

PRES'13 Poster Session A

Elafina Conference Room (10th Floor)

Monday, September 30th

Time: 13:45 – 18:00

Poster Session A.1: Process Integration for Sustainable Development

- 1 Modular Integrated Framework for Process Synthesis and Optimization Based on a Sequential Process Simulator
Wang D., Feng X., Deng C.
- 2 Optimization of a Membrane-based Oxidative Coupling of Methane Reactor Using Surface Response Methodology
Patcharavorachot Y., Tiraset S., Saebea D., Arpornwichanop A.
- 3 Retrofit of Heat Exchanger Networks for Optimizing Crude Oil Distillation Operation
Ochoa-Estopier L.M., Jobson M., Smith R.
- 4 Utilising Local District Heating Systems for Site-Wide Heat Integration of Industrial Clusters – a Process Integration Study
Hackl R., Morandin M., Harvey S.
- 5 Strategy for Total Energy System Retrofit of a Chemical Plant
Feng X., Liang C.
- 6 Automatic Synthesis of Alternative Heat-integrated Water-using Networks
Bao-Hong Li, Zhen-Zhen Ruan, Chuei-Tin Chang
- 7 A Generalized Approach to Handle Heat Exchange Restrictions in Energy Targeting
Morandin M.
- 8 Performance Assessment and Efficiency of a Renewable Hydrogen Production Station Based on a Supervisory Control Methodology
Ziogou C., Ipsakis D., Seferlis P., Bezergianni S., Papadopoulou S., Voutetakis S.
- 9 A Techno-economic Analysis of Using Residual Top Gases in an Integrated Steel Plant
Ghanbari K., Saxen H.
- 10 Design of Reverse Logistics Network for Waste Batteries with an Application in Turkey
Donmez I., Turkay M.
- 11 Process Heat Integration Between Distillation Columns for Ethylene Hydration Process
Pejpichestakul W., Siemanond K.
- 12 Addressing Energy and Environmental Targets Through Combined Process Integration Techniques
Mooney E., Semkov K., Adley C., Mooney C.
- 13 Process Integration in Energy and Carbon Intensive Industries Through Exploitation of Optimization Techniques and Decision Support
Porzio G.F., Colla V., Matarese N., Nastasi G., Branca T.A., Amato A., Fornai B., Vannucci M., Bergamasco M.
- 14 Principle of Triple Bottom Line in the Integrated Development of Sustainable Products
Mattioda R.A., Fernandes P.T., Detro S., Casela J.L., Canciglieri Junior O.
- 15 Simulation of a Hybrid Reactive Extraction Unit. Biodiesel Synthesis
Garcia Jurado M.B., Pleşu V., Bonet Ruiz J., Bonet Ruiz A.E., Tuluc A., Llorens Llacuna J.

- 16 Thermodynamic Analysis, Energy Integration and Flowsheet Improvement of a Methanol Absorption Acid Gas Removal Process
Gatti M., Marechal F., Martelli E., Consonni S.
- 17 Sustainable Remediation of a Closed Solid Waste Landfill Site: Development and Application of a Holistic Approach
Roccaro P., Vagliasindi F.G.A.

Poster Session A.2

Energy Saving Technology

- 18 The Precise Definition of the Payload Tube Furnaces for Units of Primary Oil Refining
Ulyev L., Kapustenko P., Melnykovskaya L., Nechyporenko D.
- 19 Energy Demand of Biofuel Production Applying Distillation and/or Pervaporation
Nagy E., Boldyryev S., Hegedüs I.
- 20 Applying Conduct - Metrical Method to Research of Foam Gypsum with Hemp Fibrous Reinforcement Drying Process
Gross U., Iljins U., Skujans J., Gajevskis A.
- 21 Power Quality Management of LED Light Sources in Frequency Domain
Gorbe P., Magyar A., Csuti P.
- 22 Energy Saving for Batch Distillation with Mechanical Heat Pumps
Modla G., Lang P.
- 23 Mathematical Modelling of the Steam Reforming of Toluene for Fuel Gas Production in a Fixed Bed Catalytic Reactor
Oliveira A., Silva J.

Poster Session A.3

CO₂ Minimisation and Mitigation

- 24 Assessment of the Flue Gas Recycle Strategies on Oxy-coal Power Plants Using an Exergy-based Methodology
Hagi H., Nemer M., Le Moullec Y., Bouallou C.
- 25 Kinetic Studies on Carbon Dioxide Capture Using Activated Carbon
Rashidi N.A., Yusup S., Lam H.L.
- 26 Lithium Silicate Pellets for CO₂ Capture at High Temperature
Puccini M., Seggiani M., Vitolo S.
- 27 Multi-criteria Analysis of Material Selection in Order to Reduce Environmental Impacts
Čuláková M., Vilčeková S., Katunská J., Krídlová Burdová E.
- 28 Analysis of Environmental Aspects in High Energy Performance Family House Case Study
Vilčeková S., Sedláková A., Krídlová Burdová E., Čuláková M., Geletka V., Kapalo P.
- 29 Functionalization of Poly (high Internal Phase Emulsion) with Amine for CO₂ Capture
Muchan P., Saiwan C., Demontigny D., Tontiwachwuthikul P.
- 30 Biopolymer Modified with Piperazine-2-Carboxylic Acid for Carbon Dioxide Adsorption
Saiwan C., Srisuwanvichien S., Tontiwachwuthikul P.
- 31 Study of CO₂ Adsorption Using Adsorbent Modified with Piperazine
Kangwanwatana W., Saiwan C., Tontiwachwuthikul P.
- 32 Effect of Organic Solvents on Separation of Heat Stable Salts (hsss) Generated During Carbon Dioxide Absorption Using Amine Solution
Suppaibulsuka P., Saiwan C., Supap T.

- 33 Effect of Amines on High Internal Phase Emulsion Adsorbents for Carbon Dioxide Adsorption
Athipongarporn N., Saiwan C., Tontiwachwuthikul P.

- 34 Dynamic Modeling of CO₂ Capture by Calcium-looping Cycle
Cormos A.M., Simon A.

Poster Session A.4

Heat Exchangers as Equipment and Integrated Items

- 35 Possibilities of Intensifying Heat Transfer in Heat Exchangers for High Temperature Applications
Stehlík P., Jegla Z., Kilkovsky B.
- 36 Experimental and Numerical Investigation on Shell-side Performance of Multilayer Spiral-wound Heat Exchangers
Lu X., Du X., Zhang S., Zeng M., Wang Q.-W.
- 37 Application of H₂ and H[∞] Approaches Applied to the Robust Controller Design for a Heat Exchanger
Vasičkaninová A., Bakošová
- 38 Modified Criterion for Economic Efficiency Estimation of Heat Pumps
Boldyryev S., Garev A., Ilumin O., Shamraev A., Selyakov O., Lechchenko O., Kapustenko P.

Poster Session A.5

Integration of Renewables, Biomass and Energy Conversion Technologies

- 39 Different Integration Alternatives of Thermosolar Energy and Heat Pump in a Fish Canning Process
Quijera J. A., Labidi J.
- 40 Biogas Upgrading Techniques: State of Art Review in European Region
Niesner J., Jecha D., Stehlík P.
- 41 Supervisory Control and Unattended Operation of an Off-grid Hybrid Power Generation Station Including Hydrogen Storage
Ziogou C., Elmasides C., Papadopoulou S., Voutetakis S.
- 42 Modeling and Simulation of Methanation Catalytic Reactor for Renewable Electricity Storage
Er-Rbib H., Bouallou C.
- 43 Assessment of Direct Thermal Energy Storage Technologies for Concentrating Solar Power Plants
Ravaghi-Ardebili Z., Manenti F., Corbetta M., Lima N.M.N., Zuniga Linan L., Papasidero D.
- 44 Hydrogen Production from Mixture of Biomass and Polyethylene Waste in Fluidized Bed Catalytic Steam CO-gasification Process
Moghadam R.A., Yusup S., Lam H.L., Al Shoaibi A., Murni M.
- 45 Integrated Biomass and Solar Town Concept for Smart Eco-village
Hashim K., Ho W.S., Lim J.S., Macchietto S.
- 46 Lightweight Composites Based on Rapidly Renewable Natural Resource
Stevulova N., Cigasova J., Sicakova A., Junak J.
- 47 Investigation of the Influence of Plant Capacity on the Economic and Ecological Performance of Cassava-based Bioethanol
Lauven L.P., Liu B., Geldermann J.
- 48 Analysis of the Electricity Generation Potential by Solar Photovoltaic Source in the State of Parana Brazil

- Tiepolo G.M., Canciglieri Junior O., Urbanetz Junior J.*
- 49 Systematic Analysis of Proton Electrolyte Membrane Fuel Cell Systems Integrated with Biogas Reforming Process
Authayanun S., Aunsup P., Imorb K., Arpornwichanop A.
- 50 Experimental Study of a Single Particle Reactor at Combustion and Pyrolysis Conditions
Houshfar E., Wang L., Vaha-Savo K., Brink A., Lovas T.
- 51 Estimation of the Potential for Low Cost Solid Fuels of Selected Areas in Hungary and Greece
Karlopoulos E., Grammelis P., Christidou M., Chován T., Varbanov P.S., Klemeš J.J.

Poster Session A.6

Operational Research, Supply Chain Management and Education

- 52 Investigating the Causalities for Cleaner and Affordable Electricity Production Mix: a System Dynamic Methodological Approach
Tziogas C., Georgiadis P.
- 53 Sustainable Supply Network Design Through Optimisation with Clustering Technique Integration
Ng W.P.Q., Lam H.L.
- 54 The Role of Leadership in Knowledge Engineering Systems and Neural Networks to Establish E-government
Al-Dujaili M.A.A.
- 55 Use of a Web-based Modeling Environment in the Education of Process Engineers
Merchan V.A., Kraus R., Wozny G.
- 56 E-learning as Supporting Tool for Cooperation in the Field of Process, Energy and Mechanical Engineering on International Level
Smejkal Q., Pavlas M., Skydane L., Amann G., Reppich M.

Poster Session A.7

Thermal Treatment of Waste Including Waste to Energy

- 57 Improving Calculation of Lower Heating Value of Waste by Data Reconciliation - Analysis and Evaluation
Touš M., Fryba L., Pavlas M.
- 58 Use of Renewables in Rural Municipalities' Integrated Energy Systems
Kostevšek A., Cizelj L., Pentek J., Čuček L., Varbanov P.S., Klemeš J. J., Pivec A.
- 59 Waste-to-energy Modelling Energy Efficiency Versus Minimized Environmental Impact
Kropac J., Ferdan T., Pavlas M.
- 60 Mobile Thermocatalytic Waste Processing Complex
Tovazhnyanskii L.L., Ved V.E., Koshchii V.A., Rovenskii A.I., Krasnokutskii E. V.

Poster Session A.8

Clean Technologies – Low Emissions Technologies

- 61 A Multi-level Mathematical Model of the CO Catalytic Conversion Process
Ved O.V., Seferlis P., Kapustenko P.
- 62 Effect of the Type of Impellers on Mixing in an Electrochemical Reactor
Mollinedo K., Ramírez J., Huerta O., Mendoza V.X., Martínez S.A.
- 63 Optimal CuFe₂O₄ Load for MW Susceptible Catalyzed DPF
Palma V., Ciambelli P., Meloni E., Sin A.
- 64 Aftercooler for Efficiency Improvement of Decarbonizing Steam Generator

- Kupka D., Kolonicny J.**
- 65** Use of Tg-DSC-MS and Gas Analyzer Data to Investigate the Reaction of CO₂ and SO₂ with Ca(OH)₂ at Low Temperature
Renedo M.J., Pesquera C, Gonzalez F., Fernandez J.
- 66** Modernization of Unit for Elimination of Voc's by Catalytic Oxidation
Jecha D., Martinec J., Brummer V., Stehlik P., Lestinsky P.
- 67** A New Solar Reactor Aperture Mechanism Coupled with Heat Exchanger
Menon A.K., Farid A., Ozalp N.
- 68** Extraction of Copper from Aqueous Solutions Using Sodium Diethyldithiocarbamate as the Extracting Agent
Meterfi S., Meniai A.H.

PRES'13 Poster Session B

Elafina Conference Room (10th Floor)

Tuesday, October 1st

Time: 13:45 – 18:00

Poster Session B.1

Sustainable Processing and Production

- 69 Emission Free Sulfur Recovery Process Development with Modular Mini-Plants in Industrial Plant Bypass
Guenther R.M., Schoneberger J.C., Thielert H., Wozny G.
- 70 Qualitative Analysis Based Reaction Mechanism Identification
Varga T.
- 71 Life Cycle Assessment of Remediation Alternatives for Dredged Sediments
Puccini M., Seggiani M., Vitolo S., Iannelli R.
- 72 Assessment and Control of Environmental Performance of Bus Transit Operators: Three Cases in a Mid-sized City
Sellitto M., Borchardt M., Pereira G.M., Bubicz M.E.
- 73 Perception of Users on the Environmental Impact Caused by Public Transport Operation
Sellitto M., Borchardt M., Pereira G.M., Sauer M.B.
- 74 Optimised Storage and Energy Efficiency Concepts in Industries, Commerce and District Heating Business Based on Tool Soco -Model and Measures Identified
Fluch J., Brunner C., Muster-Slawitsch B., Moser C., Schranzhofer R., Heimrath R.
- 75 Productivity and Tensile Endurance Determination of Hemp Fiber
Adamovics A., Kakitis A.
- 76 Correlation Study of Safety, Health and Environmental Properties at Inherent Level: Benzene Synthesis Routes
Alhamdani .Y, Hassim M.H.

Poster Session B.2

Waste Minimisation, Processing and Management

- 77 Evaluation of Sewage Sludge Co-incineration in the Existing Heating Plant Or Power Plant from Emission Production Point of View
Fryba L., Bébar L., Touš M.
- 78 Mathematical Modelling for the Adsorption Process of Carbon Dioxide (CO₂) in Nanopores of Catalytic Particles in a Fixed Bed Reactor Using Numeral Inverse Laplace Transform
Silva J.D., Oliveira C.C.
- 79 Remobilization of Trivalent Chromium and the Regeneration of in Situ Permeable Reactive Barriers During Operation
Kaimbi L.A., Chirwa E.M.N.
- 80 Environmental Assessment of Fly Ash Concrete
Ondova M., Stevulova N.
- 81 Bacterial Elimination of Sulphates from Mine Waters
Luptáková A., Kotuličová I., Mačingová E., Jenčárová J.
- 82 Adsorption of 2-Chlorophenol Onto Sewage Sludge Based Adsorbent: Equilibrium and Kinetic Study
Bousba S., Meniai A.H.
- 83 Leaching of Heavy Metals from Contaminated Sediment
Balintova M., Pavlikova P., Holub M., Petrilakova A.

- 84 Life Cycle Assessment of Bottom Ash Management from a Municipal Solid Waste Incinerator (MSWI)
Margallo M., Aldaco R., Irabien A.

Poster Session B.3

Batch, Dynamic, Flexible and Sustainable Plant Operation

- 85 Analysis and Implementation of a Plant-wide Control System for an LPG Reforming-fuel Cell Power System
Ipsakis D., Papadopoulou S., Voutetakis S., Seferlis P.
- 86 A SVM Gray-box Model for a Solid Substrate Fermentation Process
Acuna G., Gonzalez J., Curilem M., Cubillos F.
- 87 Off-cut Recycle for Batch and Batch Extractive Distillation Separation of a Multicomponent Azeotropic Mixture
Hegely L., Lang P., Gerbaud V.
- 88 Potential Impacts on the Energy System at the Integrated Steelwork by Changing Injection Coal Types to the Blast Furnace
Orre J., Wang C., Larsson J., Olsson E.

Poster Session B.4

CFD and Numerical Heat Transfer

- 89 Mathematical Modelling of Grate Combustion: Bed and Freeboard Coupling Issues
Juřena T., Hájek J.
- 90 Assessment of the Effect of Dual Impeller Alignment on the Heat Transfer Coefficient in Stirred Tanks
Ramirez-Gomez R., Martinez-Delgado S., Garcia-Cortes D., Mollinedo-Ponce H.R., Huerta-Chavez O., Ramirez-Munoz J.
- 91 CFD Models in the Development of Electrical Waste Recycling Technologies
Egedy A., Fogarasi S., Varga T., Imre-Lucaci A., Chován T.

Poster Session B.5

Sustainable Biofuel Production

- 92 Study of Orange Bagasse Digestibility by Chemical Pretreatments
Silva K.A., Godoy P.H.M., Cardoso J., Mendes T.P.P., Seolatto A.A., Freitas F.F.
- 93 Production of Jet Fuel from Renewable Source Material
Eller Z., Varga Z., Hancsok J.
- 94 Potential of Spent Coffee Grounds for Biodiesel Production and Other Applications
Caetano N.S., Silva V.F.M., Melo A.C., Mata T.M.
- 95 Energy Integration of Bioethanol Production Process Topology from Microalgae Biomass: Evaluation of SSCF, SSF, Acid Hydrolysis and Product Purification Alternatives
Gonzalez-Delgado A.D., Peralta-Ruiz Y, Pardo Y, Kafarov V.
- 96 Screening of Sustainable Biodiesel Production Pathways During Process Research and Development (R&D) Stage Using Fuzzy Optimization
Liew W.H., Hassim M.H., Ng D.K.S.
- 97 Fractionation and Characterization of Insolubles Formed in Palm Oil Biodiesel
Plata V., Serrano M., Tiria K., Romero Bohorquez A.R., Kafarov V., Gauthier-Maradei P., Castillo E.

Poster Session B.6

Industrial & Experimental Studies

- 98 Isobaric Vapor Liquid Equilibrium at 101.3 Kpa for the Binary Mixtures 2-methyl-2-butene / Methanol and Isopentane / Methanol
*Bernabeu Diaz M., Plesu V., Bonet Ruiz J., **Bonet Ruiz A.E.**, Llorens Llacuna J.*
- 99 Inert Substances and Explosion Limits of Hybrid Mixtures
Serafin J., Mynarz M., Lepik P., Drgacova J.
- 100 The Study of Zeolite Based Cement Composites in Aggressive Environment
*Eštaková A., **Kovalčíková M.***
- 101 Isobaric Vapor Liquid Equilibrium at 101.3 Kpa for the Binary Mixtures 2-methyl-2-butene / Tame and 2-methyl-1-butene/Tame
*Bernabeu Diaz M., Plesu V., **Bonet Ruiz J.**, Bonet Ruiz A.E., Llorens Llacuna J.*
- 102 Experimental Investigations of Effervescent Atomization Using Non-intrusive Techniques
*Broukal J., **Hájek J.**, Sojka P.E.*
- 103 Nutrient Leaching from Reservoir Bottom Sediments
Junakova N., Balintova M.
- 104 Experimental Study on the Influence of Oxygen Fraction in the Combustion Air on the Combustion Characteristics
***Bělohradský P.**, Skryja P.*
- 105 Heat Flux Measurement Methods for Process Furnaces - A Case Study
*Vondal J.,**Hájek J.***
- 106 Testing of Zeolite and Kaolin for Preventing Ash Sintering and Fouling During Biomass Combustion
***Wang L.**, Becidan M., Skreiberg O.*
- 107 Analysis, Quantitative Estimates and Methods for Reducing of the Maldistribution Created from Gas Distribution Devices for Column Apparatuses
***Petrova T.**, Darakchiev S., Vaklieva-Bancheva N., Popov R.*

Poster Session B.7

Industrial Application & Optimal Design

- 108 Best Practices for Preparation of GHG Inventory for Industrial Processes
*Grcnarovska T. O., Poposka E., Zdraveva P., **Markovska N.***
- 109 A Data Reconciliation Based Approach to Accuracy Enhancement of Operational Data in Power Plants
*Jiang X., **Liu P.**, Li Z.*
- 110 Energy Conservation and Optimization in Condensate Splitter Plant
***Al-Mutairi E.**, Elkawad H.*
- 111 Conceptual Design of a Natural Gas-based Integrated Industry Park
***Chen C.**, Ross W.*
- 112 Feasibility and Economic Approaches to Optimization of the Renewal of Hydrocarbons Transporting Pipelines
***Abdelbaki N.**, Gaceb M., Bouali E., Bettayeb M., Bouzid R.*
- 113 Safety Assessment Curve (SAC) for Inherent Safety Assessment in Petrochemical Industry
*Ahmad S.I., Hashim .H, **Hassim M.H.**, Srinivasan R.*
- 114 Temperature Effect on the Interaction Parameters of GC-NRTL Model Using the Genetic Algorithm
*Bouneb N., **Meniai A.H.***
- 115 Breaking Azeotropes by Azeotropic and Extractive Distillation in a Dividing-wall Column
***Kiss A.A.**, Suszwalak D.J.P. C, Ignat R.M.*

- 116 Determination of Oil Products in Waste and Natural Waters using Tetrachloromethane
Trokhin V., **Bessarabov A.**, Trynkina L., Stepanova T., Vendilo A.

Poster Session B.8

New Horizons

- 117 Sulphur Recovery Using an Isolated Sulphide Oxidizing Bacterium
Alesia F., Chirwa E.
- 118 Uncertainty Analysis of Industrial Fire Effects Simulation
Chettouh S., Hamzi R., Innal F., Haddad D.
- 119 Modeling of Crude Oil Bubble Point Pressure and Bubble Point Oil Formation Volume Factor Using Artificial Neural Network (ANN)
Cuptasanti W., Saiwan C., Torabi F.
- 120 Effect of Domestic Power Plants to the Low Voltage Transformer Areas from the Nonlinear Distortion Point of View
Gorbe P., Magyar A., Fodor A., **Hangos K.**
- 121 Steam Gasification Process of Chlorine-Rich Shredder Granules: Experiments and Flow-Sheeting Modelling for Process Evaluation and Scale-Up
Kappes M., Porzio G.F., Colla V., Vannucci M., Krumm W.
- 122 Decomposition of H₂S to H₂ in the Absence and Presence of H₂O: Catalytic Experiments and Thermodynamic Calculations
Kraia T., Ouzounidou M., Marnellos G., Ipsakis D., Papadopoulou S., Voutetakis S.
- 123 An Attempt on Using a Regenerated Commercial NIMOS/Al₂O₃ as a Catalyst for Waste Tire Pyrolysis
Saeng-Arayakul P., Jitkarnka S.
- 124 Determination of the Gas Composition Effect in Carbon Dioxide Emission at Refinery Furnaces
Saavedra J., **Merino L.**, Kafarov V.
- 125 The Solubility of Carbon Dioxide in Five Promised Ionic Liquids
Nonthanasin T., Henni A., Saiwan C.
- 126 Comparative Analysis of Environmental Performance of Building Materials Towards Sustainable Construction
Porhincak M., Estokova A.
- 127 Organophilic Pervaporation of Butanol From an Aqueous Solution with POMS Membrane
Rom A., Esteve D., Friedl A.
- 128 Magnetically Modified Coffee Silverskin for the Removal of Xenobiotics from Wastewater
Zuorro A., Di Battista A., Lavecchia R.
- 129 Profile of Aromatic Intermediates of Titanium Dioxide Mediated Degradation of Phenol
Bamuza-Pemu E., Chirwa E.
- 130 Oil Recovery from Oily Sludge Using Biosurfactant Producing Bacteria as Demulsifying Agents
Chirwa E.M.N., **Fayemiwoa O.**, Mampholoa T.
- 131 Investigation of Temperature Effects in Efficiency Improvement of Non-Uniformly Cooled Photovoltaic Cells
Al Tarabsheh A., Spyros Voutetakis, Athanasios I. Papadopoulos A.I., Seferlis P., Etiera I., Saraereh O.
- 132 Motor Fuel Purpose Hydrogenation of Used Cooking Oils
Solymosi P., Eller Z., **Hancsók J.**
- 133 Performance Analysis Of Al₂O₃ And Sic Catalysed Foams In Methane Auto-Thermal Reforming
Palma V. Ricca A. Ciambelli P.

- 134** On the Dynamics of Open and Closed Loop Reverse Flow Catalytic Reactors
Brasiello A., Crescitelli S., Russo L.
- 135** Simulating the wildfire in Rhodes in 2008 with a cellular automata model
Russo L., Vakalis D., Siettos C.
- 136** Characterisation of Metal Precipitates Recovered from Acid Mine Drainage by Selective Sequential Precipitation Process
Mačingová E., Luptáková A., Kristufek V., Turianicova E., Zorkovska A., Matik M.