation efficiency is low, and more importantly the product quality cannot be guaranteed. ECT has been used in pharmaceutical fluidised beds successfully. Test results of drying, granulation and coating processes on lab-scale, semi-industrial-scale and production-scale fluidised beds are promising.

In this keynote, the principle of ECT, including image reconstruction algorithms, will be briefly introduced. Some industrial applications, in particular pharmaceutical fluidised beds, and issues related to image processing will be discussed, together with a demonstration of an ECT system.

Professor Wuqiang Yang received BEng (with Distinction), MSc and PhD (with Distinction) degrees from Tsinghua University in Beijing. After 3 years Lecturer at Tsinghua University, he joined UMIST in 1991 and currently he is a Professor at The University of Manchester. His main research interests include industrial process tomography, especially electrical capacitance tomography (ECT), image reconstruction, sensing and data acquisition systems, electronic circuit design. instrumentation and multiphase flow measurement. Professor Yang is a Chartered Engineer, Fellow of IEE and Senior Member of IEEE. He has published 250 papers, including review articles and he reviews papers for 30 journals. He is a Visiting Professor/Science Advisor in 6 universities/organisations and an editorial board member of 4 journals. He received 1997 IEE Measurement Prize, 1997 Honeywell Prize from the Institute of Measurement and Control, 2000 IEE Ayrton Premium and 2009 IET Innovation Award Finalist. His biography has been included in Who's Who in the World, Who's Who in Science and Engineering and Who's Who in America since 2002. He is recognised by International Center for Scientific Research (France) as one of top 30 technology researchers in the world. In 2010, he was appointed IEEE Instrumentation and Measurement Society Distinguished Lecturer.

12:00 – LUNCH BREAK

Self-Catered

14:00 – EUROPES SESSION 2 – RENEWABLE ENERGY I Chair: TBA

Location: Hermes Room

714-021 TejWell Dam *Tejinder Singh (India)*

714-026

Case Study: Hydroelectric Generation Employing the Water Distribution Network in Pato Branco, Brazil Bruno Leonardo Alves da Silva, Jean-Marc S. Lafay, Fernando L. Tofoli, and Luiz Sílvio Scartazzini (Brazil)

714-052

Floating Solar Chimney Technology Scale Analysis Christos D. Papageorgiou, Michael Psalidas, and Sotiris Sotiriou (Greece)

Floating Solar Chimney Technology with Multi-Pole Generators Christos D. Papageorgiou, Sotiris Sotiriou, and Michael Psalidas (Greece)

714-083

Geo-Spatial Planning and Optimal Placement of Renewable Energy Systems Sergey Malinchik (USA)

714-147

Wind Farm Placement in Order to Congestion Management using Generation Shift Distribution Factors Seyyed Zeinolabedin Moussavi, Ali Badri, and Fazlolah Rastegar Kashkooli (Iran)

714-167

A Preliminary Study of Oil Palm Fronds for Gasification Process

Shaharin A. Sulaiman, Samson M. Atnaw, and Mohamad N.Z. Moni (Malaysia)

714-181

The Main Features of Treska Cascade Control Center Vangel V. Fustik and Nevenka Kiteva Rogleva (Macedonia)

714-120

Evaluation of Industrial Wastes and Effluents for Biomass Production under a New Process João C.A.R. Claro and Darinka C. Gonzalez (Portugal)

14:00 - EUROPES SESSION 6 - ENERGY STORAGE

Chair: TBA Location: Grands Room

714-024 Modelling and Simulation of SOFC System Jabulisile S. Mavundla, Akshay K. Saha, Nelson M. Ijumba, Leon Chetty, and Edward Chikuni (South Africa)

714-085

Effect of Round Trip Efficiency (RTE) on the Economic Performance of Energy Storage Systems *Basem R. Alamri (Saudi Arabia)*

714-088

Improvement of Stability of Large Scale Wind Power Plant by Grading Energy Storage System *Xu Yuanyuan, Qi Huan, and Sun Suqin (PR China)*

714-089

Effects on Grid Usage and Sizing of a Battery Model using Persistence Estimation Optimization *Filip Andrén, Matthias Stifter, and Johannes Kathan* (Austria)

714-128

Long-Term Hydrogen Storage Approach for 5MW Micro-Power Generator using Wind Turbines Shuang Yu, Tim J. Mays, and Roderick W. Dunn (UK)

15:00 - 15:30 COFFEE BREAK

Location: TBA

15:30 – EuroPES Session 6 Continued (Grand Room)

16:15 – EUROPES SESSION 7 – ELECTRICAL SAFETY *Chair: TBA*

Location: Grand Room

714-114

Protection of Technical Personnel from Electromagnetic Field during the Electrical Devices Overheating Test John D. Koustellis, Fotini S. Karagrigoriou, Panagiotis I. Mouzakitis, Aikaterini D. Polykrati, and Perikles D. Bourkas (Greece)

714-190

Protective Measures Against Electrical Hazards of Consumer Installations John D. Koustellis, Aikaterini D. Polykrati, John S. Katsanis, Peris G. Halaris, and Perikles D. Bourkas (Greece)

714-062

Protection from the Abruption of the Concentric Supply Cable Constantinos D. Halevidis, Aikaterini D. Polykrati, Constantinos G. Karagiannopoulos, and Pericles D. Bourkas (Greece)

714-063

Causes of Conductor Abruption during Normal Weather Conditions *Constantinos D. Halevidis, Constantinos G. Karagiannopoulos, and Pericles D. Bourkas (Greece)*

Causes of the Melting Image of a Conductor of Low Voltage Power Line Network Aikaterini D. Polykrati, Constantinos D. Halevidis, Eleftherios G. Psarros, Emmanuel I. Koufakis, and Perikles D. Bourkas (Greece)

714-193

Feasibility of Fire Ignition from Molten Particles of Electrical Appliances Panagiotis I. Mouzakitis, Constantinos D. Halevidis, George K. Soulinaris, John D. Koustellis, and Emmanuel I. Koufakis (Greece)

19:00 – DINNER BANQUET

Location: TBA

Friday, June 24, 2011

08:30 – EUROPES SESSION 3 – RENEWABLE ENERGY II Chair: TBA Location: Hermes Room

714-009 A Grid-Connected PV System based on the Buck Converter Joyce O. Gaio, Filipe R. Motta, João P.A. Grastiquini, Fernando L. Tofoli, and Carlos A. Gallo (Brazil)

714-061

Developmental and Grid-Parity Analysis of the Photovoltaic Industry of Taiwan Yenhaw Chen, Eve Hoadley, and Chunto Tso (Taiwan)

714-073

The Contribution of a PV Inverter in a Microgrid Anastasia Adamopoulou, Wolf G. Früh (UK), and Maria Samarakou (Greece)

714-098

Isolated Small Wind Power System Pieter Ehlers, Coneth G. Richards, and Dan V. Nicolae (South Africa)

714-146

Development of a DC-DC Converter with Symmetrical Output Applied in Renewable Energy Sources Humberto T. Coelho, Vanessa C. de Sá, Carlos A. Gallo, and Roberto M. Finzi Neto (Brazil)

714-166

A Framework for Analyzing Load-Carrying-Capacity of Plug-In Electric Vehicles and Impact on Solar Generators Soumyo V. Chakraborty, Sandeep K. Shukla, and James Thorp (USA)

714-198

Air Conditioning Load Control in Residential Feeders under the Presence of Distributed PV Systems *Yahia Baghzouz and Mehdi Etezadi-Amoli (USA)*

714-008

Small Scale Photovoltaic-Wind Hybrid Systems in D.R. Congo: Status and Sustainability Kanzumba Kusakana and Herman Vermaak (South Africa)

10:30 – 11:00 COFFEE BREAK

Location: TBA

11:00 – EUROPES SESSION 3 CONTINUED

(Hermes Room)

12:00 – LUNCH BREAK

Self-Catered

14:00 – EUROPES SESSION 10 - FACTS

Chair: TBA Location: Hermes Room

714-030 Novel Designs for a DC Breaker Mohamed Y. Haj-Maharsi (USA)

714-031

Improving Power System Stability by the use of SSSC-Static Synchronous Series Compensator Ali Rahnamaei, Payam Farhadi, Davoud Mostafa, Mohammad Karimi, and Mina Vajdi (Iran)

714-103

The Enhancement of Industrial Power System Operation using STATCOM Equipment with Fuzzy Logic and Genetic Algorithm Javad Khodabakhsh and Ehsan S. Parizy (Iran)

714-125

Description of the Internal State of TCSC Amos O. Anele, John T. Agee, and Adisa A. Jimoh (South Africa)

14:00 – EUROPES SESSION 1 – POWER SYSTEM OPERATION Chaim TBA

Chair: TBA Location: Grand Room

714-028

Experimental Study of Steam Turbine Blade Performance Operating in Partial Admission *Hyong-Jun Choi, Young-Ha Park, and Soo-Yong Cho* (Korea)

714-029

DC Ring Topology – A Comprehensive Solution to Mega City Power Grids Mohamed Y. Haj-Maharsi (USA)

714-082

Investment Perspectives in the Interconnection of Isolated Systems with the Mainland Grid: Crete Case Study

Emmanouil Loukarakis, Konstantinos Kalaitzakis, Eftichios Koutroulis, and Georgios Stavrakakis

714-115

Experimental Investigation of EHD Flow in Wire to Cylinder Electrode Configuration *Konstantinos N. Kiousis and Antonios X. Moronis* (*Greece*)

714-126

Urban Power Supply System's Development in Conditions of Uncertain Information Svetlana Guseva, Nataly Skobeleva, Oleg Borscevskis, and Lubov Petrichenko (Latvia)

714-141

Overview of Voltage Control and Potential Applications of Secondary Voltage Regulations in Malaysia Tenaga Nasional Berhad Grid System Sheikh Kamar B. Sheikh Abdullah, Nik Sofizan B. Nik Yusuf, Danial B. Mohd Nor, Ismail B. Musirin, and Izham B. Zainal Abidin (Malaysia)

714-192

Risk Management Methods for Service Oriented Architecture Implementation in Electric Power Nevenka Kiteva Rogleva, Vangel Fustik, and Vladimir Trajkovic (Macedonia)

15:30 – 16:00 COFFEE BREAK *Location: TBA*

Location. TDA

16:00 – EuroPES SESSION 1 CONTINUED (Grand Room)

16:00 – EUROPES SESSION 8 – ENERGY EFFICIENCY

Chair: TBA Location: Hermes Room

714-016

Energy Gain in a Cold Season using Gunny Insulation in Concrete Buildings Jahangir Payamara (Iran)

714-055

Energy Management System for Smart Grid Consumers with Advanced Usage Information *Tongdan Jin, Yijuan Lu (USA), and Chongqing Kang* (*PR China*)

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