PRES'13 Programme

Elafos Conference Room (Main Lobby)

Sunday, September 29th

17:00 Registration (Main Lobby)

19:30 *Welcome Reception (Swimming Pool Area - 11th Floor)*

Monday, September 30th

08:00 Registration (Main Lobby)

09:00 Opening Session

PRES Chair: Prof. Jiří J. Klemeš, Prof. Panos Seferlis
PRES Co-Chair: Prof. Jiří Drahoš, Prof. Ferenc Friedler, Prof. Sauro Pierucci, Prof. Petr Stehlík

Mr. Ioannis Mahairidis, Southern Aegean Region Governor (TBC)

Mr. Stathis Kousournas, Mayor of Rhodes (TBC)

Prof. Eleftherios Iakovou, Chair Department of Mechanical Engineering, A.U.Th.

Prof Jiří Drahoš, Past President of European Federation of Chemical Engineering and President of Academy of Sciences Czech Republic

Prof Panos Seferlis & Prof Jiří J Klemeš: PRES'13 Opening Presentation

09:30 Plenary Lecture I

Chair: Prof Jiří J Klemeš, Prof Sauro Pierucci

Process Integration in Sub-Ambient Processes

Gundersen T.

10:30 *Coffee Break (Main Lobby)*

Session 1.1 Process Integration for Sustainable Development

Chair: Prof Jiří J Klemeš, Prof Sauro Pierucci

11:00 Keynote Lecture

Cogeneration Improvement Based on Steam Cascade Analysis

Sun L., Doyle S., *Smith R.*

11:40 Optimization of Hybrid Renewable Power Generation Flowsheets Using Generic Structural and Temporal Models

Giaouris D., *Papadopoulos A.I.*, Ziogou C., Ipsakis D., Seferlis P., Papadopoulou S., Voutetakis S., Elmasides C.

12:00 A Two-step Solution Strategy for the Synthesis of Pinched and Threshold Heat-integrated Process Water Networks

Ibric N., *Ahmetovic E.*, Kravanja Z.

12:20 Water Allocation Network Synthesis Involving Reliability Analysis

Du J., Chen J., Li J.L., Meng Q.W.

12:40 Development of Innovative Methanol Synthesis Process Based on Self-heat Recuperation

Kansha Y., Ishizuka M., Tsutsumi A.

13:00 *Lunch (Hotel Restaurant – 10th floor)*

13:45 *Poster Session – Best Poster Contest (Elafina Conference Room – 10th floor)*

Session 1.2 Process Integration for Sustainable Development

Chair: Prof. Ferenc Friedler, Prof. Jiří Drahoš

14:30 Keynote Lecture

Total Site Heat Integration with Seasonal Energy Availability

Liew P.Y., Wan Alwi S.R., Klemeš J.J., Varbanov P.S., *Manan Z.A.*

15:10 Refinery Hydrogen Network Management with Key Factor Analysis

Deng C., Li W., Feng X.

15:30 The Role of Process Synthesis in the Systematic Design of Energy Efficient Fossil Fuel Power Plants with CO2 Capture

Anantharaman R., Jordal K., *Berstad D.*, Gundersen T.

15:50 Heat Exchanger Network Synthesis for Batch Processes by Involving Heat Storages

Du J., Yang P., Li J.L., Liu L.L., *Meng Q.W.*

16:10 *Coffee Break (Main Lobby)*

Session 1.3 Process Integration for Sustainable Development

Chair: Prof. Kazuo Matsuda, Prof. Xiao Feng

16:40 Keynote Lecture

Optimisation of Pumped-hydro Storage System for Hybrid Power System Using Power Pinch Analysis

Mohammad Rozali N.E., *Wan Alwi S.R.*, Manan Z.A., Klemeš J.J., Hassan M.Y.

17:20 Heat Transfer Area Targeting for Heat Recovery on Total Site

Boldyryev S., *Varbanov P.S.*, Nemet A., Kapustenko P., Klemeš J.J.

17:40 Enlarging the Product Portfolio of a Kraft Pulp Mill via Hemicellulose and Lignin Separation – Process Integration Studies in a Case Mill

Lundberg V., *Bood J.*, Nilsson L., Mahmoudkhani M., Axelsson E., Berntsson T.

18:00 Multi-objective Regional Total Site Integration

Čuček L., Varbanov P.S., Klemeš J.J., Kravanja Z.

18:20 Heat Integration Across Plants Considering Distance Factor

Wang Y., Wang W., Feng X.

Tuesday, October 1st

Session 1.4: Sustainable Biofuel Production

Chair: Prof. Eugeny Kenig, Dr Elvis Ahmetovic

8:30 Keynote Lecture

Integration of Biohydrogen Production with Heat and Power Generation from Biomass Residues

Wukovits W., Drljo A., Hilby E., *Friedl A.*

9:10 Optimal Design of Solar Assisted Hydrothermal Gasification for Microalgae to Synthetic Natural Gas Conversion

Mian A., Ensinas A.AV., Ambrosetti G., Marechal F.

9:30 Glycerin Revalorization Using Anaerobic Digestion of Organic Waste

Rafecas Rahuet A., Plesu V., *Bonet Ruiz J.*, Bonet Ruiz A., Llorens Llacuna J.

9:50 Bioethanol from Brewer's Spent Grains: Acid Pretreatment Optimization

Caetano N.S., Moura R.F., Meireles S., Mendes A.M., Mata T.M.

10:10 Sustainable Production of Bioparaffins

Hancsok J., Eller Z., Polczmann G., Varga Z.

10:30 *Coffee Break (Main Lobby)*

11:00 Plenary Lecture II

Chair: Prof. Truls Gundersen, Dr Hon Loong Lam

Synthesis of Water Networks with Water Loss and Gain via an Extended Pinch Analysis Technique

Feng X., Deng C.

Session 1.5: Sustainable Biofuel Production

Chair: Prof. Anton Friedl, Dr Tibor Chován

12:00 Process Simulation Tools for the Assessment of Biorefinery Processes Intensification by Ultrasounds Technology

Garcia A., Gonzalez Alriols M., Wukovits W., Friedl A., Labidi J.

12:20 Energy Integration of the Gas-cooled/water-cooled Fixed-bed Reactor Network for Methanol Synthesis

Manenti F., Leon Garzon A.R., Bozzano G.

12:40 Evaluation of Sorghum Biorefinery Concepts for Energy and Bioethanol Production

Weinwurm F., Drljo A., Theuretzbacher F., Bauer A., Friedl A.

13:00 *Lunch (Hotel Restaurant – 10th floor)*

13:45 *Poster Session – Best Poster Contest (Elafina Conference Room – 10th floor)*

Session 1.6: Industrial Application & Optimisation Design

Chair: Prof. Neven Duić, Prof. Truls Gundersen

14:30 Keynote Lecture

Life Span Production Plant Optimisation Under Varying Economic Conditions

Nemet A., Klemeš J.J., *Kravanja Z.*

15:10 Development of Modified Plug-flow Furnace Model for Identification of Burner Thermal Behaviour

Jegla Z.

15:30 Dynamic Multi-objective Synthesis of Companies' Supply-networks

Kiraly A., Pahor B., Čuček L., Kravanja Z.

15:50 Process Intensification Alternatives in the DME Production

Kiss A., Suszwalak D., Ignat R.

16:10 *Coffee Break (Main Lobby)*

Session 1.7: Industrial Application & Optimisation Design

Chair: Prof. Chakib Bouallou, Prof. Nataša Markovska

16:40 Keynote Lecture

A Derivative Approach to Minimising Total Cost in Heat Exchanger Networks Through Optimal Area Allocation

Walmsley T.G., Walmsley M.R.W, Morrison A.S., Atkins M.J., Neale J.R.

17:20 Generalized Framework for the Optimal Design of Solvent-based Post-combustion CO_2 Capture Flowsheets

Damartzis T., Papadopoulos A.I., Seferlis P.

17:40 Integration of Solar Heating Into Heat Recovery Loops Using Constant and Variable Temperature Storage

Walmsley M.R.W., Walmsley T.G., Atkins M.J., Neale J.R.

18:00 A New Batch Extractive Distillation Operational Policy for Methanol Recovery

Hegely L., Lang P., Kovacs G.

18:20 A New Solar Reactor Aperture Mechanism Coupled with Heat Exchanger

Menon A. K., Farid A., *Ozalp N.*

20:00 *Conference Gala Dinner (Swimming Pool Area – 11th Floor)*

Wednesday, October 2nd

Session 1.8: Clean Technologies - Low Emissions Technologies

Chair: Dr Jiří Hájek, Prof. Vatcheslav Kafarov

8:30 Keynote Lecture

Waste to Energy for Small Cities: Economics Versus Carbon Footprint

Ng W.P.Q., *Varbanov P.S.,* Klemeš J.J., Hegyhati M., Bertok B., Heckl I., Lam H.L.

9:10 Flue Gas Cleaning by High Energy Electron Beam – Enhancement Effects Due to Water Droplets Generation

Gogulancea V., Lavric V.

9:30 CO_2 Emission Reduction in the Cement Industry

Mikulcic H., *Vujanovic M.*, Markovska N., Filkoski R., Ban M., Duic N.

9:50 Permeable Adsorbing Barrier for Groundwater Protection from Single-compounds and Multicomponent Contamination by Chlorinated Organic Compounds

Bortone I., Di Nardo A., Di Natale M., *Erto A.*, Musmarra D.

10:10 Techno-economic Assessment of Polymeric, Ceramic and Metallic Membranes Integration in an Advanced Igcc Process for H2 Production and CO2 Capture

Koutsonikolas D., *Kaldis S.P.*, Pantoleontos G.T., Zaspalis V.T., Sakellaropoulos G.P.

10:30 *Coffee Break (Main Lobby)*

11:00 Plenary Lecture III

Chair: Prof. Panos Seferlis, Dr. Petar Varbanov

Optimization-based Process Synthesis for Sustainable Power Generation

Dowling A. W., *Biegler L.T.*

Session 1.9: Waste Minimisation, Processing and Management

Chair: Dr Zdeněk Jegla, Dr Hon Loong Lam

Keynote Lecture

12:00 The Logistic Model for Decision Making in Waste Management

Somplak R., Prochazka V., *Pavlas M.*, Popela P.

12:20 Nimo/hbeta as Catalysts with Dual Functions Beneficial to Waste Tyre Pyrolysis

Piyawongpinyo Y., *Jitkarnka S.*

12:40 Optimal Swro Network Synthesis and Design Assessment with Water Quality Insights

Alnouri S., *Linke P.*

13:00 *Lunch (Hotel Restaurant – 10th floor)*

14:00 Conference Closing: Prof. Panos Seferlis,

PRES'13 Programme

Clio Conference Room (3rd Floor)

Monday, September 30th

Session 2.1 Energy Saving Technology

Chair: Prof. Panos Seferlis, Prof. Petr Stehlík

11:00 Keynote Lecture

Low Heat Power Generation System

Matsuda K.

11:40 Exploring the Near-optimal Solution Space for the Synthesis of Distributed Energy Supply Systems

Voll P., *Hennen M.*, Klaffke C., Lampe M., Bardow A.

12:00 Active Magnetic Regenerative Heat Circulator for Energy Saving in Thermal Process

Kotani Y., Kansha Y., Tsutsumi A.

12:20 Theoretical Potential to Convert Excess Heat Into Electricity in the Finnish Industry

Jarvinen T., Holmberg H., Ahtila P.

12:40 Total Site Integration for Coke Oven Plant

Ulyev L., *Kapustenko P.*, Vasilyev M., Boldyryev S.

13:00 *Lunch (Hotel Restaurant – 10th floor)*

13:45 *Poster Session – Best Poster Contest (Elafina Conference Room – 10th floor)*

Session 2.2 Energy Saving Technology

Chair: Prof. Martin Picon Nuňez, Dr Lidjia Čuček

14:30 Keynote Lecture

A Mathematical Programming Approach to the Optimal Long-term National Energy Planning

Koltsaklis N.E., Dagoumas A.S., Kopanos G.M., Pistikopoulos E.N., *Georgiadis M.C.*

15:10 Effect of Different Gas Turbine on Integrated Gasification Poly-generation Plant with Methanol and Power Generation

Chen P.C., Chiu H.M., Chyou Y.P.

15:30 Cost-effective Design of Energy Efficient Four-product Dividing Wall Columns

Dejanovic I., Halvorsen I., Skogestad S., Jansen H., Olujic Z.

15:50 Energy Intensive Process in Professional Laundry Care: Up-to-date Approach

Máša V., Bobak P., Stehlík P., Kuba P.

16:10 *Coffee Break (Main Lobby)*

Session 2.3: Operational Research, Supply Chain Management

Chair: Prof. Nasrin Ozalp, Dr Monika Bakošová

16:40 Keynote Lecture

Biomass Demand-resources Value Targeting

Lam H.L., Lim C.H.

17:20 Optimizing the Operation of a District Heating System
Olofsson D., Bellqvist D., Karlsson J., Johansson M.

17:40 A Location-routing Approach to Optimal Sludge Management
Solisio C., Dovi V.

18:00 Note on the Development of Sustainable Supply Chain Strategy
Deutsch N., Dravavolgyi T., *Rideg A.*

18:20 Intensifying Air Separation Units
Manenti F., *Rossi F.*, Croce G., Grottoli M.G., Altavilla M.

Tuesday, October 1st

Session 2.4: CO_2 Minimisation and Mitigation

Chair: Prof. Sharifah Rafidah Wan Alwi, Prof. Simon Harvey

8:30 Keynote Lecture

A Decision Support Framework for Capturing the Impact of Energy Savings and Pollution Legislation on Supply Chain Network Design

Mallidis I., Vlachos D., *Iakovou E.*

9:10 Kinetics Study and Simulation of CO2 Absorption Into Mixed Aqueous Solutions of Methyldiethanolamine and Diethanolamine

Toro-Molina C., *Bouallou C.*

9:30 A Methodological Framework for Supply Chain Carbon Footprint Management

Aivazidou E., Iakovou E., *Vlachos D.*, Keramydas C.

9:50 Energy Performance of CO2 Capture Processes: Interaction Between Process Design and Solvent

Neveux T., Le Moullec Y., Corriou J.P., Favre E.

10:10 Hydrodynamic-analogy-based Modelling of CO2 Capture by Aqueous Monoethanolamine

Yazgi M., Kenig E.

10:30 *Coffee Break (Main Lobby)*

11:00 Plenary Lecture II (Elafos Conference Room)

Session 2.5: CO_2 Minimisation and Mitigation

Chair: Prof. Lorenz Biegler, Prof. Cheng-Liang Chen

12:00 Greek Lignite-fired Power Plants with CO2 Capture for the Electricity Generation Sector

Kakaras E., Koumanakos A., *Doukelis A.*

12:20 Integrated Low-temperature CO2 Capture from IGCC Power Plant by Partial Condensation and Separation of Syngas

Berstad D., Anantharaman R., Neks P.

12:40 Assessment of Carbon Capture Options for Super-critical Coal-based Power Plants

Cormos C.C., Cormos A.M., Agachi P.S.

13:00 *Lunch (Hotel Restaurant – 10th floor)*

13:45 *Poster Session – Best Poster Contest (Elafina Conference Room – 10th floor)*

Session 2.6: Thermal Treatment of Waste Including Waste to Energy

Chair: Prof. David Kukulka, Prof. Thore Bertsson

14:30 Keynote Lecture

Simulation software for mass and energy balance of process and energy systems

Skydanek L.

15:10 Combining Multi-parametric Programming and Nmpc for the Efficient Operation of a Pem Fuel Cell

Ziogou C., Georgiadis M.C., Pistikopoulos E.N., Papadopoulou S., Voutetakis S.

15:30 Co-Pyrolysis of Biomass and Plastics Waste: a Modelling Approach

Oyedun A.O., Gebreegziabher T., Hui C.W.

15:50 Solar Energy and Biowaste Conversion Into H_2 on CuO_x/TiO_2 Nanocomposites

Ampelli C., Passalacqua R., Genovese C., Perathoner S., Centi G., Montini T., Gombac V., Fornasiero P.

16:10 *Coffee Break (Main Lobby)*

Session 2.7: Heat Exchangers as Equipment and Integrated Items

Chair: Prof. Michael R.W. Walmsley, Prof. Petro Kapustenko

16:40 Keynote Lecture

Evaluation of a 1eht Enhanced Heat Transfer Tube Bundle for Processes Involving Boiling

Kukulka D., Smith R.

17:20 Thermal Analysis of Unconventional Process Condenser Using Conventional Software

Paciska T., Jegla Z., Kilkovsky B., Reppich M., Turek V.

17:40 Dynamic Data Reconciliation in a Hot-oil Heat Exchanger for Validating Energy Consumption

Singhmaneeskulchai P., *Siemanond K.*

18:00 The Modified Analogy of Heat and Momentum Transfers for Turbulent Flows in Channels of Plate Heat Exchangers

Arsenyeva O., Tovazhnyanskii L.L., Kapustenko P., Demirskyy O.

18:20 CFD Investigation of Heat Transfer and Flow Patterns in Tube Side Laminar Flow and the Potential for Enhancement

Osley W.G., Droegemueller P., Ellerby P.

18:40 Numerical Analysis of Plain Fin-and-oval-tube Heat Exchanger with Different Inlet Angles

Chu W., Yu P., Ma T., Zeng M., Wang Q.-W.

20:00 *Conference Gala Dinner (Swimming Pool – 11th Floor)*

Wednesday, October 2nd

Session 2.8: Integration of Renewables, Biomass and Energy

Chair: Prof. Manan Zainuddin, Prof. Peter Lang

8:30 Keynote Lecture

A Process Integration Technique for Targeting and Design of Power Networks

Chen C.L., Lai C.T., Lee J.Y.

9:10 Renewable Energy Balancing with Thermal Grid Support

Zwaenepoel B., Vansteenbrugge J., Vandoorn T., Van Eetvelde G., Vandevelde L.

9:30 Process Integration of Lignocellulosic Biomass Pre-treatment in the Thermo-chemical Production of F-t Fuels. Centralised Versus Decentralised Scenarios

Peduzzi E., Boissonnet G., Haarlemmer G., Setier P.A., Marechal F.

9:50 Influence of Different Pretreatment Methods on Biomass Gasification and Production of Ft Crude Integrated with a Pulp and Paper Mill

Isaksson J., Asblad A., Berntsson T.

10:10 Techno-economic Energy Model for Low Carbon Business Parks

Timmerman J., Deckmyn C., Vandevelde L., Van Eetvelde G.

10:30 *Coffee Break (Main Lobby)*

11:00 Plenary Lecture III (Elafos Conference Room)

Session 2.9: Integration of Renewables, Biomass and Energy

Chair: Dr Alexandra Bonet-Ruiz, Prof Janos Abonyi

12:00 Study of Different Bio-processing Pathways in a Lignocellulosic Biorefinery by Process Simulation

Garcia A., Egues I., Sanchez C., Barta Z., *Labidi J.*

12:20 Thermo-economic Optimization of Integrated 1st and 2nd Generation Sugarcane Ethanol Plant

Ensinas A.V., Codina V., Marechal F., Albarelli J., Silva M.A.

12:40 Modelling the Fluid Phase Behaviour of Multifunctional Alkanolamines and Carbon Dioxide

Chremos A., Forte E., Papaioannou V., Galindo A., Jackson G., Adjiman C.

13:00 *Lunch (Hotel Restaurant – 10th floor)*

14:00 Conference Closing

PRES'13 Programme

Ourania Conference Room (4th Floor)

Monday, September 30th

Session 3.1 Batch, Dynamic, Flexible and Sustainable Plant Operation

Chair: Dr Petar Varbanov, Prof. Zdravko Kravanja

11:00 Keynote Lecture

Robust Constrained Model Predictive Control of Heat Exchanger Network

Bakošová M., Oravec J.

11:40 Operational Flexibility in Pulp Mill Steam Production at Off-design Heat Loads

Svensson E., Berntsson T.

12:00 Comparison of Conventional and Middle Vessel Batch Reactive Distillation Column: Application of Hydrolysis of Methyl Lactate to Lactic Acid

Edreder E.A., Mujtaba I.M., Emtir M.

12:20 Historical Process Data Based Energy Monitoring - Model Based Time-series Segmentation to Determine Target Values

Abonyi J., Kulcsar T., Balaton M., Nagy L.

12:40 Optimization of Pid Controller Parameters in the Case of Batch Styrene Suspension Polymerization

Palau G.R., Lavric V.

13:00 *Lunch (Hotel Restaurant – 10th floor)*

13:45 *Poster Session – Best Poster Contest (Elafina Conference Room – 10th floor)*

Session 3.2 Compact Multifuel-Energy to Hydrogen Converter (COMETHY)

Chair: Dr Paris Voutetakis, Dr Martin Gough

14:30 Development of a Solar-powered, Fuel-flexible Compact Steam Reformer: the Comethy Project

Giaconia A., Turchetti L., *Monteleone G.*, Morico B., Iaquaniello G., Shabtai K., Sheintuch M., Boettge D., Adler J., Palma V., Voutetakis S.,Lemonidou A.A., Annesini M.C., den Exter M., Balzer H.

14:50 Time-on-stream Stability of New Catalysts for Low-temperature Steam Reforming of Biogas

Turchetti L., Monteleone G., Giaconia A., Sau S., Palma V., Castaldo F., Lemonidou A.A., Angeli S.D.

15:10 Low Temperature Methane Steam Reforming: Catalytic Activity and Coke Deposition Study

Angeli S.D., Monteleone G., Giaconia A., Lemonidou A.A.

15:30 Steam Reforming Of Ethanol To H2 Over Bimetallic Catalysts: Crucial Roles Of Ceo2, Steam-To-Carbon Ratio And Space Velocity

Palma V., Castaldo F., Ciambelli P., Iaquaniello G.

15:50 Modeling and Simulation of a Membrane Reactor for the Low Temperature Methane Steam Reforming

Kyriakides A.S., Ipsakis D., *Voutetakis S.*, Papadopoulou S., Seferlis P.

16:10 *Coffee Break (Main Lobby)*

Session 3.3 Industrial & Experimental Studies

Chair: Prof Jalel Labidi; Reserve: Prof. Yasuki Kansha

16:40 Keynote Lecture

Thermo-hydraulic Design of Solar Collector Networks for Industrial Applications

Picon-Nunez M., Martinez-Rodriguez G., Fuentes-Silva A.L.

17:20 Research About the Method of Synthetizing N,n-dimethyl-1,3-propanediamine Continuously

Meng Q.W., Deng C., Li Y., Du J.

17:40 Kinetic Study of the Methyl Acetate and Isobutanol Transesterification Catalysed by the Dissociation of Sodium Hydrogensulfate in Alcohol Media

Vega Rodriguez A., Plesu V., Calvet Tarragona A., Bonet Ruiz J., *Bonet Ruiz A.*, Llorens Llacuna J.

18:00 Energy Consumption Versus Antioxidant Activity of Pressurized Fluid Extracts from Pfaffia Glomerata Roots

Santos D., Vardanega R., Albarelli J., Ensinas A.V., Marechal F., Meireles M.A.

18:20 Power Grid Simulation Model for Long Term Operation Planning

Zabojnik J., Dvorak M.

18:40 Online Monitoring of TOC Contaminations in Clean-in-place Processes for Optimized Process Control, Increased Process Efficiency and Quality

Siegmann-Hegerfeld T., Genner A., Brandstetter M., Miltner M., Lendl B., Harasek M.

Tuesday, October 1st

Session 3.4: New Horizons in Energy

Chair: Prof. Michael Georgiadis, Dr Martin Pavlas

8:30 Opportunities for Heat Integration of Biomass-based Fischer-Tropsch Crude Production at Scandinavian Kraftliner Mill Sites
Ljungstedt H., Pettersson K., Harvey S.

8:50 Heat Transfer Intensified Techniques for Retrofitting Heat Exchanger Networks in Practical Implementation
Pan M., Bulatov I., Smith R.

9:10 Implementation of Heat Integration for Efficient Process Design of Direct Adipic Acid Synthesis in Flow
Vural Gursel I. , Wang Q., Noel T., Hessel V.

9:30 Energy Efficiency Improvement Through Technology Optimisation and Low Grade Heat¬ Recovery Industrial Application
Semkov K., Mooney E., Connolly M., Adley C.

9:50 Process Modification Potentials for Total Site Heat Integration
Chew K.H., Wan Alwi S.R., Klemeš J.J., Manan Z.A.

10:10 An MILP Model for Distributed Energy System Optimization
Haikarainen C., Pettersson F., Saxen H.

10:30 *Coffee Break (Main Lobby)*

11:00 Plenary Lecture II (Elafos Conference Room)

Session 3.5: New Horizons in Heat

Chair: Dr Costas Theorodopoulos, Dr Jordi Bonet Ruiz

12:00 New Retrofit Approach for Optimization and Modification for A Crude Oil Distillation System
Kamel D., Gadalla M., Ashour F., Nour Aldin H.

12:20 Investigation of Alternative Reducing Agent Injection into the Raceway of Blast Furnaces Using CFD
Maier C., Jordan C., Harasek M., Feilmayr C., Thaler C.

12:40 CFD Modelling of Hydrodynamics and Heat Transfer in Channels of a PHE
Stogiannis I.A., Paras S.V. Arsenyeva O.P., Kapustenko P.O.

13:00 *Lunch (Hotel Restaurant – 10th floor)*

13:45 *Poster Session – Best Poster Contest (Elafina Conference Room – 10th floor)*

Session 3.6: New Horizons in Modelling Techniques

Chair: Dr C Maier, Dr Flavio Manenti

14:30 Keynote Lecture
A Methodology for Creating Sequential Multi-period Base-case Scenarios for Large Data Sets
Bungener S., Van Eetvelde G., Marechal F.

15:10 The Use of Reduced Models in the Optimization of Energy Integrated Processes
Smith R., Ochoa-Estopier L.M., Jobson M.

15:30 Double Substrate Limitation Model for the Experimental Scale-up of Succinic Acid Production from Biorefinery Glycerol

Rigaki A., Webb C., Theodoropoulos C.

15:50 Investigation of Heat Exchanger Network Flexibility of Distillation Unit for Processing Different Types of Crude Oil

Varga Z., *Danics N.*

16:10 *Coffee Break (Main Lobby)*