Sunday, August 16th

2:30 p.m. to	**5:30 p.m.**	**Registration**
5:30 p.m. to	**5:50 p.m.**	**Opening** *Claudio A Oller do Nascimento (University of São Paulo, Brazil)*
5:50 p.m. to	**6:40 p.m.**	**Process Systems Engineering: Accomplishments and Opportunities** *Gintaras Reklaitis (Purdue University, USA)*
6:40 p.m. to	**7:30 p.m.**	**Optimization in the Petrofuel Refining Industry - the Virtual Refinery** *Lincoln F. Lautenschlager Moro (PETROBRAS SA, Brazil)*
7:30 p.m. to	**10:00 p.m.**	**Welcome Reception**

Monday, August 17th

7:30 a.m.		**Registration**
8:00 a.m. to	**8:50 a.m.**	**Plenary 1: Modelling for PSE and Product-Process Design** *Rafiqul Gani (Technical University of Denmark, Denmark)*
8:50 a.m. to	**9:40 a.m.**	**Plenary 2: Systems Problems in Biorenewables Processing** *Wolfgang Marquardt (RWTH Aachen University, Germany)*
9:40 a.m. to	**10:10 a.m.**	**Coffee Break**
10:10 a.m. to	**12:10 p.m.**	**Sessions 1, 2, 3 and 4**
12:10 p.m. to	**1:30 p.m.**	**Lunch**
1:30 p.m. to	**2:20 p.m.**	**Plenary 3: Process Systems Engineering: From Solvay to the 21st Century. A History of Development, Sucesses and Prospects for the Future** *George Stephanopoulos (Massachusetts Institute of Technology, USA)*
2:20 p.m. to	**3:10 p.m.**	**Plenary 4: Integrating Refining to Petrochemical** *Marcus Vinicius de Oliveira Magalhães (PETROBRAS SA, Brazil)*
3:10 p.m. to	**4:30 p.m.**	**Coffee Break & Poster Session**
4:30 p.m. to	**6:30 p.m.**	**Sessions 5, 6, 7 and 8**
6:30 p.m. to	**8:00 p.m.**	**Happy Hour**

Session 1 - Modeling Tools

10:10 a.m. to	**10:50 a.m.**	**Keynote 1: Modelling and Design of Distributed Systems; Methods and Algorithms** *Brian J. Sweetrman, Sukhraaj Basati, Madhu Iyer, Andreas A. Linninger (University of Illinois at Chicago, USA)*
10:50 a.m. to	**11:10 a.m.**	**81-1 - Interfacing IPOPT with Aspen Open Solvers and CAPE-OPEN** *Weifeng Chen (Institute of Industrial Control, China), Zhijiang Shao (Institute of Industrial Control, China), Jixin Qian (Institute of Industrial Control, China)*
11:10 a.m. to	**11:30 a.m.**	**86-1 - A Software Factory for the Generation of CAPE-OPEN compliant Process Modelling Components** *Amine Lajmi (IFP, France), Sylvie Cauvin (IFP, France), Mikal Ziane (Laboratoire d'Informatique de Paris 6, France)*

11:30 a.m. to	**11:50 a.m.**	**229-1 - A Continuous Implementation of the Ideal Time Delay in EMSO** *Thiago Corrêa do Quinto (TRANSPETRO, Brazil), Argimiro Resende Secchi (Federal University of the Rio de Janeiro, Brazil), Evaristo Chalbaud Biscaia Junior (Federal University of the Rio de Janeiro, Brazil)*
11:50 a.m. to	**12:10 p.m.**	**342-1 - Sequencing Batches in a Real-World Pipeline Network Using Constraint Programming** *Luiz Carlos Felizari (Federal University of Technology - Paraná, Brazil), Lúcia Valéria Ramos de Arruda (Federal University of Technology - Paraná, Brazil), Ricardo Lüders (Federal University of Technology - Paraná, Brazil), Sérgio Leandro Stebel (Federal University of Technology - Paraná, Brazil)*

Session 2 - Optimization, Planning & Scheduling

10:10 a.m. to	**10:50 a.m.**	**Keynote 2: Online Optimizing Control: The Link between Plant Economics and Process Control** *Sebastian Engell (TU Dortmund, Germnay)*
10:50 a.m. to	**11:10 a.m.**	**55-2 - Optimal Scheduling under Variable Electricity Pricing and Availability** *Pedro M. Castro (INETI, Portugal), Ignacio E. Grossmann (Carnegie Mellon University, USA), Iiro Harjunkoski (ABB, Germany)*
11:10 a.m. to	**11:30 a.m.**	**60-1 - Two-Layer Planning and Scheduling of Batch Production Processes under Uncertainty** *Martin Hüfner (TU Dortmund, Germany), Thomas Tometzki (TU Dortmund, Germany), Sebastian Engell (TU Dortmund, Germany)*
11:30 a.m. to	**11:50 a.m.**	**308-2 - Approximation of Arrival Cost in Moving Horizon Estimation Using a Constrained Particle Filter** *Rodrigo Lopez-Negrete de La Fuente (Carnegie Mellon University, USA), Sachin C. Patwardhan (IIT Bombay, India), Lorenz T Biegler (Carnegie Mellon University, USA)*
11:50 a.m. to	**12:10 p.m.**	**441-1 - Modified Unscented Recursive Nonlinear Dynamic Data Reconciliation for Constrained State Estimation** *Sachin Kadu (IIT Bombay, India), Mani Bhushan (IIT Bombay, India), Ravindra Gudi (IIT Bombay, India), Kallol Roy (BARC Mumbai, India)*

Session 3 - New Trends in Product Design

10:10 a.m. to	**10:50 a.m.**	**Keynote 3: Discovery Informatics in Product Design** *Venkat Venkatasubramanian (Purdue University, USA)*
10:50 a.m. to	**11:30 a.m.**	**Keynote 4: Novel Approaches in the Management of Innovation and in Formulation of Innovative Design for PSE** *Jean Marc Le Lann (LGC-ENSIACET-INPT, France)*
11:30 a.m. to	**11:50 a.m.**	**51-1 - The Virtual Product-Process Design Laboratory for Design and Analysis of Formulations** *Elisa Conte (Technical University of Denmark, Denmark), Ricardo Morales-Rodriguez (Technical University of Denmark, Denmark), Rafiqul Gani (Technical University of Denmark, Denmark)*
11:50 a.m. to	**12:10 p.m.**	**344-2 - Novel Molecular Design Technique using Property Operators based on Signature Descriptors**

Nishanth G. Chemmangattuvalappil (Auburn University, USA), Charles C. Solvason (Auburn University, USA), Susilpa Bommareddy (Auburn University, USA), Mario R. Eden (Auburn University, USA)

Session 4 - Energy

10:10 a.m. to	**10:50 a.m.**	**Keynote 5: Energy Saving Opportunities in distillation: Identification of Useful Configurations** *Rakesh Agrawal (Purdue University, USA)*
10:50 a.m. to	**11:30 a.m.**	**Keynote 6: Thermally Coupled Distillation** *José A. Caballero (University of Alicante, Spain)*
11:30 a.m. to	**11:50 a.m.**	**139-1 - New Generic Approach for the Analysis of Energy Conversion System Models** *Raffaele Bolliger (Industrial Energy Systems Laboratory, Switzerland), Helen Becker (Industrial Energy Systems Laboratory, Switzerland), François Maréchal (Industrial Energy Systems Laboratory, Switzerland)*
11:50 a.m. to	**12:10 p.m.**	**184-1 - Dynamic Modelling and Simulation of CO2 Chemical Absorption in Coal-Fired Power Plants** *Adekola Lawal (Cranfield University, UK), Meihong Wang (Cranfield University, UK), Peter Stephenson (RWE npower), Hoi Yeung (Cranfield University, UK)*

Session 5 - Modeling I

4:30 p.m. to	**5:10 p.m.**	**Keynote 7: On the use of PSE tools for solving problems in the field of Polymerization Reaction Engineering. A personal overview.** *Reinaldo Giudici (University of São Paulo, Brazil)*
5:10 p.m. to	**5:30 p.m.**	**122-1 - Numerical Simulation of Coal Boiler at Electric Thermal Plants Using Computational Fluid Dynamics** *Jairo Zago de Souza (ESSS, Brazil), Leonardo Paes Rangel (ESSS, Brazil), Henrique Carlos Monteiro (ESSS, Brazil), Marcelo Bzuneck (Tractebel Energia, Brazil), Luiz Felippe (Tractebel Energia, Brazil), Artur Ellwanger (Tractebel Energia, Brazil)*
5:30 p.m. to	**5:50 p.m.**	**159-1 - ProSec : Modelling and Simulation in 3D of Brazed Aluminium Core-in-Drum Plate-fin Heat Exchangers** *Florian Picard (FIVES CRYO, France), David Averous (FIVES CRYO, France), Xavier Joulia (ENSIACET, France), Denis Barreteau (ENSIACET, France)*
5:50 p.m. to	**6:10 p.m.**	**277-1 - A Novel Approach for the Prediction of PSD in Antisolvent Mediated Crystallization** *Massimiliano Grosso (Università degli Studi di Cagliari, Italy), Omar Galan (Louisiana State University, USA), Roberto Baratti (Università degli Studi di Cagliari, Italy), Jose A. Romagnoli (Louisiana State University, USA)*
6:10 p.m. to	**6:30 p.m.**	**270-1 - Molecular-Scale Modeling of the Degradation of Phenol in Advanced Oxidation Processes Reaction Media** *Bruno Ramos (Universidade of São Paulo, Brazil), Antonio Carlos Silva Costa Teixeira (Universidade of São Paulo, Brazil)*

Session 6 - Real Time Optimization

4:30 p.m. to	**5:10 p.m.**	**Keynote 8: Challenges with Advanced Control Technologies** *Mario C.M. Campos (PETROBRAS SA, Brazil), Marcos V.C. Gomes (PETROBRAS SA, Brazil), Herbert Teixeira (PETROBRAS SA, Brazil)*
5:10 p.m. to	**5:30 p.m.**	**105-1 - Numerical Pitfalls by State Covariance Computation** *Nina Paula Goncalves Salau (Federal University of Rio Grande do Sul, Brazil), Jorge Otávio Trierweiler (Federal University of Rio Grande do Sul, Brazil), Argimiro Resende Secchi (Federal University of Rio de Janeiro, Brazil)*
5:30 p.m. to	**5:50 p.m.**	**209-1 - Embedded Control for Optimizing Flexible Dynamic Process Performance** *Jeonghwa Moon (University of Illinois at Chicago, USA), Seonbyeong Kim (University of Illinois at Chicago, USA), Gerardo Ruiz (University of Illinois at Chicago, USA), Andreas A. Linninger (University of Illinois at Chicago, USA)*
5:50 p.m. to	**6:10 p.m.**	**272-1 - A Global Optimization Approach for the Estimation of Domains of Attraction** *Luis Gerónimo Matallana Pérez (PLAPIQUI, Argentina), Anibal Manuel Blanco (PLAPIQUI, Argentina), José Alberto Bandoni (PLAPIQUI, Argentina)*
6:10 p.m. to	**6:30 p.m.**	**442-1 - A Performance Study of Dynamic RTO Applied to a Large-Scale Industrial Continuous Pulping Process** *Pablo Adrian Rolandi (Process Systems Enterprise Ltd., UK), Jose Alberto Romagnoli (Louisiana State University, USA)*

Session 7 - Optimization

4:30 p.m. to	**5:10 p.m.**	**Keynote 9: Current Trends in Parallel Computation and the Implications for Modeling and Optimization** *John D. Siirola (Sandia National Universities, USA)*
5:10 p.m. to	**5:30 p.m.**	**128-1 Optimization of Transformations for Convex Relaxations of MINLP Problems Containing Signomial Functions** *Andreas Lundell (Åbo Akademi University, Finland), Tapio Westerlund (Åbo Akademi University, Finland)*
5:30 p.m. to	**5:50 p.m.**	**145-1 - An Improved Quasi-Sequential Approach to Large-Scale Dynamics Processes Optimization** *Weirong Hong (Zhejiang University, China), Pengcheng Tan (Zhejiang University, China), Quoc Dong Vu (Ilmenau University of Technology, Germany), Pu Li (Ilmenau University of Technology, Germany)*
5:50 p.m. to	**6:10 p.m.**	**153-1 - A Branch-and-Cut Framework for Multi-stage Stochastic Programming Problems under Endogenous Uncertainty** *Matthew Colvin (University of Wisconsin - Madison, USA), Christos T. Maravelias (University of Wisconsin - Madison, USA)*
6:10 p.m. to	**6:30 p.m.**	**244-1 - Nested Heuristic and Gradient-based Method for Generalized Disjunctive Programming** *Daqing Tian (Zhejiang University, China), Lingyu Zhu (Zhejiang University, China), Xi Chen (Zhejiang University, China), Zhijiang Shao (Zhejiang University, China), Jixin Qian (Zhejiang University, China)*

Session 8 - Modeling II

4:30 p.m. to	**5:10 p.m.**	**Keynote 10: Incorporation Molecular Signature Descriptors in Reverse Problem Formulations** *Nishanth G. Chemmangattuvalappil (Auburn Universtity, USA), Charles C. Solvason (Auburn Universtity, USA), Susilpa Bommareddy (Auburn Universtity, USA), Mario R. Eden (Auburn Universtity)*
5:10 p.m. to	**5:30 p.m.**	**250-1 - Modelling and Control of the Variable Channel Reactor** *Mayank P. Patel (Imperial College London, UK), Nilay Shah (Imperial College London, UK), Robert Ashe (AM Technology, UK)*
5:30 p.m. to	**5:50 p.m.**	**286-1 - Heterogeneous Anaerobic Biofilm Reactor Models. Application to UASB, EGSB and AFB Reactors** *Mauren Fuentes Mora (INGAR (CONICET-UTN), Argentina), Pío Antonio Aguirre (INGAR (CONICET-UTN), Argentina), Nicolás José Scenna (INGAR (CONICET-UTN), Argentina)*
5:50 p.m. to	**6:10 p.m.**	**405-2 - Adaptive Random Search: A promising method for determining the stability of mixtures** *Nauro da Silveira Junior (Federal University of the Rio Grande do Sul, Brazil), Nilo Sérgio Medeiros Cardozo (Federal University of the Rio Grande do Sul, Brazil), Argimiro Resende Secchi (Federal University of the Rio de Janeiro, Brazil), Keiko Wada (Federal University of the Rio Grande do Sul, Brazil)*
6:10 p.m. to	**6:30 p.m.**	**447-1 - How to Manage Complexity in Phase Equilibria Modeling? Application to the Bunsen Reaction** *Mohamed Kamel Hadj-kali (Université de Toulouse, France), Vincent Gerbaud (Université de Toulouse, France), Patrick Lovera (CEA, DEN, Physical Chemistry Department), Jean-marc Borgard (CEA, DEN, Physical Chemistry Department), Pascal Floquet (Université de Toulouse, , France), Xavier Joulia (Université de Toulouse, , France), Philippe Carles (CEA, DEN, Physical Chemistry Department)*

Tuesday, August 18th

7:30 a.m.		**Registration**
8:00 a.m. to	**8:50 a.m.**	**Plenary 5: Chemical Logistics - Going Beyond Intra-Plant Excellence** *I.A.Karimi (National University of Singapore, Singapore)*
8:50 a.m. to	**9:40 a.m.**	**Plenary 6: Technology Advances for Dynamic Real-Time Optimization)** *L.T. Biegler (Carnegie Mellon University, USA)*
9:40 a.m. to	**10:10 a.m.**	**Coffee Break**
10:10 a.m. to	**12:50 p.m.**	**Sessions 9, 10, 11 and 12**

Session 9 - Global Optimization and Multiscale Modeling

10:10 a.m. to	**10:50 a.m.**	**Keynote 11: Expanding the Manufacturing Horizon: Solving the Integration Paradox**

Luis Puigjaner (Polytechnic University of Catalonia, Spain)

10:50 a.m. to 11:10 a.m. **42-1 - Global Optimization of Integer and Mixed-Integer bi-Level Programming Problems via Multiparametric Programming**

Luis F. Dominguez (Imperial College London, UK), Efstratios N. Pistikopoulos (Imperial College London, UK)

11:10 a.m. to 11:30 a.m. **63-1 - From a Generic Paradigm to a Generic Tool Set: Exploring Computer-Aided Multiscale Modelling**

Aidong Yang (University of Surrey, UK), Yang Zhao (University of Surrey, UK)

11:30 a.m. to 11:50 a.m. **109-1 - Multiscale Modelling for Computer Aided Polymer Design**

Kavitha Chelakara Satyanarayana (Technical University of Denmark, Denmark), Jens Abildskov (Technical University of Denmark, Denmark), Rafiqul Gani (Technical University of Denmark, Denmark), Georgia Tsolou (University of Patras & Institute of Chemical Engineering and High-Temperature Chemical Processes, Greece), Vlasis G. Mavrantzas (University of Patras & Institute of Chemical Engineering and High-Temperature Chemical Processes, Greece)

11:50 a.m. to 12:10 p.m. **479-1 - Stochastic dynamic predictions using kriging for nanoparticle synthesis**

Andres F. Hernandez (Georgia Tech, USA), Martha A. Grover (Georgia Tech, USA)

12:10 p.m. to 12:30 p.m. **251-1 - A New Algorithm for Global Optimization: Molecular-Inspired Parallel Tempering**

Silvia Ochoa (Berlin Institute of Technology, Germany), Jens-uwe Repke (Berlin Institute of Technology, Germany), Guenter Wozny (Berlin Institute of Technology, Germany)

12:30 p.m. to 12:50 p.m. **260-1 - Global Optimization of Nonconvex Generalized Disjunctive Programs**

Juan P Ruiz (Carnegie Mellon University, USA), Ignacio E. Grossmann (Carnegie Mellon University, USA)

Session 10 - Operations & Control - Industrial Application

10:10 a.m. to 10:50 a.m. **Keynote 12: Real Time Industrial Process Systems: Experience from the Field**

Carlos A. Ruiz (Soteica LLC, Ideas & Technology, USA)

10:50 a.m. to 11:10 a.m. **185-1 - PETROBRAS Experience Implementing Real Time Optimization**

Fabio dos Santos Liporace (PETROBRAS, Brazil), Antônio Carlos Katata (PETROBRAS, Brazil), Antônio Carlos Zanin (PETROBRAS, Brazil), Carlos Roberto Porfírio (PETROBRAS, Brazil), Lincoln F. L. Moro (PETROBRAS, Brazil), Marcos V. C. Gomes (PETROBRAS, Brazil)

11:10 a.m. to 11:30 a.m. **66-1 - Using Wavelet Texture Analysis in Image-Based Classification and Statistical Process Control of Paper Surface Quality**

Marco P. Seabra Reis (University of Coimbra, Portugal), Armin Bauer (Voith Paper Automation, Germany)

11:30 a.m. to 11:50 a.m. **240-2 - Addressing Long-Term Biorestoration in Eutrophic Lakes as an Optimal Control Problem, under Different Scenarios**

Vanina G. Estrada (PLAPIQUI - Universidad Nacional del Sur-CONICET, Argentina), Elisa R. Parodi ((IADO),Universidad Nacional del Sur-CONICET, Argentina), Maria Soledad Diaz (PLAPIQUI - Universidad Nacional del Sur-CONICET, Argentina)

11:50 a.m. to	**12:10 p.m.**	**263-1 - Development of a Strategy to Monitor and Control the Oil-Water Interface Level of a Liquid-Liquid Separator for Treatment of Wastewater Using an Image-Based Detector** *Lenita da Silva Lucio Fernandes (Federal University of the Rio Grande do Norte, Brazi), João Bosco de Araújo Paulo (Federal University of the Rio Grande do Norte, Brazi), Jackson Araujo de Oliveira (Federal University of the Rio Grande do Norte, Brazi)*
12:10 p.m. to	**12:30 p.m.**	**126-1 - Collaborative Multi - Agent based Process Monitoring System for Offshore Oil and Gas Production** *Sathish S Natarajan (National University of Singapore, Singapore), Kaushik Ghosh (National University of Singapore, Singapore), Rajagopalan Srinivasan (National University of Singapore, Singapore)*
12:30 p.m. to	**12:50 p.m.**	**108-1 - IPL2&3 Performance Improvement Method for Process Safety Using the Event Correlation Analysis** *Junya Nishiguchi (Yamatake Corporation, Japan), Tsutomu Takai (Yamatake Corporation, Japan)*

Session 11 - Energy - Panel Discussion

10:10 a.m. to	**10:50 a.m.**	**Keynote 13: Energy Systems Engineering** *Paul I. Barton (Massachusetts Institute of Technology, USA)*
10:50 a.m. to	**11:30 a.m.**	**Keynote 14: Water-to-Energy Systems as Examples of Efficient Process Systems Engineering Approach** *Petr Stehlik (Brno University of Technology, Czech Republic)*
11:30 a.m. to	**12:10 p.m.**	**Keynote 15: A Review of Sustainable Energy - Recent Development and Future Prospects of Dimethyl Ether (DME)** *En Sup Yoon (Seoul National University, South Korea), Chonghun Han (Seoul National University, South Korea)*
12:10 p.m. to	**12:50 p.m.**	**Panel Discussion**

Session 12 - Business Decision Suport I

10:10 a.m. to	**10:50 a.m.**	**Keynote 16: Integration of Planning and Scheduling and Consideration of Uncertainty in Process Operations** *Zukui Li (Rutgers University, USA), Marianthi Ierapetritou (Rutgers University, USA)*
10:50 a.m. to	**11:10 a.m.**	**248-2 - Unit Slots based Short-Term Scheduling for Multipurpose Batch Plants** *Naresh Susarla (National University of Singapore, Singapore), Jie Li (National University of Singapore, Singapore), I. A. Karimi (National University of Singapore, Singapore)*
11:10 a.m. to	**11:30 a.m.**	**284-1 - Linking Marketing and Supply Chain Models for Improved Business Strategic Decision Support** *José Miguel Laínez (Universitat Politècnica de Catalunya, Spain), Gintaras V. Reklaitis (Purdue University, USA), Luis Puigjaner (Universitat Politècnica de Catalunya, Spain)*
11:30 a.m. to	**11:50 a.m.**	**300-3 - Operation of the Argentinian Interconnected Electricity Network**

		Ana María Eliceche (Universidad Nacional del Sur, PLAPIQUI-CONICET, Argentina), Pablo Enrique Martínez (Universidad Nacional del Sur, PLAPIQUI-CONICET, Argentina)
11:50 a.m. to	**12:10 p.m.**	**445-1 - Development of a Computer Support System for the Management of Regulatory Compliance of Pharmaceutical Processes** *Berkan Sesen (University of Oxford, UK), Pradeep Suresh (Purdue University, USA), Rene Banares- Alcantara (University of Oxford, UK), Venkat Venkatasubramanian (Purdue University, UK)*
12:10 p.m. to	**12:30 p.m.**	**360-1 - Integrating Purchase Contract Decisions with Inventory Management Optimization in the Supply Chain** *Maria Analia Rodriguez (INGAR (CONICET-UTN), Argentina), Aldo Vecchietti (INGAR (CONICET-UTN), Argentina)*

Wednesday, August 19th

7:30 a.m.		**Registration**
8:00 a.m. to	**8:50 a.m.**	**Plenary 7: Research Challenges in Planning and Schedulling for Enterprise-wide Optimization of Process Industries** *Ignacio E. Grossmann (Carnegie Mellon University, USA)*
8:50 a.m. to	**9:40 a.m.**	**Plenary 8: Production Schedulling in the Process Industries: Current trends, emerging challenges and opportunities** *Gabriela P. Henning (INTEC, UNL-CONICET, Argentina)*
9:40 a.m. to	**10:10 a.m.**	**Coffee Break**
10:10 a.m. to	**12:10 p.m.**	**Sessions 13, 14, 15 and 16**
12:10 p.m. to	**1:30 p.m.**	**Lunch**
1:30 p.m. to	**3:30 p.m.**	**Sessions 17, 18, 19 and 20**
3:30 p.m. to	**4:50 p.m.**	**Coffee Break & Poster Session**
4:50 p.m. to	**6:10 p.m.**	**Sessions 21, 22, 23 and 24**
8:00 p.m. to	**12:00 p.m.**	**Gala Dinner**

Session 13 - Modeling and Experiments

10:10 a.m. to	**10:50 a.m.**	**Keynote 17: The Significance of Experiments on PSE** *Günter Wozny, Harvey Arellango Garcia (Berln Institute of technology, Germany)*
10:50 a.m. to	**11:10 a.m.**	**62-1 - On the Optimal Design of Clinical Tests for the Identification of Physiological Models of Type 1 Diabetes Mellitus** *Federico Galvanin (Università di Padova, Italy), Massimiliano Barolo (Università di Padova, Italy), Sandro Macchietto (Imperial College London, UK), Fabrizio Bezzo (Università di Padova, Italy)*
11:10 a.m. to	**11:30 a.m.**	**64-1 - Design of Experiments of Steam Deacidification of Edible Oils for Modeling Validation** *Roberta Ceriani (State University of Campinas, Brazil), Klícia Araújo Sampaio (State University of Campinas, Brazil), Simone Monteiro E Silva (State University of Campinas, Brazil), Thiago Taham (State University of Campinas, Brazil), Antonio José de Almeida Meirelles (State University of Campinas, Brazil)*

11:30 a.m. to	**11:50 a.m.**	**179-1 - Sensitivity Analysis of Non-Linear Dynamic Models: Prioritizing Experimental Research** *Gurkan Sin (Technical University of Denmark, Denmark), Anna Eliasson Lantz (Technical University of Denmark, Denmark), Krist V. Gernaey (Technical University of Denmark, Denmark)*
11:50 a.m. to	**12:10 p.m.**	**350-1 - Optimal Experimental Design for the Determination of Protein Ion-Exchange Equilibrium Parameters** *Tilman Barz (Berlin Institute of Technology, Germany), Verena Löffler (Berlin Institute of Technology, Germany), Harvey Arellano-garcia (Berlin Institute of Technology, Germany), Günter Wozny (Berlin Institute of Technology, Germany)*

Session 14 - Model Based Control

10:10 a.m. to	**10:50 a.m.**	**Keynote 18: Robust Integration of RTO and MPC** *Darci Odloak (University of Sao Paulo, Brazil)*
10:50 a.m. to	**11:10 a.m.**	**26-2 - An Evolutionary Approach to Derive Adaptive Optimal Control for Chemical Reaction Processes** *Yoshiaki Shimizu (Toyohashi University of Technology, Japan)*
11:10 a.m. to	**11:30 a.m.**	**138-1 - Real-time Moving Horizon State and Parameter Estimation for SMB Processes** *Achim Küpper (Technische Universität Dortmund, Germany), Moritz Diehl (K.U. Leuven, Germany), Johannes P. Schlöderl (Universität Heidelberg, Germany), Hans Georg Bock (Universität Heidelberg, Germany), Sebastian Engell (Technische Universität Dortmund, Germany)*
11:30 a.m. to	**11:50 a.m.**	**237-1 - Optimal Control Law Development in a Sequential Batch Reactor through Mixed Integer Particle Swarm Dynamic Optimization** *Adrián Ferrari Argachá (Engineering School - Uruguay, Uruguay), María Soledad Gutiérrez (Engineering School - Uruguay, Uruguay), Evaristo Chalbaud Biscaia Jr. (Federal University of the Rio de Janeiro, Brazil)*
11:50 a.m. to	**12:10 p.m.**	**308-1 - Multi-Scenario-based Robust Nonlinear Model Predictive Control with First Principle Models** *Lorenz T Biegler (Carnegie Mellon University, USA), Rui Huang (Carnegie Mellon University, USA), Sachin C- Patwardhan (IIT Bombay, India)*

Session 15 - PSE and Sustainability

10:10 a.m. to	**10:50 a.m.**	**Keynote 19: Sustainable Supply Chains: Key Challenges** *Ana Paula Barbosa-Póvoa (IST, CEG-IST,UTL, Portugal)*
10:50 a.m. to	**11:10 a.m.**	**16-1 - Design of Sustainable Batch Processes Through Simultaneous Minimization of Process Waste, Cleaning Agent and Energy** *Iskandar Halim (Institute of Chemical and Engineering Sciences, Singapore), Rajagopalan Srinivasan (National University of Singapore, Singapore)*
11:10 a.m. to	**11:30 a.m.**	**165-1 - Sustainability Analysis of Chemical Processes Plants Using a Hybrid Heuristic and Indicator Model**

Ana Carvalho (Instituto Superior Técnico, Portugal), Iskandar Halim (Institute of Chemical and Engineering Sciences, Singapore), Rajagopalan Srinivasan (National University of Singapore, Singapore), Henrique Matos (Instituto Superior Técnico, Portugal), Rafiqul Gani (Technical University of Denmark, Denmark)

11:30 a.m. to 11:50 a.m. **204-1 - Development of a Flowsheet Design Framework of Multi-Step PSA Cycles for CO2 Capture**

Giovanna Fiandaca (University College London, UK), Eric S Fraga (University College London, UK), Stefano Brandani (University of Edinburgh, UK)

11:50 a.m. to 12:10 p.m. **421-1 - Life-cycle Dynamic Process Simulation: A Paradigm Shift In Plant Design?**

Jaleel Valappil (Bechtel Oil, Gas & Chemicals Inc., USA), Ram Tekumalla (Bechtel Oil, Gas & Chemicals Inc., USA), David Messersmith (Bechtel Oil, Gas & Chemicals Inc., USA)

Session 16 - Business Decision Support II

10:10 a.m. to 10:50 a.m. **Keynote 20: Integration of Production Planning and Scheduling**

Christos T. Maravelias (University of Wisconsin, USA)

10:50 a.m. to 11:10 a.m. **35-1 - Stochastic Programming with Tractable Mean–Risk Objectives for Refinery Planning Under Uncertainty**

Cheng Seong Khor (Universiti Teknologi PETRONAS, Malaysia), Thi Huynh Nga Nguyen (Universiti Teknologi PETRONAS, Malaysia)

11:10 a.m. to 11:30 a.m. **103-1 - Oil Products Distribution Systems: Decomposition Approach On Pipeline And Inventory Scheduling**

Susana Relvas (CEG-IST, UTL, Portugal), Ana Paula Barbosa-Póvoa (CEG-IST, UTL, Portugal), Henrique A. Matos (CPQ, IST, UTL, Portugal)

11:30 a.m. to 11:50 a.m. **215-1 - Efficient Bulk Maritime Logistics for the Supply and Delivery of Multiple Chemicals**

Jie Li (National University of Singapore, Singapore), I. A. Karimi (National University of Singapore, Singapore), Rajagopalan Srinivasan (National University of Singapore, Singapore)

11:50 a.m. to 12:10 p.m. **226-1 - MINLP Model and Algorithms for Optimal Design of Large-Scale Supply Chain with Multi-Echelon Inventory and Risk Pooling under Demand Uncertainty**

Fengqi You (Carnegie Mellon University, USA), Ignacio E. Grossmann (Carnegie Mellon University, USA)

Session 17 - Modeling & Optimization Industrial Application

1:30 p.m. to 1:50 p.m. **118-1 - Predicting Refinery Energy Losses Due to Fouling in Heat Exchangers**

Francesco Coletti (Imperial College London, UK), Sandro Macchietto (Imperial College London, UK)

1:50 p.m. to 2:10 p.m. **129-1 - A Model-Based Methodology for Simultaneous Design and Control of a Bioethanol Production Process**

Merlin Alvarado Morales (Technical University of Denmark, Denmark), Mohd Kamaruddin Abd Hamid (Technical University of Denmark, Denmark), Gürkan Sin (Technical University of Denmark, Denmark) Krist V. Gernaey (Technical University of Denmark, Denmark), John M. Woodley (Technical University of Denmark, Denmark), Rafiqul Gani (Technical University of Denmark, Denmark)

2:10 p.m. to 2:30 p.m. **434-1 - Monitoring of Vinyl Chloride Suspension Polymerization Using NIRS. 1. Prediction of Morphological Properties**

João Miguel de Faria Junior (BRASKEM S.A., Brazil), Fabricio Machado (Federal University of the Rio de Janeiro, Brazil), Enrique Luis Lima (Federal University of the Rio de Janeiro, Brazil), José Carlos Pinto (Federal University of the Rio de Janeiro, Brazil)

2:30 p.m. to 2:50 p.m. **450-1 - Improving Accuracy of Refinery Optimization by the On-Line Characterization of Crude Oil**

Patricia Araujo Pantoja (University of São Paulo, Brazil), Francisco Falla Sotelo (University of São Paulo, Brazil), Anderson Castanho Gatti (University of São Paulo, Brazil), Mariana Franciele Ciriaco (University of São Paulo, Brazil), Antonio Carlos Katata (PETROBRAS SA., Brazil), Galo Antonio Carrillo Le Roux (University of São Paulo, Brazil), Claudio Augusto Oller do Nascimento (University of São Paulo, Brazil)

2:50 p.m. to 3:10 p.m. **451-1 A Method of Representation of Petroleum by a Real Components Substitute Mixture**

Galo Antonio Carrillo Le Roux (University of São Paulo, Brazil), Franklin David Rincon Cuellar (University of São Paulo, Brazil)

3:10 p.m. to 3:30 p.m. **459-1 - Sustain Activities for Real-Time Optimization Models of Ethylene Plants**

Rubens Rejowski Jr. (Aspen Technology Inc., Brazil), Vinay Shah (Aspen Technology Inc., Brazil), Charles Edward Fontenot (Aspen Technology Inc., Brazil), Paulo de Tarso (BRASKEM S.A., Brazil) and Victória Emilia Neves Santos (BRASKEM S.A., Brazil)

Session 18 - Control System Design

1:30 p.m. to 2:10 p.m. **Keynote 21: Hybrid System Descriptions for Chemical Engineering Processes**

Luís C. Oliveira-Lopes (Federal University of Uberlândia, Brazil)

2:10 p.m. to 2:30 p.m. **266-1 - Dynamic Degrees of Freedom for Tighter Bottleneck Control**

Elvira M. B. Aske (NTNU, Norway), Sigurd Skogestad (NTNU, Norway)

2:30 p.m. to 2:50 p.m. **333-1 - Slug Control Structures for Mitigation of Disturbances to Offshore Units**

Diego Di Domenico Pinto (Federal University of the Rio de Janeiro, Brazil), Ofélia de Queiroz Fernandes Araújo (Federal University of the Rio de Janeiro, Brazil), José Luiz de Medeiros (Federal University of the Rio de Janeiro, Brazil), Giovani Cavalcante Nunes (PETROBRAS, Brazil)

2:50 p.m. to 3:10 p.m. **379-1 - Embedded Control and Monitoring Systems in Production Machine Networks**

Sirkka-Liisa Jamsa-Jounela (Helsinki University of Technology, Finland), Mikko Huovinen (Tampere University of Technology, Finland)

3:10 p.m. to 3:30 p.m. **448-1 - Control Structure Selection Based Upon Rigorous Dynamic Process Models**

Le Chi Pham (TU Dortmund, Germany), Sebastian Engell (TU Dortmund, Germany)

Session 19 - Process Design I

1:30 p.m. to	**1:50 p.m.**	**33-1 - Plant Design Project Automation Using an Automatic Pipe Routing Routine** *Ewerton Emmanuel da Silva Calixto (CHEMTECH LTDA, Brazil), Paula Gomes Bordeira (CHEMTECH LTDA, Brazil), Hugo Torres Calazans Ramos da Silva (CHEMTECH LTDA, Brazil), Cesar Augustus Coelho Tavares (CHEMTECH LTDA, Brazil), Marco Tulio Duarte Rodriguez (CHEMTECH LTDA, Brazil)*
1:50 p.m. to	**2:10 p.m.**	**188-1 - Automated Design of Batch Water-Allocation Network** *Li-juan Li (Dalian University of Technology, China), Rui-jie Zhou (Dalian University of Technology, China), Hong-guang Dong (Dalian University of Technology, China)*
2:10 p.m. to	**2:30 p.m.**	**223-1 - Ethylene Separation by Feed-Spliting from Light Gases** *Daniel A. Salerno (Berlin Institute of Technology, Germany), Harvey Arellano-Garcia (Berlin Institute of Technology, Germany), Gunter Wozny (Berlin Institute of Technology, Germany)*
2:30 p.m. to	**2:50 p.m.**	**240-5 - Cost Minimization in a non-Catalytic Biodiesel Production Plant** *Susana Espinosa (Universidad Nacional del Comahue, Argentina), Maria Soledad Diaz (Planta Piloto de Ingeniería Química (PLAPIQUI), Universidad Nacional del Sur-CONICET, Argentina), Esteban A. Brignole (Planta Piloto de Ingeniería Química (PLAPIQUI), Universidad Nacional Del Sur-CONICET, Argentina)*
2:50 p.m. to	**3:10 p.m.**	**361-1 - Process Integration Aspects of the Design of a Gas Separation System for the Upgrade of Crude SNG to Grid Quality in a Wood to Methane Process** *Martin Gassner (Ecole Polytechnique Fédérale de Lausanne, Switzerland), François Maréchal (Ecole Polytechnique Fédérale de Lausanne, Switzerland)*
3:10 p.m. to	**3:30 p.m.**	**420-1 - Modeling of Multi-Stream Heat Exchangers with Phase Changes for Cryogenic Applications** *Ravindra S. Kamath (Carnegie Mellon University, USA), Ignacio E. Grossmann (Carnegie Mellon University, USA), Lorenz T. Biegler (Carnegie Mellon University, USA)*

Session 20 - Biotechnology

1:30 p.m. to	**2:10 p.m.**	**Keynote 22: An Industrial Perspective on Pharmaceutical PSE** *Peter Crafts (AstraZeneca Pharmaceuticals, UK)*
2:10 p.m. to	**2:50 p.m.**	**Keynote 23: New Opportunities for Process Systems Engineering in Industrial Biotechnology** *John M. Woodley (Technical Universtity of Biotecnologi Denmark, Denmark)*

2:50 p.m. to	**3:10 p.m.**	**130-1 - An Outer Approximation Algorithm for the Global Optimization of Regulated Metabolic Systems** *Gonzalo Guillén (University Rovira i Virgili), Carlos Pozo (University Rovira i Virgili, Spain), Laureano Jiménez (University Rovira i Virgili, Spain), Albert Sorribas (University of Lleida, Spain)*
3:10 p.m. to	**3:30 p.m.**	**240-3 - Design of Stable Large-Scale Metabolic Networks** *Jimena Di Maggio (PLAPIQUI - Universidad Nacional del Sur-CONICET, Argentina), Anibal Blanco (PLAPIQUI - Universidad Nacional del Sur-CONICET, Argentina), Alberto Bandoni (PLAPIQUI - Universidad Nacional del Sur-CONICET, Argentina), Maria Soledad Diaz (PLAPIQUI - Universidad Nacional del Sur-CONICET, Argentina)*

Session 21 - PSE and The New Frontiers of Chemical Engineering

4:50 p.m. to	**6:10 p.m.**	**Panel Discussion**

Session 22 - Soft Sensors

4:50 p.m. to	**5:10 p.m.**	**13-1 - On the Topological Analysis of Industrial Process Data using the SOM** *Francesco Corona (Helsinki University of Technology, Finland), Michela Mulas (Helsinki University of Technology, Finland), Roberto Baratti (University of Cagliari, Italy), Jose Romagnoli (University of Cagliari, Italy)*
5:10 p.m. to	**5:30 p.m.**	**13-2 - Delaunay Tessellation and Topological Regression: An Application to Estimating Product Properties from Spectroscopic Measurements** *Francesco Corona (Helsinki University of Technology, Finland), Elia Liitiäinen (Helsinki University of Technology, Finland), Amaury Lendasse (Helsinki University of Technology, Finland), Roberto Baratti (University of Cagliari, Italy), Lorenzo Sassu (Saras Ricerche e Tecnologie, Italy)*
5:30 p.m. to	**5:50 p.m.**	**400-1 - Control of Fed-Batch Yeast Cultivation Using a Capacitance Sensor** *Giann Braune Reis (Federal University of São Carlos, Brazil), Antonio Carlos L. Horta (Federal University of São Carlos, Brazil), Teresa C. Zangirolami (Federal University of São Carlos, Brazil), Roberto C. Giordano (Federal University of São Carlos, Brazil), Antonio J. G. Cruz (Federal University of São Carlos, Brazil)*
5:50 p.m. to	**6:10 p.m.**	**434-2 - Monitoring of Vinyl Chloride Suspension Polymerization Using NIRS. 2.Proposition of a Scheme to Control Morphological Properties of PVC** *João Miguel de Faria Junior (BRASKEM S.A., Brazil), Fabricio Machado (Federal University of the Rio de Janeiro, Brazil), Enrique Luis Lima (Federal University of the Rio de Janeiro, Brazil), José Carlos Pinto (Federal University of the Rio de Janeiro, Brazil)*

Session 23 - Process Design II

4:50 p.m. to	**5:10 p.m.**	**44-1 - A Continuous Targeting Approach for Integrated Solvent and Process Design Based on Molecular Thermodynamic Models** *André Bardow (Delft University of Technology, Netherlands), Klaas Steur (Delft University of Technology, Netherlands), Joachim Gross (Delft University of Technology, Netherlands)*
5:10 p.m. to	**5:30 p.m.**	**45-1 - Systematic Representation and Property Prediction of Fatty Systems for Process Design/Analysis in the Oil and Fat Industry** *Carlos Axel Díaz Tovar (Technical University of Denmark, Denmark), Roberta Ceriani (State University of Campinas, Denmark), Rafiqul Gani (Technical University of Denmark, Denmark), Bent Sarup (Alfa Laval Copenhagen A/S, Denmark)*
5:30 p.m. to	**5:50 p.m.**	**147-1 - Controlled Formation of Self-assembled Nanostructures with Desired Geometries: Robust Dynamic Paths to Robust Desired Structures** *Earl O. P. Solis (Massachusetts Institute of Technology, USA), Paul I. Barton (Massachusetts Institute of Technology, USA), George Stephanopoulos (Massachusetts Institute of Technology, USA)*
5:50 p.m. to	**6:10 p.m.**	**267-1 - A Multi-resolution Multi-scale Computational Approach for Characterization and Analysis of Nanostructured Surfaces** *Rajib Mukherjee (Louisiana State University, USA), Jose A Romagnoli (Louisiana State University, USA), Ahmet Palazoglu (University of California Davis, USA)*

Session 24 - Non Traditional Applications

4:50 p.m. to	**5:30 p.m.**	**Keynote 24: Integrated Computational Tools for Bio-fabrication** *Rubens Maciel Filho (State University of Campinas, Brazil)*
5:30 p.m. to	**5:50 p.m.**	**337-1 - Development of a Micro Heat Exchanger Made with Ceramic Multi-Layers (LTCC) and its Setup to Gas Flow Measurements** *Elsa Vásquez Alvarez (University of São Paulo, Brazil), Francisco Tadeu Degasperi (Faculdade de Tecnologia de São Paulo, Brazil), Mario R. G. Rubio (Instituto de Pesquisas Tecnológicas, Brazil), Reinaldo Giudici (University of São Paulo, Brazil)*
5:50 p.m. to	**6:10 p.m.**	**224-1 - Storage Logistics of Fruits and Vegetables in Distribution Centers** *Daniela de Freitas Borghi (State University of Campinas, Brazil), Reginaldo Guirardello (State University of Campinas, Brazil), Lúcio Cardozo Filho (State University of Maringá, Brazil)*

Thursday, August 20th

7:30 a.m.		**Registration**
8:00 a.m. to	**8:50 a.m.**	**Plenary 9: Weblabs Dilemma in Chemical Engineering Teaching: Hindering or Promoting Creativity?** *Roberto de Campos Giordano (Federal University of Sao Carlos, Brazil)*

8:50 a.m. to	**9:40 a.m.**	**Plenary 10: Nonlinear Dynamic Data Reconciliation in Real Time in Actual Processes** *Jose Carlos Pinto (Federal University of Rio de Janeiro, Brazil)*
9:40 a.m. to	**10:10 a.m.**	**Coffee Break**
10:10 a.m. to	**12:30 p.m.**	**Sessions 25, 26, 27 and 28**
12:30 p.m. to	**1:00 p.m.**	**Lunch**
1:00 p.m. to	**1:30 p.m.**	**PSE'09 Assessment**
1:30 p.m. to	**1:50 p.m.**	**PSE'12 Presentation**
1:50 p.m. to	**2:10 p.m.**	**Closing Ceremony & Award**

Session 25 - Education in Process Systems Engineering

10:10 a.m. to	**10:30 a.m.**	**143-2 - What, if anything, is a Chemical Engineer?** *Laureano Jiménez Esteller (University Rovira i Virgili), Gonzalo Guillén-gosálbez (University Rovira i Virgili), Dieter T. Bôer (University Rovira i Virgili)*
10:30 a.m. to	**10:50 a.m.**	**289-1 - Information Modelling: Industrial Standards for Integrated Plant Management** *Zofia Lukszo (Delft University of Technology)*
10:50 a.m. to	**11:10 a.m.**	**325-1 - An experimental approach to complement Process Systems Engineering learning** *Roger Josef Zemp (State University of Campinas, Brazil), Flavio Vasconcelos da Silva (State University of Campinas, Brazil), Renata Waki (State University of Campinas, Brazil)*
11:10 a.m. to	**11:30 a.m.**	**453-1 - Cooperative Weblab: A Tool for Cooperative Learning in Chemical Engineering in a Global Environment** *Galo Carrillo Le Roux (University of São Paulo, Brazil), Giann Braune Reis (Federal Unversity of São Carlos, Brazil), Charles Dayan de Jesus (Federal Unversity of São Carlos, Brazil), Roberto de Campos Giordano (Federal Unversity of São Carlos, Brazil), Antonio José Gonçalves da Cruz (Federal Unversity of São Carlos, Brazil), Luiz Valcov Loureiro (Polytechnic School of the University of São Paulo, Brazil), Paulo Firmino Moreira Junior (Polytechnic School of the University of São Paulo, Brazil), Claudio Augusto Oller do Nascimento (Polytechnic School of the University of São Paulo, Brazil)*
11:30 a.m. to	**12:10 p.m.**	**Panel Discussion**

Session 26 - Data Driven Supervision and Diagnosis

10:10 a.m. to	**10:30 a.m.**	**65-1 - On Line Monitoring and Diagnosis of the Operation of a Hybrid CSTR by using PCA Models** *Luis Bergh (Santa Maria University, Chile), David Gómez (Santa Maria University, Chile)*
10:30 a.m. to	**10:50 a.m.**	**394-2 - Multivariate Statistical Control of Emulsion and Nanoparticle Slurry Processes Based on Process Tomography, Dynamic Light Scattering and Acoustic Sensor Data**

Rui F Li (University of Leeds, UK), Lande Liu (University of Leeds, UK), Xue Z Wang (University of Leeds, UK), Richard Tweedie (Industrial Tomography Systems Ltd, UK), Ken Primrose (Industrial Tomography Systems Ltd, UK), Jason Corbett (Malvern Instruments Ltd, UK), Fraser Mcneil-Watson (Malvern Instruments Ltd, UK)

10:50 a.m. to 11:10 a.m. **238-1 - Comparison between Statistical and Observer-Based Approaches for Fault Detection and Isolation in a Chemical Process**

Thiago de Sá Feital (Federal University of the Rio de Janeiro, Brazil), Uwe Kruger (The Petroleum Institute, UAE), José Carlos Pinto (Federal University of the Rio de Janeiro, Brazil), Enrique Luis Lima (Federal University of the Rio de Janeiro, Brazil)

11:10 a.m. to 11:30 a.m. **482-1 - Model-Based Fault-Tolerant Control of Particulate Processes: Handling Uncertainty, Constraints and Measurement Limitations**

Arthi Giridhar (University of California Davis, USA), Sathyendra Ghantasala (University of California Davis, USA), Nael H. El-Farra (University of California Davis, USA)

11:30 a.m. to 11:50 a.m. **276-1 - Probabilistic Modelling and Stochastic Dynamic Optimization for Managing Abnormal Situations in Plant-wide Operations**

Yu Yang (University of Alberta, Canada), Jong Min Lee (University of Alberta, Canada)

11:50 a.m. to 12:10 p.m. **177-1 - Channel Blockage Detection of Microreactors using Pressure Sensors**

Yasuyuki Kaburagi (Nara Institute of Science and Technology, Japan), Masaru Noda (Nara Institute of Science and Technology, Japan), Hirokazu Nishitani (Nara Institute of Science and Technology, Japan)

12:10 p.m. to 12:30 p.m. **50-1 - A Novel Technique to Estimate Valve Stiction Based on Pattern Recognition**

Marcelo Farenzena (Federal University of Rio Grande do Sul, Brazil), Jorge Otávio Trierweiler (Federal University of Rio Grande do Sul, Brazil)

Session 27 - Design and Operation of Complex Systems

10:10 a.m. to 10:30 a.m. **11-1 - Generative Modeling of Holonic Manufacturing Execution Systems for Batch Plants**

Maria de Los Milagros Rolón (CONICET, Argentina), Mercedes Canavesio (Universidad Tecnológica Nacional, Argentina), Ernesto Martínez (CONICET, Argentina)

10:30 a.m. to 10:50 a.m. **131-1 - Catalyst Deactivation in Reactive Distillation**

Rui Manuel Filipe (Instituto Superior de Engenharia de Lisboa, Portugal), Henrique Aníbal de Matos (Instituto Superior Técnico, Portugal), Augusto Queiroz Novais (Instituto Nacional de Engenharia, Tecnologia e Inovação, Portugal)

10:50 a.m. to 11:10 a.m. **285-1 - Solid-Liquid Equilibrium Modelling and Stability Tests for Triacylglycerols Mixtures**

Moisés Teles dos Santos (University of São Paulo, Brazil), Galo Antonio Carrillo Le Roux (University of São Paulo, Brazil), Xavier Joulia (University of Toulouse-INPENSIACET, France), Vincent Gerbaud (University of Toulouse-INP-ENSIACET, France)

11:10 a.m. to 11:30 a.m. **405-1 - Viscoelastic Flow Simulation: Development of a Methodology of Analysis using the Software OpenFOAM and Differential Constitutive Equations**

Jovani Luiz Favero (Universidade Federal do Rio Grande do Sul, Brazil), Argimiro Resende Secchi (Universidade Federal do Rio de Janeiro, Brazil), Nilo Sérgio Medeiros Cardozo (Universidade Federal do Rio Grande do Sul, Brazil), Hrvoje Jasak (University of Zagreb, Croatia)

11:30 a.m. to 11:50 a.m. **373-1 - The Application of a Task-Based Concept for Design of Innovative Industrial Crystallizers**

Richard Lakerveld (Delft University of Technology, Netherlands), Herman Kramer (Delft University of Technology, Netherlands), Peter Jansens (Delft University of Technology, Netherlands), Johan Grievink (Delft University of Technology, Netherlands)

11:50 a.m. to 12:10 p.m. **330-1 - Design of T-shaped Microreactors by Reduced-Order Approach**

Osamu Tonomura (Kyoto University, Japan), Masato Kubota (Kyoto University, Japan), Manabu Kano (Kyoto University, Japan), Shinji Hasebe (Kyoto University, Japan)

12:10 p.m. to 12:30 p.m. **244-3 - A Sequential Variable Decoupling Method for Rigorous Calculation of Molecular Weight Distribution of Batch Free Radical Polymerization**

Xi Chen (Zhejiang University, China), Feijun Jiang (Zhejiang University, China), Zhen Yao (Zhejiang University, China)

Session 28 - Energy and Sustainability

10:10 a.m. to 10:30 a.m. **14-2 - Versatile Biodiesel Production by Catalytic Separative Reactors**

Anton Alexandru Kiss (Akzo Nobel Chemicals, Netherlands)

10:30 a.m. to 10:50 a.m. **106-1 - Effect of Substrate Specific Area on Lignocellulose Enzymatic Hydrolysis: An Experimental and Modeling Investigation**

Chiara Piccolo (Padova University, Italy), Fabrizio Bezzo (Padova University, Italy), Gunnar Liden (Lund Institute of Technology, Sweden)

10:50 a.m. to 11:10 a.m. **153-2 - Conversion of Glycerol to Liquid Fuels**

Carlos A. Henao (University of Wisconsin - Madison, USA), Dante Simonetti (University of Wisconsin - Madison, USA), James A. Dumesic (University of Wisconsin - Madison, USA), Christos T. Maravelias (University of Wisconsin - Madison, USA)

11:10 a.m. to 11:30 a.m. **280-1 - Optimization of Compressor Networks in LNG Operations**

M.M.Faruque Hasan (National University of Singapore, Singapore), Md Shamsuzzaman Razib (National University of Singapore, Singapore), I.A. Karimi (National University of Singapore, Singapore)

11:30 a.m. to 11:50 a.m. **344-3 - A Systematic Framework to Calculate Economic Value and Environmental Impact of Biorefining Technology**

Norman E. Sammons Jr. (Auburn University, USA), Wei Yuan (Auburn University, USA), Susilpa Bommareddy (Auburn University, USA), Mario R. Eden (Auburn University, USA), Burak Aksoy (Alabama Center for Paper and Bioresource Engineering, USA), Harry Cullinan (Alabama Center for Paper and Bioresource Engineering, USA)

11:50 a.m. to 12:10 p.m. **424-2 - Dynamic Simulation of Nuclear Hydrogen Production**

Patricio Ramirez (Massachusetts Institute of Technology, USA), Mujid S. Kazimi (Massachusetts Institute of Technology, USA), Paul I. Barton (Massachusetts Institute of Technology, USA)