

Sunday PM

Plenary Lectures

PLE1

517a

Plenary 1

Organizer(s) - Prof. Philippe Tanguy

18:30 Congress Welcome

18:50 0001 *Plenary Lecture 1* *Wood D.G.

19:30 End of Session

Monday AM

Plenary Lectures

PLE2

517a

Plenaries 2, 3, 4

Organizer(s) - Prof. Philippe Tanguy

08:00 0002 *Plenary Lecture 2* *Moniz E. J.08:40 0003 *Plenary Lecture 3* *Minster J-F.09:20 0004 *Plenary Lecture 4* *Lewin G.

10:00 End of Session

Advanced Polymer Hybrids,
Composites and Alloys

APH1

514c

Advanced Polymer Hybrids,
Composites and Alloys 1

Organizer(s) - Prof. S. Zhu (Canada), Prof. T. McKenna (Canada)

10:30 Keynote Lecture

10:30 0005 *Multipod-Like Polystyrene Latex Particles Obtained from Silica Seeds* Perro A., Nguyen D., Désert A., Reculosa S., Lambert O., Taveau J.C., Bourgeat-Lami E., Ravaine S., *Duguet E.11:10 0006 *Effect of Nanotube Alignment on the Morphology and Properties of Polycarbonate/MWCNT Nanocomposites* *Abbasi S., Derdouri A., Carreau P.J.11:30 0007 *Smart Surfaces: Stimuli-Responsive Polymer Brushes on the Flat Surfaces* Gao X., *Zhu S., Sheardown H., Brash J.11:50 0008 *Surface Characterization of New Cellulose/Silica Hybrids* *Portugal I., Dias V.M.M., Evtuguin D.V.12:10 0009 *Hyperbranched Polyethylenes Tethered with Polyhedral Oligomeric Silsesquioxane Nanoparticles* *Ye Z., Wang J.

12:30 End of Session

Bioenergy and Green
Engineering

BGE1

520b

BioEnergy and Green
Engineering 1

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

10:30 0010 *Utilization of Used Cooking Oil, Canola Oil, and Greenseed Canola Oil for Biodiesel Production* Issariyakul T., *Dalai A.10:50 0011 *Can Transportation Reduce its Carbon Intensity by 1 Gigaton?* *Spatari S., Tomkins C.D., Kammen D.M.11:10 0012 *Effect of Organic Solvents on Enzyme-Catalyzed Synthesis of Biodiesel* Fu B., *Vasudevan P.T.11:30 0013 *Investigation of Enzymatic Biodiesel Production using Ionic Liquid as a Co-solvent* Ruzich N.I., *Bassi A.S.11:50 0014 *Production of Biodiesel from Waste Oil using a Solid Acid Catalyst* Baig A., Gunda K., *Ng F.12:10 0015 *Biodiesel Production from Microalgae* Mulumba N., *Farag I.

12:30 End of Session

Bioproducts, Bioreactors and
Bioprocesses

BBB1A

519a

Bioproducts, Bioreactors and
Bioprocesses 1A

Organizer(s) - Dr. A. Margaritis (Canada)

10:30 Keynote Lecture

10:30 0016 *Biotechnology: Applications & Benefits* Almadidy A.11:10 0017 *Live Cell Imaging Reveals New Insights on Megakaryopoiesis* Leysi-Derilou Y., Duchesne C., Pineault N., *Garnier A.11:30 0018 *Reverse Engineering for Phage-Bacteria Interaction and the Implication in Phage-Therapy* Ardila D.C., Vives-Florez M., *Fernando González Barrios A.11:50 0019 *Thermal Aggregation of Protective Antigen Monitored by Light Scattering Spectroscopy* Belton D.J., *Miller A.F.12:10 0020 *Challenges in Producing Viral Vectors for Gene Therapy or Vaccine* *Chahal P.S., Kamen A.A.12:30 0021 *Improving Biobleaching of Laterite Ores by Metal Tolerance Training of Aspergillus Foetidus* Ge W., Tang J.Y., *Valix M.

12:50 End of Session

BBB1B

512h

Bioproducts, Bioreactors and
Bioprocesses 1B

Organizer(s) - Dr. A. Margaritis (Canada)

10:30 Keynote Lecture

10:30 0022 *A Combined Metabolic/Polymerization Modeling Approach on the Poly(3-Hydroxybutyrate) Production* Penloglou G., Roussos A., Chatzidoukas Ch., *Kiparissides C.11:10 0023 *Optimization of Biopolymer Production from Lactose using a Green Alga Strain* Wu N., *Lan C., Li Y., Wang B.11:30 0024 *Preparation and Characterization of Nontoxic Biodegradable Waterborne Polyurethanes* Jiang X., Tan H., *Xiao H.11:50 0025 *Morphology and Rheological Behaviour of Yarrowia Lipolytica During Production of Intra-Cellular Energetic Molecules* *Filladeau L., Cescut J., Uribelarra J.L., Molina-Jouve C., Anne-Archard D., Nicaud J.M.

12:10 End of Session

Biorefinery/Biomass
Transformation

BBT1

515a

Biorefinery/Biomass
Transformation 1

Organizer(s) - Dr. T. Browne (Canada), Dr. F. Berruti (Canada), Prof. C. Briens (Canada)

10:30 0026 *Kinetic Modeling of Pseudolignin Formation in Steam Exploded Woody Biomass* *Lam P.S., Sokhansanj S., Bi X., Lim C.J., Melin S.10:50 0027 *Ionic Liquid-Aided Carboxymethylation of Kraft Pulp* *Mikkola J-P, Tuuf J-C, Kirilin A, Damlin P, Salmi T

11:10 0028 *Formic Acid Production by Hydrothermal Oxidation of Biomass-Derived Carbohydrate* **Yun J.**, Jin F., Atsushi K., Tohji K., Enomoto H.

11:30 0029 *Formic Acid Catalysed Glucose Decomposition* **Kupiainen L.**, Ahola J., Tanskanen J.

11:50 0030 *Hemicellulose Pre-Extraction of Wood with Water in a CSTR* **Chen X.**, van Heiningen A. R. P.

12:10 0031 *Study of Furfural Formation Using Formic Acid* **Lamminpää K.**, Tanskanen J.

12:30 End of Session

CFD in Chemical Engineering and Industrial Processes

CFD1 **515b**

CFD in Chemical Engineering and Industrial Processes 1

Organizer(s) - Prof. J. R. Nunhez (Brazil), Dr. O. Simonin (France), Prof. K. Nandakumar (United Arab Emirates)

10:30 0032 *An Extension on the MD-SF-PF Model and Solving by Computational Fluid Dynamics* **Sarcheshmehpour M.**, Moradi A., Mohebbi A.

10:50 0033 *Numerical Simulation of Two-Phase Flow in a Free Round Jet by CFD Techniques* **Decker R.K.**, Noriler D., Mori M., Fritsching U., Meier H.F.

11:10 0034 *Eulerian-Eulerian Simulations of Gas-Liquid Bubbly Flow* **Silva M.K.**, Mori M., d'Ávila M.A.

11:30 0035 *Numerical Simulation of Large-Scale Bubble Column Reactors using a Hybrid Multiphase-CFD Approach (HIRES-TFM)* **Marschall H.**, Hinrichsen O., Polifke W.

11:50 0036 *Numerical Model for the Simulation of the Transport Water-Petroleum in Horizontal Pipes for One Time-Step* **Rodríguez E.**, Angulo W.

12:10 0037 *CFD Simulation of Residence Time Distribution in Industrial FCC Strippers* **Liu Y.J.**, Lan X.Y., Xu C.M., Gao J.S.

12:30 0038 *Simulations of Multiple-Pipe Gas Distributors in a Large Bubble Column* **Yang X.**, Li G., Dai G.

12:50 End of Session

Clean Coal Technology

CCT1

512g

Clean Coal Technology 1

Organizer(s) - Prof. R. Gupta (Canada), Prof. Miura (Japan), Dr. J. van Dyk (South Africa)

10:30 Keynote Lecture

10:30 0039 *Dewatering and Upgrading of Brown Coal Through Treatment in Solvent at Temperatures Below 350°C* **Miura K.**, Ashida R., Umamoto S., Sakajo A., Saito K., Kato K.

11:10 0040 *Simulation Study of Underground Coal Gasification in Deep Coal Seams* **Nourozieh H.**, Kariznovi M., Chen Z., Abedi J.

11:30 0041 *Effect of Pretreatment on MoS₂-based Catalyst for Higher Alcohols Synthesis* **Xiao H.C.**, Li D.B., Li W.H., Sun Y.H.

11:50 0042 *Modeling of Methanol Synthesis in Bubble Slurry Column Reactor* **Zhang L.J.**, Zhang H.T., Li T., Ying W.Y., Fang D.Y.

12:10 0043 *Pitch Production using Solvent Extraction: Effect of Operating Conditions* **Mohammad Ali Pour M.M.AP.**, Begum S.B., Gupta R.G., Katalambula H.K., Sun P.S., Peter J.P.

12:30 0044 *Influences of Char Structure Evolution on the Reactivities to O₂, CO₂ and NO* **Sheng C.**

12:50 End of Session

Energy

ENPOS

Energy Posters

Organizer(s) - Prof. M. Gray (Canada), Prof. J. Chaouki (Canada), Prof. P. Tanguy (Canada)

From **12:50** until **19:10**

0045 *Simulation of Distillation Process for Bioethanol Production Considering Fermentation By-Products* **Junqueira T. L.**, **Maciel Filho R.**, Maciel M. R. W.

0046 *Online Evolved Gas Analyses by TG-FTIR from Coal Pyrolysis* **Lijie Cui L.**, Zhang2 J., Yao3 F., Lin2 W.

0047 *Relation of Pretreatment Severity Factor to Lignocellulosic Ethanol Process* **Kim M**

0048 *Viability of Crude Coconut Oil for Biodiesel Synthesis* **Sousa E.**, Araújo G., Barros E.

0049 *Influence of Process Variables on the SO₂ Capture for Ca(OH)₂/Smectite Sorbents* **Fernández J.**, Gil B., Cotero E., Renedo M.J.

0050 *Desulfurization Tests of ZnO Nanostructure Prepared by Matrix Assisted Method* **Lee S.Y.**, Lee T.J., Park N.K.

0051 *Reaction Kinetic of Fischer-Tropsch Synthesis over a Commercial Co/SiO₂ Catalyst* **Fengle L.**, Haitao Z., Weiyong Y., Dingye F.

0052 *Using PEPT to Determind and Model TDH in Fluidized Bed* **Van de Velden M.**, Chan C.W., **Seville J.P.K.**, Fan X., Parker D.J., Baeyens J.

0053 *Characteristics and Formation of Carbonaceous Deposits within a Commercial RFCC Disengager* **Song J.**, Wei Y., Shi MM.

0054 *A Study on Deactivation of Catalyst for DME Direct Synthesis* **Yoon S.H.**, Park N.-K., Lee T.J.

0055 *Technical Comparison of Different Coal Gasification Technologies* **Seifkar N.**, Sarvinis J., Davey W.

0056 *The Economical Estimation of Heat Integrated Distillation Column* **Horiuchi K.**, Nakaiwa M., Matsuda K.

0057 *Heat Integration of a Delayed Coking Plant* **Li Y.**, Wang X., **Feng X.**

0058 *Introduction by Example of Energy-Saving Technology of Divided Wall Column* **Abe K.**

0059 *Optimization and Energy Analysis of an Ethane Recovery Plant* **Ghassemian S.**, Farhadi F.

0060 *Heat Transfer Analysis of Tray-Type HIDIc* **Hashimoto Y.**, Watanabe T., Song K., Ota Y., Hamaguchi T., Mori H.

0061 *Dividing Wall Columns: Fundamentals and Recent Advances* **Asprion N.**

0062 *An Application of DWC in n-BuOH Recovery* **Shin J.**, Lee S., Lee J., Han M., Kim Y., Lee M.

0063 *Using Exergy Analysis to Modify the Flowsheet of Atmospheric Distillation of Petroleum for Energy Integration* **Benali T.**, Latifi M.A., Daroux M., Tondeur D.

0064 *Heat Transfer and Flow Characteristics of a Double-tube HIDIc Trayed Column* **Noda H.N.**, Kataoka K.K., Yamaji H.Y., Kuratani N.K.

- 0065 *Catalytic Steam Gasification of Miscanthus X Giganteus in a Fluidised Bed Gasifier* *Rapagnà S., Di Marcello M., Mazziotti Di Celso G., Michel R., Matt M., Gruber R.
- 0066 *Mathematical Modeling of Steam Reforming Reaction in Fluidized Bed Membrane Reactor* Najafi Z., Fatemi S., Mostoufi N.
- 0067 *Simulation Model Evaluating CO₂ Corrosion in Natural Gas Well Tubing* Galatro D., Marin F., Navas G.
- 0068 *Potassium Doped Fe-Mo Bimetallic Carbide Catalysts for Higher Alcohols Synthesis from Syngas* Wang N., Fang K. G., Lin M. G., Li D. B., Sun Y. H.
- 0069 *The Utilization of the Activated Carbon for Gas Cleaning in the Biomass Gasification Process* Al-Dury S.
- 0070 *Tar Formation in Biomass Gasification Process* Al-Dury S.
- 0071 *Mathematical Modeling for the Cu/ZnO/Al₂O₃ Catalyzed Synthesis of Methanol* Lim H.-W., Park M.-J., Chae H.-J., Kang S.-H., Jun K.-W.
- 0072 *Improvement of Gas Cleaning in Biomass Gasification, Comparison Experimental Study* Al-Dury S.
- 0073 *Thermal and Geometrical Features of Jet Fires* Palacios A., Gómez-Mares M., Casal J.
- 0074 *Improved Oil Shale Pyrolysis Kinetics using TGA Data* Hillier J., Fletcher J., Orgill J., Isackson C., Fletcher T. H.
- 0075 *Concept Design and Validation of a Multi-Regime Gas-Solid Riser Reactor* Zhao H., Yang C., Li C., Shan H.
- 0076 *Effect of Fluid Bed Hydrodynamics on the Efficiency of Jet Attrition* Medghalchi M., Berruti F., Briens C.
- 0077 *The Carbon Footprint of Bioethanol from Waste* Stichonthé H., Azapagic A.
- 0078 *Multiplicity of Steady State in an Isothermal Catalyst Pellet* Giunta P., Bergamini M., Moreno M., Mariño F., Laborde M., Amadeo N.
- 0079 *Catalytic Degradation of High Density Polyethylene using Thermal Gravimetric Analysis* Rownaghi A. A., Tang L. G., Li C.-Z.
- 0080 *A Continuous Recovery Process for Lignin from Pulping and Lignocellulose Fractionation Streams* Wadekar P., Pooja A., Manudhane K., Lali A.
- 0081 *Hydrogen Production by Catalytic Steam Reforming of Bio Ethanol* Jain R., Jain S., Pant K.
- 0082 *Feedstock Impact on Mallee Wood Pyrolysis Yields and Bio-Oil Quality* Mourant D., Shen J., Li C.Z.
- 0083 *Modeling Kinetics of Castor Bean Cake Gasification* Jesus M.F., Barreto S.S., Andrade H.M.C., Vieira de Melo S.A.B., Torres E.A.
- 0084 *Enhanced Hydrogen Adsorption by Metal Doped Ordered Mesoporous Carbon* Saha D., Deng S.
- 0085 *Hydrogen Generation from Cellulose and Polymers Using Mechanochemical Treatment* Zhang Q.W., Saito F., Matsumoto M.
- 0086 *Growing Pains: The Development and Utilisation of Bioenergy Resources* Pritchard C.L., Katima J.H.Y.
- 0087 *Life Cycle Assessment of Biobutanol for use in Transportation Applications* Sarathy S.M., Zhang Y., Griffin W.M., Thomson M.J., MacLean H.L.
- 0088 *STUDIES ON GROWTH OF Chlorella vulgaris UNDER DIFFERENT CULTIVATION CONDITIONS* Sostaric M., Selisnik A., Knez S., Golob J., Bricelj M., Klinar D., Pivec A.
- 0089 *Glynergy* Gomez D.
- 0090 *Glynergy* Gomez D.
- 0091 *Efficient and Comprehensive Utilization of Cornstover* Gao Pengfei, Fan Daidi
- 0092 *Purification of Biogas for Use in Solid Oxide Fuel Cells* Sonoc A. C., Thurgood C., Peppley B.
- 0093 *Biodrying of Organic Fraction of Municipal Solid Waste* Krzystek L., Zawadzka A., Ledakowicz S.
- 0094 *Transesterification of Sunflower Oil using KNO₃/NaX Zeolite* Peña R., Romero R., Martínez S.L., Ramos M.J., Natividad R.
- 0095 *Biofuels Production: Diverse Feedstocks, Technologies and Food Security* Cardona C.A.
- 0096 *Chemical Kinetic Modeling of Biodiesel Combustion* Sarathy S.M., Thomson M.J.
- 0097 *Analysis of Transformation Routes of Glycerol Obtained from Biodiesel Production* Gómez A.M., Rincón S.M., Gil I.D.
- 0098 *Biomass Pyrolysis Technologies* Ram Reddi M., Lefebvre B.
- 0099 *Fuel Ethanol Production. Different Feedstocks and Steady States* Paz Astudillo I.C., Cardona Alzate C.A.
- 0100 *Heterogeneous Catalyzed Production of Biodiesel from Used Cooking Oil* Kalaru S., P.S S., Issariyakul T., Dalai A.K.
- 0101 *Better Not to Use Methanol for Making Biodiesel* Kaware J.P.
- 0102 *Biodiesel Production from Multiple Feed Stock* Selva Ilavarasi P., Ramachandra Iyer P.V., Ravichandran K., rajendran N.
- 0103 *Steam Reforming of Glycerol to Produce Hydrogen over Ni/CeO₂ Catalyst* Pant K., Jain R., Jain S.
- 0104 *Organic Base and Animal Shells as Catalysts for Biodiesel Production* Saetang R., Altamirano M., Romero-Zeron L.
- 0105 *Is there a case for Biofuels?* Obwaka E., Arnold D.
- 0106 *CO₂ Recovery from Fuel Gas by Gas Hydrate Formation* Kang S.P., Seo Y.T., Jang W.H., Kim J.H.
- 0107 *Thermodynamic Analysis on Adsorption Enhanced Steam Reforming of Glycerol for Hydrogen Production* Chen H.S., Cong T., Zhang T., Fang L., Dou B., Dupont V., Williams P., Ghadiri M., Ding Y.L.
- 0108 *Incineration as Solid Waste Management System: Actual Situation in Mexico* Alonso-Torres B., Rodríguez-Martínez A., Domínguez-Patiño M.L.
- 0109 *Hydrogen Recovery Study in a Typical Brazilian Refinery* Ferreira A.S., Souza V.P., Monteiro C.A.A., Brito C.O., Lopes A.L.S., Santos J.C, Rodrigues C.M.
- 0110 *Photodecomposition of Water with Methane over Metal Loaded Titanium Oxide* Ichihashi Y., Yamaguchi M., Nishikawa Y., Taniy K., Nishiyama S.
- 0111 *Particle Motion in a Standpipe as Observed by PEPT* Chan C.W., Seville J.P.K., Fan X., Baeyens J.
- 0112 *Ru/(CuIn)_xZn_{2(1-x)}S₂ Photocatalysts for Hydrogen Evolution via Water-splitting Reaction* Chen I-W., Tan C-H., Li C-T.
- 0113 *Finite Element Modeling of Absorption and Reaction of Carbon Dioxide in Aqueous Alkaline Films* Khan A.A., Shallicross D.C., Kentish S.E., Stevens G.W.
- 0114 *Kinetics Study of One-Step Synthesis of DME from Syngas* Cheng C., Ying W.

0115 *Kinetic Analysis of Asphaltenes Derived from Fosterton Oil* **Murugan P.**, Mahinpey N., Mani T

0116 *Extension of Heat Transfer Area Using Spiral Carbon Fibers* **Nakaso K.**, Kang H., Aoki T., Fukai J.

0117 *Fuel Oil Prepared by Blending Heavy Oil and Coal Tar* **Zhang G.**, Guo X., Zhang Y., Tian B.

0118 *Synthesis and Hydrodenitrogenation Activity of Tungsten Phosphide with Varying Amounts of Nickel* **Ibeh B.**, Hill J.M.

0119 *Basic Study on Bitumen Conversion in Supercritical Water at 723 K: Effect of Supercritical Water on Coke Formation* **Watanabe M.**, Kato S., Ishizeki S., Smith R.L.

0120 *Ice Formation During Gas Hydrate Decomposition* **Shahbazi A.**, Pooladi-Darvish M.P.D

0121 *Penetration of High Velocity Horizontal Gas Jets Into a Fluidized Bed at High Temperature: Measurements and Numerical Simulation* **Li F.**, Briens C., Berruti F.

0122 *Performance of Commercial Low Dosage Hydrate Inhibitors by Microcalorimetry* **Nazari K.**, Mohammad-Taheri M., Soleymani-Jamarani M., Sina M., Rahimi-Mofrad H.

0123 *Kinetics and Effects of H₂ Partial Pressure on Hydroprocessing of Heavy Gas Oil* **Dalai A. K.**, Adjaye J., Sundaramurthy V., Mapiour M.

0124 *Adsorption of Ethanol from Fermentation Broth: Breakthrough and Equilibrium Behaviour* **Jones R.A.**, Tezel F.H., Thibault J., Poupore J.

0125 *Investigation the Effect of Generalized Pseudo-Pressure Model Upon the Deliverability of Sarkhoon Gas -Condensate Reservoir* **Alavi F.S.**, **Mowla D.**, Esmaeilzadeh F.

0126 *Simulation of Bioethanol Production from Sugarcane Juice and Bagasse* **Dias M.O.S.**, **Maciel Filho R.**, Maciel M.R.W., Rossell C.E.V.

0127 *The Impact of and Solution to Onsite Missing Water Content* **Wang S.**, MacKenzie S., Carroll J.

0128 *FLUID PROPERTIES OF AN ATYPICAL WAXY CRUDE OIL* **Bacon MM.**, Romero-Zeron LB

0129 *A Case Study of Reliability and Availability Analysis of an Offshore Production Platform* **Baghaei A.**, Nourai F.

0130 *Well-to-Wheel Analysis of Bioethanol Production from Flax Shives* **González-García S.**, Luo L., Huppés G., **Moreira M.T.**, Feijoo G.

0131 *Modeling of Placement of Multiple Fluids of Different Rheology into a Fracture* **Lakhtychkin A.**, Vinogradov O., Eskin D.

0132 *Hydrocracking of Athabasca Bitumen using Ultradispersed Ni-W-Mo Catalysts* **Galarraga C. E.**, Scott C. E., Pereira-Almao P. R.

0133 *Passive, Non-intrusive Acoustic and Vibrometric Methods for Monitoring Bitumen Upgrading* **Book G.R.**, **Briens L.**, Briens C., Berruti F.

0134 *Molecular Imprinted Silica for Separation of Sugars from Cellulosic Biomass* **Osei-Prempeh G.**, Knutson B. L., **Rankin S. E.**

Energy Saving Distillation Technologies

ESDT1

512a

Energy Saving Distillation Technologies 1

Organizer(s) - Dr. K. Kataoka (Japan), Prof. Z. Olujic (Netherlands)

10:30 Keynote Lecture

10:30 0135 *Design and Control of Internally Heat Integrated Distillation System* **Hasebe S.**

11:10 0136 *HIDiC as a Retrofit Technology* **Harms S.**, **Olujic Z.**

11:30 0137 *A Compressor-free HIDiC System for Recovery of Waste Solvent Mixtures* **Kataoka K.K.**, Noda H.N., Yamaji H.Y., Mukaida T.M., Kaneda M.K.

11:50 0138 *Analysis of HIDiC Pilot Plant with a Rate-Based Model* **Mori H.**, Maeda T., Abe H., Hashimoto Y., Iwata S., Lee J.-M.

12:10 End of Session

Environment - Air Pollution

AP1

522bc

Environment - Air Pollution 1

Organizer(s) - Mrs. E. Lord (Canada)

10:30 0139 *Photo-oxidation of Methanethiol with Hydrogen Peroxide* **Sugawara K.**, Ohta M., Kato T., Sugawara T., **Otsuka M.**, Funayama H.

10:50 0140 *CFD Simulation of a Photocatalytic Reactor* **Schaer E.**, Vincent G., Marquaire P.M., Zahraa O.

11:10 0141 *Kinetics and Simulation of CO Oxidation over CO/CeO₂ Catalysts* **Ayastuy J.L.**, Gurbani A., González-Marcos M.P., Herrero J.E., Guil J.M., Gutiérrez-Ortiz M.A.

11:30 0142 *Low Temperature Catalytic C₇VOC Oxidation over Bimetallic (Zr-PILCs) Nanocomposite Clay Catalyst* **Besun N.**, **Deveci I.**, Erden H., Erden L.

11:50 0143 *Batch and Fixed-bed Column Biosorption of Cd²⁺ and Cu²⁺ onto Wheat Straw* **Muhamad H.**, Doan H., Lohi A.

12:10 0144 *Production of CO₂ Basket by Amine Treated Commercial Palm Shell Activated Carbon* **Khalil S.**, Aroua M., Daud M.

12:30 0145 *Activated Carbons from Various Biomasses and Characterisations* **Aktas Z.**

12:50 End of Session

Food Processing and Emerging Trends

FPET1

524c

Food Processing and Emerging Trends 1

Organizer(s) - Prof. M. Benali (Canada), Prof. G. Ascanio (Mexico), Dr. E. Brito (Germany), Dr. K. Marcotte (Canada)

10:30 Keynote Lecture

10:30 0146 *Dewatering and Spray Drying for Turning Bio-Solutions to Value-Added Powders* **Alves-Filho O.**

11:10 0147 *Development of a Freezing Model for Food Sprays* **Srinivasan S.**, Tanner F. X., Feigl K. A., Althaus T., Windhab E. J.

11:30 0148 *Modeling Porosity During Drying by Considering the Evolution of Initial Air Volume* **Khalloufi S.**, Almeida-Rivera C., Bongers P.

11:50 0149 *CFD Simulation and Experimental Comparison of One-Shot Coinjection Molding Flows for Non-Newtonian Fluids* **Padar S.**, Windhab E. J.

12:10 0150 *Investigation of the Key Transport Phenomena in Margarine Resting Tubes* **Herman C.**, Hospied E., Terfve C., Pr at L., Kegelaers Y., **Debaste F.**

12:30 0151 *Solubility of Lycopene in Supercritical CO₂ Fluid* **Shi J.**, Jun Xue S., Mittal G., Khatri M.

12:50 End of Session

Gasification, Syngas and CO₂ Sequestration

GSC1

520c

Gasification, Syngas and CO₂ Sequestration 1

Organizer(s) - Dr. K. Liu (USA), Prof. Dr. G. Xu (China), Dr. A. Avagliano (USA)

10:30 Keynote Lecture

10:30 Li, J. - Structure and Multi-Scale Strategy in Simulating Multiphase Systems in Energy Industry

11:10 0152 *Comparison of Several Coal Gasification Processes* **Seifkar N.**, Davey W., Sarvinis J.

11:30 0153 *Rates of Catalytic Steam Gasification of Bitumen Coke* **Karimi A.**, Semagina N., Gray M. R.

11:50 0154 *A Detailed Review of Biomass Gasification Research and Development* **Mahinpey N.**, Murugan P., Mani T.

12:10 0155 *Novel Approach to Accounting for Higher Hydrocarbons in Steam Methane Reformer Model* **Latham D.**, McAuley K. B., Peppley B.A.

12:30 0156 *Supercritical Water Gasification of Secondary Pulp/Paper-Mill Sludge and Sewage Sludge* **Zhang L.**, Xu C., Champagne P.

12:50 End of Session

Green Polymers

GP1

514a

Green Polymers 1

Organizer(s) - Prof. M-C. Heuzey (Canada), Prof. J. R. Dorgan (USA), Prof. L. Avérous (France)

10:30 Keynote Lecture

10:30 0157 *Biobased & Biodegradable Plastics for Reducing Carbon and Environmental Footprint* **Narayan R.**

11:10 0158 *Effects of Poly(Lactic Acid) Formulation and Crystallinity on Barrier Properties* **Courgneau C.**, Domenek S., Colomines G., Guinault A., Avérous L., Ducruet V.

11:30 0159 *Rigid and Mobile Amorphous Fractions in Two Poly(Lactic Acid) Delpouve N., Saiter A., Dargent E.*

11:50 0160 *Influence of Drawing on Poly(Lactic Acid) Barrier Properties* **Delpouve N.**, Stoclet G., Saiter A., Marais S., Dargent E.

12:10 0161 *High Barrier Multilayer Biodegradable Films Based on Polyhydroxyalkanoates and Polyvinyl Alcohol* **Thellen C.**, Ratto J.

12:30 0162 *Industrial-Scale PLA Production from PURAC Lactides* **de Vos S.C.**, Jansen P.J.

12:50 End of Session

Green Processing & Process Intensification

GPOS

220bc

Green Processing and Process Intensification Posters

Organizer(s) - Prof. E. Chornet (Canada), Prof. J. Chaouki (Canada), Prof. P. Tanguy (Canada)

From **12:50** until **19:10**

0163 *Electrochemical Remediation of Sulfide Ion in Geothermal Brines* **Rankin K.**, Bunce N.J.

0164 *Integration of Ammonia Clog Process through Conceptual Design Method* **Amidpour M.**, Molavi P., Talaei B.

0165 *Photocatalytic Oxidation of Oxalic Acid in a Fluidized Bed Reactor* **Pozzo R.L.**, Brandi R.J., Cassano A.E., Baltanás M.A.

0166 *Comparing Catalytic Systems CuO/ZnO/Al₂O₃ and Cu/MCM-41 for Degradation of Phenol* **Bezerra L.S.**, Pires C.A., Brandão S.T., Corrêa M.L.

0167 *Nonylephenol Removal Using Coprinus Cinereus Peroxidase* **Kariminia H.R.**, Sakurai A., Sakakibara M.

0168 *Modification of Bamboo Activated Carbon for Adsorption of Dyes* **Ip A. W. M.**, Barford J. P., McKay G.

0169 *Diffusion of Para-Chlorophenol into the Porous Structure of Activated Carbon* **Sze M.F. F.**, McKay G.

0170 *Process Integration in Bioremediation of Mercury Contaminated Industrial Wastewater* **Gluszcz P.**, Ledakowicz S., Wagner-Dobler I.

0171 *Chromium Removal from Aerospace Wastewater Using Dolomite* **A. albadarin A.**, Ahmad M.N.M., Allen S.J., Walker G.W.

0172 *Fouling of Iron Oxide Ceramic Membranes by Model Organic Compounds* **De Angelis L.**, Fidalgo de Cortalezzi M.

0173 *CWAO of p-Chlorophenol Over Metal Oxide Catalysts Supported on Ce_{0.65}Zr_{0.35}O₂* **Kim K.H.**, Kim J.R., Ihm S.K.

0174 *Enrichment of a K-Strategist Microbial Population Able to Biodegrade p-Nitrophenol in a Sequencing Batch Reactor* **Martin M.A.**, Carrera J., Perez J., Suarez-Ojeda M.E.

0175 *On Industrial Water Usage Networks Efficiency Estimation* **Statyukha G.**, Dzhygryey I., Shakhnovsky A.

0176 *Removal of Dyes by Chemical Modified Bamboo Char* **So S.H.**, Ip A.W.M., Cheung W.H., McKay G.

0177 *CuO/Al₂O₃ Catalysts for the CWPO of Phenol as Model Pollutant* **Inchaurrondo N.**, Massa P., Cechini J., Fenoglio R., Font J., Haure P.

0178 *Carbonylation of Nitrobenzene to Phenylisocyanate in Supercritical CO₂ + Acetonitrile Mixture* **Takebayashi Y.**, Sue K., Yoda S., Furuya T., Ohta T., Mae K.

0179 *Electrocoagulation Study for COD Removal from Chemical Mechanical Polishing Wastewater* **Chou W-L.**

0180 *Porous Zirconium Sulfate for Removal of Aqueous Boron* **Ohyama S.**, Kudo S., Abe K., Ohsumi H.

0181 *Removal of Cd(II) in Aqueous Solutions by Chicken Feathers* **Reynel-Avila H.E.**, Bonilla-Petriciolet A., De la Rosa G.

0182 *Ultrasonic Degradation Process of Phenol Using Indirect Irradiation Method* **Kobayashi D.**, Sano K., Terasaka K.

0183 *The Factors That Need to be Considered in Regrinding Prior to the Flotation of Gold Bearing Ores* **Wang H.**, Bagwasi O., Zhang J., Weng W., Ngothai Y., Zhang Y., Zhao J., Houdeh B., Xie M., Mei Y.

0184 *Use of Reclaimed Water in Aquaculture Activities. Application of Electrooxidation Technology* **Ibáñez R.**, Diaz V., Gómez P., Urtiaga A.M., Ortiz I.

0185 *Removal of Boron from Water using Bipolar Membrane Electrodialysis* **Nagasawa H.**, Iizuka A., Yamasaki A., Yanagisawa Y.

0186 *Conceptually Targeting Water and Hydrogen Networks with Multiple Resources* **Deng C.**, Feng X.

- 0187 *Optimization of Photo Catalytic Oxidation by Using of Artificial Neural Network and Genetic Algorithm* Keshavarz Jafarzadeh N., Porjafari N., **Sharifnia S.**, Hosseini S.N., Rahimpour F.
- 0188 *Comparison of 4-Chlorophenol Phototreatment with KrCl, XeBr AND Cl₂ Excilamps* **Gomez M.**, Gomez J.L., Gomez E., Murcia M.D., Christofi N.
- 0189 *Environmental Audit of an Adsorption Pilot Plant for Heavy Metals* Casanova J., Pérez N., **Rincón G.**
- 0190 *Isothermal or Non Isothermal Modelling in a Pellet Adsorbent* **Montastruc L.M.**, Floquet P.F., Mayer V.M., Nikov I.N., Domenech S.D.
- 0191 *Nano-Milling in Stirred Media Mills for Pesticide Formulations* Chin C.P., **Wu H.S.**, Wang S.S.
- 0192 *Recovery of Amino Acids from Hydrothermal Decomposition of Seafood Processing Wastes* **Faisal M.**, Atsuta Y., Fujie K., Daimon H.
- 0193 *Main Influencing Factors in the Froth Flotation of Sulfide Minerals* Weng W., **Ngothai Y.**, Wang H., Zhang Y., Zhao J., Houdeh B., Xie M., Mei Y., Zhang J.
- 0194 *Photo-Fenton Process Applied to Treatment of Oilfield Produced Water* **Silva D. N.**, Cunha G. M. A., Evangelista Neto A. A., Chiavone Filho O., Nascimento C. A. O.
- 0195 *Ultrasonic-Microwave Effect on Synthesis Acetals of Sorbitol with Solvent-Free* Zhou J., **Xin Z.**
- 0196 *Product System Sustainability Assessment on Monetary Basis* Zgurovsky M., **Statyukha G.**, Komarysta B., Dzhygyrey I.
- 0197 *Removal of Linoleic Acid from Ethanolic Solutions Using Ion Exchange Resin* Morelli 1 A.C., **Cren 1 E.C.**, Meirelles 1 A.J.A.
- 0198 *Analysis of the Environmental Impact of the Biodiesel Process* Marticorena A.A., Mandagarán B.A., **Campanella E.A.**
- 0199 *Statistical Survey of Domino Past Accidents* Rashtchian D., **Abdolhamidzadeh B.**, Morshedi M.
- 0200 *Use of Metrics for Appropriate Cost Analysis in Industrial Productions* **Macedonio F.**, **Drioli E.**
- 0201 *Environmental Management Strategies: Developing a Set of Indicators as a Decision-Making Support in Waste Policy* **Cifrian E.**, Alvarez M., Viguri J., Andres A.
- 0202 *A Fully-Coupled General Model of a Foam-Bed Reactor* **Gaikwad A.A.**, Bhaskarwar A.N.
- 0203 *Removal of Chromium from Simulated Wastewaters* **Singh K.**, Majumder C.B.
- 0204 *Free Radical Polymerization Solvent Influence of Ionic Liquids* **Schmidt-Naake G.**, Woecht I.
- 0205 *Effect of a Castor Oil-Derived Polyol Coating Film on Biodegradability of Thermally Formed Cassava Starch* **Cereda M. P.**, Gomes S. D., Ghemm J. L.D., Evarini J. A., Fabro F., Kummer A. C.
- 0206 *Conceptual Design of Olefine Process Through ODH Method Considering Economic Improvement* **Amidpour M.**, **Noorbehesht N.**, Ghasemi P.
- 0207 *Towards a "Fourth Bottom-line" in Sustainable Development: Institutional Reform and Governance Arrangements* **Hector D.C.A.**
- 0208 *Helix Reactor: Great Potential for Flow Chemistry* **Geerdink P.**, Runstraat A.V., Roelands C.P.M., Goetheer E.L.V.
- 0209 *Particle Deposition on Textured Chemically Heterogeneous Surfaces* **Rizwan T.**, Bhattacharjee S.
- 0210 *Numerical Study of Drop Spreading over Saturated Pores* Lunkad S., Maiti R.N., Buwa V.V., **Nigam K.D.P.**
- 0211 *Flow Visualization and Mass Transfer Characterization of Falling Film Reactor* Stavarek P., Le Doan T.V., Loeb P., **de Bellefon C.**
- 0212 *Preparation of Monodispersed P(MMA-CO-EGDMA) Microspheres in a Microfluidic System* **Xu J.**, Li S., Luo G.
- 0213 *Numerical Simulations of Liquid Liquid Flows in Micro-Channels* Mathur N., **Buwa V. V.**
- 0214 *Hydrodynamic Analysis of Parallel Micromixers Networks* **Saber M.**, **Commonge J-M.**, Falk L
- 0215 *Simulations of Gas-Liquid Taylor Flow in Microreactor with Reaction* Huang Y., **Yuan X.G.**, Ma P., Puri P., Valenzuela C.
- 0216 *SCR of NO_x in Microchannels - A Kinetic Study for Low and High Temperatures* **Hernández Carucci J.R.**, Eränen K., Salmi T.O., Murzin D.Yu., Karhu H.
- 0217 *Modification of Behaviour of Magnesium Cell in Relation to Increasing Cell Power and Time Duration of Cell Operation* **Shooshtary Rezvani H.**, **Sharifian M.**, Miremadoddin R., Zarmehri E.
- 0218 *Production of Olefins from Ethanol by Modified H-ZSM-5 Zeolite Catalysts* **Inaba M.**, Murata K., Takahara I.
- 0219 *Optimization of Hydrolysis Process Using "B" Molasses by Enzymatic Method* **LOPEZ-ZAMORA L.**, REYES G.L., CERECERO E.R.
- 0220 *Fermentation of Near-Neutral pH Extracted Hemicellulose Derived from Northern Hardwood* **Walton S.**, van Heiningen A., van walsum G.P.
- 0221 *Kinetics of the Transesterification of Rapeseed and Waste Sunflower Oils* **Klofutar B.**, Golob J., Klofutar C., Zagar E., Poljansek I.
- 0222 *Determination of Hydroxymethylfurfural in Cider Spent Yeast Treated with Subcritical Water* **Bahari A.**, Santos R. C. D., Bowra S.
- 0223 *Performance of Photocatalyst for Treatment of Re-Flow Furnace Exhaust Gas* **Obuchi E.**, Nakano R., Nakano K.
- 0224 *Kinetic Modeling of a Photocatalytic Reactor for Indoor Formaldehyde Abatement* **Passalia C.**, Alfano O.M., Brandi R.J.
- 0225 *Optimization of Dual-Layer Hollow Fiber Technology for Superior Gas Separation* **Li Y.**, **Chung T.S.**, Xiao Y.
- 0226 *Mixed Matrix PVDF-PTFE Hollow Fiber Membranes for Fresh Water Production* **Teoh M.M.**, **Chung T.S.**
- 0227 *High Surface Area Inorganic Membrane Module* **Liu W.**
- 0228 *Removal of Hydrogen Sulfide from Methane using Commercial Polyphenylene Oxide and Cardo-type Polyimide Hollow fiber Membranes* Pourafshari Chenar M., **Soltanieh M.**, **Savoji H.**, Matsuura T., Tabe-Mohammadi A.
- 0229 *A New Kinetic Model For 4-Chlorophenol Adsorption on Expanded Clay* **Gomez M.**, Gomez J.L., Murcia M.D., Peterson H., Christofi N.
- 0230 *How to Prevent Permanent Emulsion Formation in Liquid-Liquid Extraction* **Alex S.**, Biasotto F., Berthod A.
- 0231 *Strategies for the Design and Construction of Pilot Plants* Pérez N., **Rincón G.**, Urbina R., Casanova J., Llatas I.
- 0232 *Effect of Sound Wave Irradiation on Plasma Reaction Generated by DC Pulse Discharge* **Okada M.**, Nakane T., Furukawa S., Onoe K., Hiaki T.

0233 *Recrystallization of Caffeine Using Supercritical Carbon Dioxide as Antisolvent* **Pinheiro N.**, Romero J., Souza T.L., Sunehiro G., Kunita M.H.

0234 *Kernel PCA Performance in Processes with Multiple Operation Modes* **Maestri M., Cassanello M.**, Horowitz G.

0235 *Environmental Performance of Reactive Separation Processes* **Cardona C.A.**, Matallana L.G., Gutierrez L.F.

0236 *Interval Based MINLP Superstructure Synthesis of Multi-Period Mass Exchanger Networks* **Isafiade A.J.**, Fraser D.M.

0237 *Process Simulation and Optimization for Production of Fuel Ethanol from Lignocellulosic biomass* **Kim H.Y.**, Ha J.K., Lee E.S.

0238 *Oxidative Coupling of Propane with a Two-Layered Catalyst Beds Reactor* **Horie T.**, Sato Y., Aida T., Nishiyama S., Ohmura N.

0239 *The Water Effect on ITO Solubility in the DES Maline* **Su W.C.**, Wong D.S.H.

0240 *Effect of Baffle Geometry on Residence Time Distribution of Mesoscale Oscillatory Baffled Reactors* **Phan A.N.**, Harvey A.

0241 *The Application of ASPEN HYSYS for the Removal of Naphthenic Acids in Crude Oils by Extraction and Distillation Sequencing for Solvent and Products Recovery* **Okeke E.O.**, Uzokwe A., Ohiro N., Adebowale A., Dawari S.

0242 *21st Century Kinetics: Quantitative Predictions from First Principles* **West R.H.**, Harper M.R., Green W.H.

0243 *Improved Syngas Production During Propane Reforming using Forced Composition Cycling* **Alenazey F.**, Elnashaie S.S.E.H., Susu A.A., Adesina A.A.

0244 *Gas Quality Modification of Sarkhoon Gas Plant* **Atash Jameh A.**, Khalaji A., Mohammadi N.

0245 *Effects of Emulsion Character on the Separation of Butyl Acetate by Solvent Sublation* **Ma Y.C.**, Chang Z.D., Liu H.Z.

0246 *Batch and Continuous Pyrolysis of Waste Tyres in a Conical Spouted Bed Reactor* **Lopez G.**, Arabiourrutia M., Elordi G., Amutio M., Artetxe M., Aguado R., Olazar M.

0247 *Pyrolysis of Poly-(Ethylene Terephthalate) in a Conical Spouted Bed Reactor* **Artetxe M.**, Amutio M., López G., Olazar M., Elordi G., Bilbao J.

0248 *Effect of CaCO₃ Size on the Mechanical Properties of Recycled HDPE* **Ngothai Y.**, Putra H., Ozbakkaloglu T., Seracino R.

0249 *A Model for Frequency Estimation of Domino Accidents Freedom* **Abdolhamidzadeh B.**, Rashtchian D., Fattahi P.

0250 *Glass-Rubber Transition of Plasticised Starch Biopolymer Affected by Relative Humidity* **Chaudhary D.S.**, Adhikari B.P.

0251 *Diffusion Coefficient of Glycols in Water at Infinite Dilution* **Wang M. H.**, Soriano A. N., Li M. H.

0252 *Fuzzy Diagnosis with Automata Generated Languages* **Chang C.T.**, Chen J.Y.

0253 **Wajima T.**, Sugawara K.

0254 *Dissolving Pulp from Wastes of Corn Stalk* **Behin J.**, Akhavan Malayeri N.

0255 *Molten Salt Synthesis of the Cement Compound Dicalcium Silicate* **Photiadis G.M.**, Simons S.J. R., Maries A., Tyrer M.

0256 *SO₃H-Functionalized Ionic Liquid Catalyzed Tert-Butylation of Catechol: A Combined Study* **Nie X. W.**, Liu X., Gao L., Song C.S., Guo X. W.

0257 *Rayleigh Convection Measurement and Effect on Mass Transfer Coefficient* **Chen W.**, Yuan X.G., Liu B.T., Tang Z.L., Zeng A.W., Fu B., Liu C.J.

0258 *Selective Hydrogenation of Unsaturated Aldehydes over Supported Sn-Pt Bimetallic Catalysts* **Taniya K.**, Nakao K., Kishida M., Ichihashi Y., Nishiyama S.

0259 *High Voltage Electrical Discharges: Aqueous and Alcoholic Polyphenols Extractions* **Boussetta N.**, Deloison V., Vorobiev E., Merlier F., Cordin A., Lanoiselle J.L.

0260 *Phase Behavior of Ethyl Lactate in Supercritical CO₂* **Cho D. W.**, Shin J., Shin M., Bae W., Kim H.

0261 *Chelate-Modified and Membrane-Immobilized Fenton Reactions for Remediation* **Lewis S.**, Montague A., Smuleac V., Daunert S., Bachas L., Bhattacharyya D.

0262 *Removal of TOC, Oil and Grease from Production Water by Electroflotation* **Souza K.R.**, Mata A.L.M.L., Mata W., Silva D.R.

0263 *Biosorption of Azo Dyes by the Templated Crosslinked-Chitosan Nanoparticles* **Chen A.H.**

0264 *The Effective Sky Temperature: An Enigmatic Concept* **Gliha O.**, Kruczek B., Etemad S.Gh., Thibault J.

0265 *Novel Reverse-Flotation Process: Feasibility for Alcohol-Vegetable Oil Mixing* **Duangsuwan W.**, Tuzun U., Sermon P.A., Garrity D.J.

0266 *Application of Atmospheric Plasma-Jet Technology into Environmental Purification* **Fukuoka D.**, Murakami T., Kobayashi M., Onoe K.

0267 *Rapid Design Algorithm for Evaporative Heat Exchangers in Evaporative Fluid Coolers* **Jafari Nasr M.R.**, Behfar R.

0268 *Green Sand Reclamation by Particle Attrition in a Fluidized Bed* **Cruz N.**, Briens C., Berruti F.

0269 *Fuzzy Diagnosis with Automata Generated Languages* **Chang C.T.**, Chen J.Y.

0270 *Online Monitoring of Fouling and Cleaning by Measuring Nanovibration Propagation* **Pereira A.**, Mendes J., Melo L.F.

Industrial Program

LNG

512b

LNG

Organizer(s) - J. Havens (USA), J. Cramer (AlChE), R. Andersson (CSChE)

10:30 Introduction and Welcome - Jerry Havens, University of Arkansas

10:50 Greg Lewin - The Hague - An Industry Perspective

11:30 0271 Public Safety Requirements Zerby C.

12:10 0272 Evolution & Future Challenges of Siting & Safety Regulations for Onshore LNG Terminals Licari F.

12:50 End of Session

NASP

512d

North American Sustainability - Panel Discussion on Opportunities and Barriers for Energy Sustainability

Organizer(s) - M. Sejnoha (Canada), D. Schuster (USA), E. Aguilar (Mexico)

10:30 0273 Regulations and Science to Advance Sustainable Energy Production and Use Hecht A.D.

11:00 0274 Elements of Sustainability - An Industrial Perspective Kohlbrand H.T.

11:30 0275 *Public Policy and Education for Sustainable Energy Production and Use* **Lopez V.**

12:00 0276 *In Search of the "Holy Grail" Baseline Environmental Data to Inform Biofuels Decision Making in Canada* *A Progress Report* **McIntyre T.**

12:30 End of Session

XTL 512f

XTL (X to Liquid)

Organizer(s) - R. Cenni (Denmark), K. W. Hutchenson (USA), J. Lerou (USA), H. Yagi (Japan)

10:30 0277 *Canada's Energy Future - An Update.* **Leggett S.**

11:00 0278 *Impact of CO₂ emission on the XiY chain' long term viability* **Febvre F., Riffart S.**

11:30 0279 *Future Market Development for SNG* **Cenni R.**

12:00 0280 *International Energy Agency fuel and Technology Alternatives for Buses Project* **Gagné J-F., Nylund N-O.**

12:20 End of Session

FIRD 512e

Financing Industrial Research and Development

Organizer(s) - P. Dafniotis (Switzerland), G. S. Patience (Canada)

10:30 0281 *The Middle East to reinvent itself after its first 30 years of petrochemical development?* **Schmidt E.**

11:00 0282 *Strengthening Petrochemical Complexes by Integrated Operations in Japan* **Omiya S., Teraoka K., Hojo N.**

11:30 0283 *Analysis of the Petrochemical Industry in Latin-America. Executive Summary.* **Vignart O.U.**

11:50 End of Session

Life Cycle Management

LCM 518c

Life Cycle Management of Products and Services 1

Organizer(s) - Prof. R. Samson (Canada)

10:30 Keynote Lecture

10:30 0284 *Addressing the Life-cycle Costs, Benefits, and Impacts of Emerging Biofuels* **McKone T.E.**

11:10 0285 *Dynamic LCA Development: Incentives and Prospects* **Levasseur A., Lesage P., Margni M., Deschenes L., Samson R.**

11:30 0286 *The Evolution of LCI Databases* **Lesage P.**

11:50 0287 *Life-Cycle Environomic Optimisation of NGCC Plant with Biogenic Fuel and CO₂ Capture* **Bernier E., Samson R., Gerber L., Marechal F.**

12:10 0288 *The Environmental Performance Strategy Map: LCA Based Strategic Decision Making* **De Benedetto L., Klemes J.**

12:30 0289 *Evaluation of the Environmental Performance of Hardwood Pulp in Spain* **González-García S., Romero J., Moreira M.T., Feijoo G.**

12:50 End of Session

Mixing in Industrial Processes

MIX1 520f

Mixing in Industrial Processes 1

Organizer(s) - Prof. S. Kresta (Canada), Prof. J. Derksen (Canada), Dr. S. Jaffer (USA)

10:30 Keynote Lecture

10:30 0290 *THE OLDSHUE LECTURE - THE ART OF MIXING: A look at the Future of Mixing Technology with a Retrospective of Nearly Forty Years of Practice in the Field.* **Etchells A.W.**

11:10 0291 *New Mixing Technology to Increase Productivity of Alkoxylation Reactions* **Grebe T., Lovallo M., Rosellen M., Himmelsbach W.**

11:30 0292 *A Novel Industrial-Scale Mixer for Mixing-Sensitive Chemistry* **Cloeter M.D., Bachman G.W., Jones R.M., Lipp C.W.**

11:50 0293 *Impact of Reactor Design on the High Rate Softening Process* **BRIAND A., LOGETTE S., BARBIER E., ROBERT J., COSTE M., BANERJEE K., BEAUDET J.F.**

12:10 0294 *An Industrial Innovative Mixer And Heat Exchanger* **Nigam K.D.P.**

12:30 0295 *Note on Dispersed Two-Phase Flow Analysis by PUV in SMX* **Hammoudi M, Legrand J, Arhaliass A, Si-Ahmed E.K.**

12:50 End of Session

Nanotechnology

NAN1A 518a

Nanotechnology 1A

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

10:30 Keynote Lecture

10:30 0296 *A Canadian Perspective on Nanotechnology* **Petersen N.O.**

11:10 0297 *Titanium Silicalite-1 Catalytic Architecture: A New Approach to Make TS-1 Applicable to Industrial Process* **Yip A.C., Lam F.L., Hu X., Li P., Yuan W-K.**

11:30 0298 *Palladium Nanocatalysts with Controlled Size and Shape for Selective Hydrogenation* **Semagina N., Kiwi-Minsker L.**

11:50 0299 *Synthesis and Characterization of Silica and SBA-15 Supported Cobalt Catalysts for Oxidation of Phenolic Contaminants* **Shukla P., Wang S., Ang H.M., Tade M.O.**

12:10 0300 *Preparation of Macro-Porous Catalysts by Matrix-Assisted Method with Polystyrene Nano-Sphere* **Park N.K., Lee T.J., Yoon S.H., Choi H.Y.**

12:30 0301 *Synthesis of Cobalt Nano-Phase by Using Recycle Microwave Polyol Process* **Cheng Wen-Tung, Wang Y. L.**

12:50 End of Session

NAN1B 518b

Nanotechnology 1B

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

11:50 0302 *Novel ZnO Nanostructure Prepared by Combined Electrospinning and Solvothermal Techniques* **Sangkhaprom N., Supaphol P., Pavarajarn V.**

12:10 0303 *A Template-Free Fabrication of Copper Nanoshells by Metal Organic Chemical Vapor Deposition* **Lam F.L., Martin T.C., Hu X.**

12:30 0304 *General Two-Phase Routes to Synthesize Colloidal Metal Oxide Nanocrystals: Simple Synthesis and Their Ordered Self-Assembly Structures* **Nguyen T. D., Do T. O.**

12:50 End of Session

New Frontiers in Membrane Science and Technology

MST1 513e

New Frontiers in Membrane Science and Technology 1

Organizer(s) - Prof. Isabel Escobar (USA), Prof. T. S. Chung (Singapore), Prof. Vicki Chen (Australia)

10:30 Keynote Lecture

10:30 0305 *Polyelectrolyte Functionalized Membranes for Environmental Applications: LBL Assembly and Nanoparticle Synthesis* **Bhattacharyya D.**, Ladhe A., Datta S., Smuleac V., Xu J., Bachas L., Lewis S.

11:10 0306 *Development of Dynamic Polymer Layers for Cellulose Acetate Ultrafiltration Membranes* **Gorey C.**, Escobar I., Gruden C.

11:30 0307 *Incorporation of Nanoparticles in the Dual-Layer Hollow Fibers to Reduce Substructure Resistance* **Widjojo N.**, Zhang S.D., Chung T.S., Liu Y.

11:50 0308 *Developing Nanofiltration Hollow Fiber Membrane for Forward Osmosis Application* Wang K. Y., Yang Q., **Chung T. S.**, Rajagopalan R.

12:10 0309 *Application of Surface Modifying Macromolecules in Poly(ether sulfone) Ultrafiltration Membranes: Influence on Surface Morphology* **Kim Y.**, Rana D., Chung W.-J., Khulbe K.C., Matsuura T.

12:30 0310 *Flux Enhancement in Membrane Distillation by Module Designs* **Teoh M.M.**, Chung T.S.

12:50 End of Session

New Materials & Processes

NMPOS

220bc

New Materials and Processes Posters

Organizer(s) - Dr. G. Liebermann (Canada), Prof. J. Chaouki (Canada), Prof. P. Tanguy (Canada)

From **12:50** until **19:10**

0311 *Heat Transfer Modeling to Determine Cooking Time of Fish Surimi* **Moscosa M.**, Grajales A., Ruiz M., Morales J.

0312 *A Novel Granulated Copper Oxide Nano-Catalyst with High Porosity* **Hosseinpour M.**, Outokesh M., Mousavand T.

0313 *Preparation of Clearcoat Composition Containing Acrylosilane Polymer* **Park S.**, Noh S.

0314 *Extraction of Pd(II) Using Tri-n-octylamine Entrapped Microcapsules With Through-Hole* **Kiyoyama S.**, Shiomori K., Yoshida M., Hatate Y.

0315 *A Literature Survey on Synthetic Polymeric Reagents Used in Sulfide Minerals Flotation* Zhang J., **Ngathai Y.**, Weng W., Zhang Y., Liang W., Zhao J., Mei Y., Xie M., Jia Y., Ma H., Liu P., Gao F., Wang H.

0316 *Spreading Angle Measurements on a Pease-Anthony Venturi Scrubber* **Gómez-Puentes N.A.**, Guerra V.G., Coury J.R., Gonçalves J.A. S.

0317 *Flotation of Pyritic Refractory Gold Ores at High pH Values* Zhang J., **Ngathai Y.**, Wang H., Weng W., Zhang Y., Liang W., Zhao J., Mei Y., Xie M., Jia Y., Ma H., Liu P., Gao F.

0318 *Development of TiO₂ Polymeric Composite Photocatalyst for Water Purification* **Mukherjee D.**, Ray A.K.

0319 *Processing Options for Gold-Tellurides* Zhang Y., Zhang J., **Ngathai Y.**, Wang H., Weng W., Liang W., Zhao J., Mei Y., Xie M., Jia Y., Ma H., Liu P., Gao F., Richmond W.

0320 *Synthesis of Cube Shaped Titanium Dioxide and its Application to Dye-Sensitized Solar Cell* **Kim Y.**, Kang M., Chae J., Kwak B., Kim S.

0321 *Co-doping of C and La on NaTaO₃ in a Spray Pyrolysis Reactor* **Kang H. W.**, Park S. B.

0322 *Powder Flow Dynamics in a Continuous Mixer Operating in Semi-Batch Mode* **Ammarcha C.**, Gatamel C., Dirion J.L., Cabassud M., Berthiaux H., Mizonov V.

0323 *Synthesis and Characterization of Alginate-Derived Polymeric Super-Absorbent* **Planas B.**, Hernández M.

0324 *Dye-Sensitized Solar Cell Based on Nanoporous Structured Titanium Dioxide* **Lee Y.**, Kang M.

0325 *Biodegradable Films with High Thermoplastic Cassava Starch Content* Costa D.L.M.G., Scapim M.R.S., Grossmann M.V.E., **Yamashita F.**

0326 *New Green Polymers from Vegetable Oils* Hablot E., Averous L., **Bouquay M.**

0327 *Thermal and Mechanical Properties of Poly(Methyl Methacrylate)/montmorillonite Nanocomposites* **Sebenik U.**, Krajnc M.

0328 *Waxy Maize Starch Films Reinforced with Starch Nanocrystals* Viguie J., **Molina-Boisseau S.**, Dufresne A.

0329 *Role of Coloured Bio-Polymer Films Against Photo-Oxidation of Salmon Oil* **Jacquot M.**, Javeed Akhtar M., Arab Tehrani E., Gaiani C., Linder M., Desobry S.

0330 *Development of New Bituminous Binders Modified with MDI-Functionalized Reactive Polymers* Carrera V., García-Morales M., Partal P., **Navarro F.J.**, Gallegos C.

0331 *Incorporation of Silica into Polyacrylate Latex for Adhesive Applications through Minimal Miniemulsions and Mixed Mode Polymerisation* **Farzi G.A.**, Bourgeat-Lami E., McKenna T.F.L.

0332 *Monitoring of O/W Emulsions from a Copper Metalworking Industry* **Matos M.**, Lobo A., Benito J.M., Pazos C., Coca J.

0333 *Water Absorption and Adhesion of Acrylic Emulsion Films* **Huber G.J.**, Bellehumeur C.T.

0334 *On the Ambiguous Structure of the Aphron Shell* Amiri M.C., **Moshkelani M.**

0335 *Prevention of Apple Juice Enzymatic Browning by Electro-Acidification: Juice Integrity* Lam Quoc 1 A., **Mondor 2 M.**, Lamarche 2 F., Makhlof 1 J.

0336 *Cationic Surfactant for Polyethersulfone Ultrafiltration Membranes* **Madaeni S. S.**, Rahimpour A.

0337 *Separation of Bacteria from Milk Using Microfiltration Membrane* **Madaeni S.S.**, Yasemi M.

0338 *The Forces Necessary to Detach Bacteria from Foods and Food Analogues under Conditions of Couette Flow.* **Shama G.**, Perni S.

0339 *Model-Based Optimization Tool Dedicated to Continuous Microwave Tempering* Boillereaux L., Curet S., **Rouaud O.**

0340 *Foam Separation of Whey Proteins in the Continuous Countercurrent Bubble Column* **Kawalec-Pietrenko B.**, Holowacz I., Kucharska K.

0341 *Black Eyed Pea Pods Drying and Analysis of Phosphorous Content* Bezerra H.C.N., Brito P.K.S., Queiroga P.V.D.M., **Mata A.L.M.L.**, Mata W., Medeiros M.F.D.

0342 *Effect of Citric Acid on Thermal Behavior of Sucrose Solutions with Soluble Solids Concentrations of 40% and 10%.* **Ruiz R.Y.**, Caicedo L.A.

0343 *Identification of Critical Quality Parameters and Influential Environment Conditions of Granola During Storage* Macedo I.S.M., **Sousa-Gallagher M.J.**, Byrne E.P.

- 0344 *Thermal Properties of Grapefruit Juice as Affected by Temperature and Water Content* Telis V.R.N., Cabral R.A.F., Cantu-Lozano D., **Telis-Romero J.**
- 0345 *Vacuum Frying Improves Carotenoids Retention During Frying of Carrot Slices* **Dueik V.**, Robert P., Bouchon P.
- 0346 *Vacuum Cooling of Ground Beef Kinetics and Quality Aspects* **Lacasse B.**, Marcotte M., Grabowski S., Garipey C.
- 0347 *Optimization of Physical and Mechanical Properties of Starch/Clay Nanocomposites* **Majdzadejh-Ardakani K.**, Navarchian A.H.
- 0348 *Polypropylene Composites with Cellulose Microfibrils: Effect of Co-Milling* **Molina-Boisseau S.**
- 0349 *Barrier Properties of Polysaccharide/MICA Composite Films for Food Packaging* Alves V. D., Costa N., **Coelho I. M.**
- 0350 *Study on Preparation of Bi-Oriented PLA Film with an Increasing Durability* Kim M.S., KIM, **Hong S.C.Hong**, Kim J.H. KIM, Park J.W. Paek, Kim B.W.KIM
- 0351 *Combustion Reaction Kinetics & Properties of Fire-Retardant Co-Condensated MPF Resin* Shuna C., **Shenyuan F.**
- 0352 *Synthesis of Bio-Based Phenol-Formaldehyde Resol Resins using Softwood-Derived Lignins* **Wang M.**, Leitch M., Xu C.
- 0353 *The Effect of Nanoclay on Photo-Oxidation of Polyethylene* Kumanayaka T.O., Jollands M., **Parthasarathy R.**
- 0354 *Mechanical and Thermal Properties of PLA/Clay/Wood Nanocomposites* **De Kee D.**, Meng Q.
- 0355 *Synthesis of Polyalkyl Cyanoacrylates as Biodegradable Polymers for Drug Delivery Applications* **Dossi M.**, Sitia L., Storti G., Moscatelli D.
- 0356 *Preparation, Characterization, and Properties of Wheat Straw-Clay-Polypropylene Composites* Sardashti A., **Reddy R.**, Simon L.
- 0357 *Subsurface Colloidal Particles Release and their Role in Groundwater Contamination* **Sen T.K.**
- 0358 *Synthesis of Organic-Inorganic Hybrid Nanocomposite Hydrophilic Coating by Sol-Gel Method* **Rahimi Azam**, Fallfalahnejad Gilda, Ershad Langerudi Amir
- 0359 *Preparation of Polyolefin/Clay Nanocomposites using Different In-Situ Methods* **Ramazani S.A. A.**, Tavakolzadeh F.
- 0360 *Extraction of Rare Earth Elements from Monazite Mineral* **Souza C.P.**, De Morais A.M. V., Vasconcelos B.R.
- 0361 *Self-Assembly of G-rich DNA and its Orientation to Silica Nanoparticles* **Li W.**, Zheng L., Zhang J.L.PAPER WITHDRAWN
- 0362 *RO-NF Membrane Process for Pharmaceutical Wastewater Treatment and Separation of Antibiotics* Shahtalebi A., **Sarrafzadeh M. H.**, Montazer-Rahmati M. M.PAPER WITHDRAWN
- 0363 *Adhesion of UV-Adhesion of UV-Nanoimprint Resists with Template and Substrate* Dong H.J., **Xin Z.**
- 0364 *Improved Barrier Properties of HDPE Containers using HDPE/PA-6/Nanoclay Nanocomposites* Moghri M., **Garmabi H.**
- 0365 **Dahman Y.**, Sani A.
- 0366 *Film Fraction and Droplet Size Formed in a Rectangular Venturi Scrubber* **Guerra V.G.**, Daher M.A.F., Puentes N.A.G., Gonçalves J.A.S., Coury J.R.
- 0367 *Thermal Analysis of Construction Materials with Phase Change Material* **Lee S.H.**, Yoon S.J., Kim Y.G., Park J.S., Kim J.Y., Lee J.G.
- 0368 *Effect on Shape of Copper Particles Synthesized by the Reactors* **Kimata M.**, Hirohara K., Natsume T., Hasegawa M.
- 0369 *Attrition of Zinc-Titanate Sorbent in a Bubbling Fluidized Bed* **Choi J.-H.**, Moon Y.-S., Yi C.-K., Kim S. D.
- 0370 *Sol-gel Derived Crystalline ITO Nanopowders Prepared by Supercritical CO₂ Drying* **Lu H.**, Chiu C., Cheng Y-T.
- 0371 *Preparation and Release Control of Biodegradable Microcapsules Entrapping Antibacterial Agent* **Shiomori K.**, Hashimoto M., Kiyoyama S., Yoshida M., Hatate Y.
- 0372 *Axial Particle Concentration Distribution before and after Layer Inversion in Two-Phase and Three-Phase Fluidized Beds Containing Binary Solid Mixtures* **Lee D.H.**, Chun B.S., Lee Y., Park A-H., Kim S.D., Grace J.R., Epstein N
- 0373 *Influence of Process Conditions on L-Glutamic Acid Reactive Crystallisation* **Al-Marri M.**, Mahmud T., Roberts K.J.
- 0374 *Supercritical Dissolved Gas Atomization* **Caputo G.**, Adami R., Morrone R., Reverchon E.
- 0375 *Particle Size Distribution Analysis for Calcium Carbonate Precipitation* **Isopesco R.**, Mateescu C., Mihai M., Udrea I.
- 0376 *Morphological Characteristics of Poly(Styrene-Co-Divinylbenzene) Microparticles Synthesized through Suspension Polymerization* **Cuellar J.**, Rodrigo R., Toro C.
- 0377 *Computation of Dispersion of FCC Particles in a 2D Bubbling Fluidized Bed* **Chalerm-sinsuwan B.**, Piumsomboon P., Gidaspow D.
- 0378 *Synthesis and Characterization of ZnAl₂O₄ Heterogeneous Catalyst for Biodiesel Production* Alves C.T., Bastos L., Macedo L., Andrade H.M.C., **Vieira de Melo S.A.B.**, Torres E.A.
- 0379 *Microwave Sintering Characteristics of TiO₂ Nanoparticles* **Jung S.**, Kim J.H.
- 0380 *Synthesis of Crystalline Aluminum-Doped Zinc Oxide Nano-Powders by Solvothermal Method* **Lu H.**, Wang K-W., Lin Y-H., Chu C.
- 0381 *Dynamic Surface Tensions of Nanoparticle-Surfactant Mixtures: Importance to Foam Stability* **Hunter T.N.**, Wanless E.J., Jameson G.J, Biggs S
- 0382 *Monitoring Surface Changes in Pharmaceutical Particulate Solids using Optical Profilometry* **Wang G.D.**, Heng J.Y.Y., Williams D.R.
- 0383 *The Production of Polystyrene by a Trifunctional Initiator* **Machado P.F.M.P.B.**, Lona L.M.F.
- 0384 *Coating of a Polymeric Catalyst onto a Metallic Substrate by Adhesion Promoters* **Hosseini H.**, Shirkavand-Hadavand B.
- 0385 *Polymeric Membranes from Colloidal Crystal Templates with Tunable Morphology* Casis N., Fidalgo de Cortalezzi M. M., Ravaine S., **Estenez D. A.**
- 0386 *Analysis of Swelling Processes of Polymer Gels by Molecular Model* **Takita Y.**, Koga J., Homma S.
- 0387 *Synthesis of Petropolymeric Resins in the Presence of Adamantyl-Containing Organosilicon Peroxides* Butov G., Saad K., **Vyisochinskii A.**, Dumskii Yu., Dumskii S.
- 0388 *Industrial Processing of Poly(Lactic Acid): Chemical, Mechanical and Thermal Properties* **Carrasco F.**, Pagès P., Maspoch M.L.
- 0389 *Methylolation of Melamine with Incipient Condensation, Synthesis, Characterization and Mathematical Modeling* **Nicolau V.**, Estenez D., Meira G.
- 0390 *Polymorphous P-Tert-Butylcalixarene as Nucleating Agent for Poly(L-Lactic-Acid)* Wen L., **Xin Z.**

0391 *Anti-Adhesive and Thermal Properties of Polybenzoxazines* Qu L., **Xin Z.**

0392 *Crystallization Behavior and Morphology of PET/Styrene-Sodium Acrylate Ionomer* Tang, **Xin**

0393 *Effect of Diffusion Controlled Equilibrium Reactions on Atom Transfer Radical Copolymerization* **Al-Harathi M.**

0394 *Optimization of Mechanical Properties of Poly (Vinyl Alcohol)/Clay Nanocomposite* Mousazadeh S., **Navarchian A. H.**

0395 *Synthesis and Characterization of Styrene-Based Biopolymers* Reyna D.L., Estenez D.A., **Martino D.M.**

0396 *Effect of Multifunctional Initiators on Living Free Radical Polymerization Mediated by Nitroxides* **Galhardo E.**, Lona L.M.F

0397 *Preparation of Waterborne Adhesives Containing Reactive Clay* **Micusik M.**, Bonnefond A., Paulis M., Leiza J.R.

0398 *Chemical Control of Stickies in Paper Manufacture* **Gonzalez V.L.**

0399 *Phase Behaviour and Hydration Properties of Mixed Cationic Surfactant Systems* **Fourtouni K.**, Zhu S.

0400 *On the Modelling of non-Equilibrium Plasma Electrolysis: Gas Film Stability* **Allagui A.**, Wuthrich R.

0401 *Electrosorption of Arsenic on Darco 12x20 from Dilute Aqueous Solution* **Bain E.J.**, Calo J.M., Kirchner J.R., Spitz R., Axén J.

0402 *Electrode Array AC Electrokinetic Micropumps* Hrdlicka J., Cervenka P., Jindra T., Pribyl M., **Snita D.**

0403 *Experimental Investigation of the Carbonation of Nirex Reference Vault Backfill* **Sun J.**, Simons S. J. R.

0404 *Effect of Titanium on the Wetting of Boron Carbide by Aluminum* **Sarkar A.**, Kocaefe D., Chen X.G

0405 *Enhanced Titanium Production by Selective Pre-Reduction of Ilmenite* **Eu W.S.**, Cheung W.H., Valix M.

0406 *Development of a Polymer Hybrid System for Microchip-Based Flow Cytometry* **Kowpak T.**, Watts T., Xu C-Q., Zhu S., Zhang Z.

0407 *Surface Structure Changes in Cement Exposed to Laser Radiation* **Moreno-Virgen M.R.**, Soto-Bernal J.J., Frausto-Reyes C., Bonilla-Petriciolet A., Vega-Durán J.T., Pineda-Piñon J., Ortiz-Lozano J.A.

0408 *UV Protection of Heat-Treated Jack Pine using TiO₂ Nano-Coatings* **Saha S.**, Kocaefe D., Sarkar D., Boluk Y., Pichette A.

0409 *Modeling the Isotropic/Smectic-C Tilted Lamellar Liquid Crystalline Transition* **Abukhdeir N.M.**, Rey A.D.

0410 *Filtration of Colloidal Particles Using AC Electrokinetics* **Molla S.**, Bhattacharjee S.

0411 *Development of Novel Composite Adsorbents Used for Adsorption Heat Pump* **Huang H.Y.**, Kobayashi N., Oike T., Watanabe F., Hasatani M.

0412 *Solid Transformation of Zeolite NaA to Soladite* **Ding L.**, Yang H., Rahimi P., Omotoso O., Friesen W.

Particle Technology and its Applications

PT1

524b

Particle Technology and its Applications 1

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvaade (Germany), Dr. Jian-Xin Li (USA)

10:30 Keynote Lecture

10:30 0413 *Integrated Process Technology for Multi-functional Nanomaterials* **Sachweh B.**

11:10 0414 *Size Distribution of Classified Manganese-Doped Zinc Sulfide Nanoparticles* **Mori Y.**, Arai Y., Tsuchiya K.

11:30 0415 *Precipitation of Nanoparticles via a Miniemulsion Technique* **Gedrat M.**, Schuchmann H. P.

11:50 0416 *Time-Resolved pHand WAXS Studies of Calcium Carbonate Batch Precipitation* **Ristic R.**, Poh C.K.**PAPER WITHDRAWN**

12:10 0417 *Measurement of the Micromechanical Properties of Nanostructured Aggregates* **Schilde C.**, Kwade A.

12:30 0418 *Onset of an Innovative Gasless Fluidized Bed* **Huang Q.**, Zhang H., Zhu J.

12:50 End of Session

Polymer Engineering

PE1

514b

Polymer Engineering 1

Organizer(s) - Prof. Dr. D. Estenez (Argentina), Prof. Dr. J.R. Leiza (Spain), Dr. J. Sosa (USA)

10:30 Keynote Lecture

10:30 0419 *Reservoir Stimulation Through Hydraulic Fracturing: Polymerization and Polymer Degradation in Unconventional Slurry Reactor* **Abad C.**, Sanchez-Reyes J.

11:10 0420 *Kinetics of Monomer-Starved Emulsifier-Free Emulsion Polymerisation* **Sajjadi S.**, Chen Y.

11:30 0421 *Synthesis of HIPS Using A2B2 Star Type Graft Copolymers (PB-g-PS)* deAnda C., **Morales G.**, Acuña P., Sosa J., Knoepfel D., Mays J. W.

11:50 0422 *Elaboration of Chitosan Hydrogels for Medical Applications: Mass Transfers Modelling* **VENAULT A.**, BOUYER D., POCHAT C., VACHOUD L., FAUR C.

12:10 0423 *Effects of Hydrogen and Temperature on Kinetics and Morphology of Propylene Polymerization* **Raisi B.**, Ferrari P., Pennini G.

12:30 0424 *Effect of Process Parameters and Si/Al Ratio of HZSM-5 Zeolite on Propene Oligomerization* **shirazi L.**, ghasemi M. R., jamshidi E.

12:50 End of Session

Process Design

PD1

513b

Process Design 1

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

10:30 Keynote Lecture

10:30 0425 *Functionality-Based Process Design: Shifting from Mass Integration to Property Integration* **EI-Halwagi M.M.**

11:10 0426 *Analysis of Reformer Tubes in Industrial Natural Gas Furnaces* **Ebrahimi H.**, Zamaniyan A., Soltan J., Hedayat M., Sarand A.

11:30 0427 *Pressure Management using Optimal Compressor Networks* Razib M.S.hams, Hasan M. M. Far, **Karimi I. A.**

12:10 0428 *Interval Based MINLP Superstructure Synthesis of Multi-Period Mass Exchanger Networks* **Isafiade A.**, Fraser D.M.

12:30 0429 *Exergy-Based Relative Gain Array for Process Design and Process Control* **Montelongo-Luna J. M.**, Svrcek W. Y., Young B. R.

12:50 End of Session

Separation Science and Technology

SST1**519b**

Separation Science and Technology 1

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

10:30 0430 *Molecular Modelling of Solubility in Ionic Liquids* *Maginn E. J., Shah J., Shi W.

10:50 0431 *Molecular-level Simulation Methodology for Refrigerant Cycle Design Involving Refrigerant Mixtures* *Smith W.R., Francova M., Kowalski M., Lisal M., Nezbeda I.

11:10 0432 *Molecular-level Simulation of Electrolyte Systems in the Cu-Cl Hydrogen Production Cycle* *Smith W.R., Nezbeda I., Francova M., Jirsak J., Skvor J.

11:30 0433 *Novel Thermodynamic Fundamentals for Novel Separation Processes: Individual Ionic Activities* Wilczek-Vera G., Vera J.H.

11:50 0434 *Application of Chebyshev Polynomials to Predict Phase Behavior of Fluids Containing Asphaltene and Associating Components using SAFT EOS* Tabatabaie-nejad S. A., *Khodapanah E.

12:10 0435 *Prediction of CH_4 , CO_2 and $CH_4 + CO_2$ Hydrate Phase Equilibria in Porous Media* Momeni K., *Sadeghi M., Fanaei M.

12:30 0436 *Hydrodynamic and Mass Transfer of Microstructured Foam Packing* *Leveque J., Rouzineau D., Meyer M., Prevost M.

12:50 End of Session

Surface Forces, Interfacial Phenomena and Colloids

SF1**513f**

Surface Forces, Interfacial Phenomena and Colloids 1

Organizer(s) - Dr. S. Giasson (Canada), Prof. M. Gee (Australia), Mr. S. Fraser (Canada)

10:30 Keynote Lecture

10:30 0437 *Nonequilibrium, Rate, Time and History Dependent Colloidal Interactions* *Israelachvili J.

11:10 0438 *Interactions between Polyelectrolyte Multilayers: from Coated-Macroscopic Surfaces to Core/Shell Nanocapsules* *Kekicheff P.

11:30 0439 *Confinement of Polyelectrolytes in Thin Liquid Films. Influence of the Polymer Backbone's Rigidity on the Oscillatory Structural Forces.* *Langevin D., Delacotte J., Kleinschmidt F., Stubenrauch C., von Klitzing R.

11:50 0440 *Adsorbed Nanofluids* *Ducker W.A., Zhang X.H.

12:10 0441 *Structural Forces Between Silica Surfaces Induced by Temperature Mediated Micellization* *Thormann E., Mouritsen O.G., Claesson P.M.

12:30 0442 *The Critical Casimir Effect: Measuring and Tuning FEMTO-Newton Forces* Gambassi A., Dietrich S.

12:50 End of Session

Sustainability in Chemical Engineering

SUS1**525b**

Sustainability in Chemical Engineering 1

Organizer(s) - Prof. H. de Lasa (Canada)

10:30 Keynote Lecture

10:30 0443 *Photocatalytic Reaction Engineering* *de Lasa H., Serrano B

11:10 0444 *Enhanced Hydrogen Adsorption by Metal Doped Ordered Mesoporous Carbon* *Saha D., Deng S.

11:30 0445 *Exergy Analysis of Hydrogen Production from Sulphur-Containing Compounds* Yang L., Wang H.

11:50 0446 *Sustainability Assessment of Hydrogen Production Technologies* *Tugnoli A., Landucci G., Cozzani V.

12:10 0447 *Solid Carbon Conversion (Biomass, MSW and Coal) via CO_2* *Castaldi M.J., Butterman H.C, Kwon E.Y., Westby K.J.

12:30 0448 *HDPE Continuous Catalytic Pyrolysis over FCC Equilibrium Catalyst in CSBR* *Elordi G., Olazar M., Lopez G., Amutio M., Artetxe M., Aguado R.

12:50 End of Session

Water Production and Wastewater Treatment - Technologies, Advances and Issues

WWT1**516a**

Water Production and Wastewater Treatment 1

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

10:30 Keynote Lecture

10:30 0449 *Treatment and Reuse of Wastewater from a Petrochemical Complex* *Galil N.I., Levinsky Y.

11:10 0450 *Liquid-Solid Circulating Fluidized Bed Bioreactor in Wastewater Treatment* Chowdhury N., Zhu ., Nakhla G., Islam M.

11:30 0451 *Analysis of the Impact of Physical and Chemical Stressors on Biological Integrity* Voss K., Pohlman A., *Viswanathan S.

11:50 0452 *Anaerobic Treatment of an Aqueous Waste from the Process of Enhance Oil Recovery* Mahmood M.A., *Catherine C.M.

12:10 0453 *Degradation of Pharmaceutical and Personal Care Products by White Fungi* Rodarte-Morales A., *Moreira M.T., Feijoo G., Lema J.M.

12:30 0454 *Biooxidation of Sulphide under Denitrifying Conditions* An S., Tang K., *Nemati M.

12:50 End of Session

Topical Conference - CAMURE-7 & ISMR-6

CAM3**517a**

Fundamentals

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

10:30 Keynote Lecture

10:30 0455 *Simulated Moving Bed Adsorptive Reactor for the Synthesis of Green Diesel Additives (acetals)* *Rodrigues A. E., Silva V. M. T.

11:10 0456 *Pressure Drop of Two-Phase Flow in Minichannels Bounded with Permeable Walls* Zhang L., *Bi X., Wilkinson D., Stumper J., Wang H.

11:30 0457 *Bubble Formation Dynamics in T-Junction Micro-Channels* Kapoor T., **Buwa V. V.**

11:50 0458 *Mass Transfer Through a Catalytic Membrane Layer with Dispersed Catalyst* **Nagy E.**

12:10 0459 *Assessing the Performance of Liquid Injectors for Fluidized Beds* **Leach A.**, Briens C., **Berruti F.**

12:30 End of Session

CAM2

516e

Catalysis & Reaction Engineering for Environmental and Materials Processing

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

11:10 0460 *An Experimental and Theoretical Study of Packed Bed Chemical-Looping Combustion* **Noorman S.**, **Van Sint Annaland M.**, **Kuipers J.A.M.**

11:30 0461 *Calcium Looping Process for Clean Fossil Fuel Conversion* **Ramkumar S.**, **Fan L.S.**

11:50 0462 *Accelerated Concrete Carbonation: A CO₂ Sequestration Technology* **Kashef-Haghighi S.**, **Ghoshal S.**

12:10 0463 *CO₂ Absorption into Mixed Aqueous Solutions of 2-Amino-2-Hydroxymethyl-1,3-Propanediol and Piperazine* **Iliuta M.C.**, **Bougie F.**

12:30 End of Session

CAM1

516d

Catalysis & Reaction Engineering for Sustainable Energy Systems

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

11:10 0464 *Fluidised Bed Methanation for Producing Synthetic Natural Gas from Biomass* **Schildhauer T.J.**, **Kopyscinski J.**, **Biollaz S.M.A.**

11:30 0465 *Production of Fuel from Paper Waste Using Supported Metal Catalysts* **Yamaguchi A.**, **Hiyoshi N.**, **Sato O.**, **Bando K. K.**, **Shirai M**

11:50 0466 *Pyrolysis of Biomass: Temperature Effects on Oil Yields and Quality* **Westerhof R.J.M.**, **Brilman D.W.F.**, **Kersten S.R.A.**, **van Swaaij W.P.M.**

12:10 0467 *CFD Modeling of Pulverized Biomass Combustion in an Entrained Flow Reactor* **Chaudhari A. S.**, **Gupta D. F.**, **Ranade V. V.**, **Chaudhari R. V.**

12:30 0468 *Supercritical Water Gasification of Sugarcane Bagasse* **Osada M.**, **Shirai M**

12:50 End of Session

Topical Conference - GLS 9

GLS1A

513c

CFD and Bubble Dynamics

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

WCCE8 Distinguished Lecture

10:30 0469 *CFD simulation of Chemical Process Equipments: Comparison of Turbulence Models* **Joshi J.B.**

11:10 0470 *Comparative Evaluation of Coalescence Kernels use in CFD Simulatoin of Gas-Liquid Systems* **Podila K.**, **Al Taweel A.M.**

11:30 0471 *Turbulence Models Application on CFD Simulation of Structured Packing* **Khosravi Nikou M.R.**, **Ehsani M.R.**

11:50 0472 *CFD Simulations of a Large-Scale Fermenter with Multiple Impellers* **Gunyo O.**, **Mudde R.F.**, **Noorman H.J.**

12:10 0473 *Effect of Surfactant on a Bubble Bouncing on a Wall* **Fujasova-Zednikova M.**, **Vejrazka J.**, **Vobecka L.**, **Ruzicka M.C.**, **Drahos J.**

12:30 0474 *Study of Bubble Formation at Different Scales* **Dietrich N.**, **Poncin S.**, **Midoux N.**, **Li H.Z.**

12:50 End of Session

GLS1B

513d

Multiphase Reactors and Processes

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

11:10 0475 *Numerical Simulation of Liquid Spray Dispersion in a Fluidized Bed* **Pougatch K.**, **Salcudean M.**

11:30 0476 *Flow Structure in Gas-Liquid-Solid Circulating Fluidized Beds* **Liu J.H.**, **Liu M.Y.**

11:50 0477 *Modelling of Reactions in Fluidized Bed Catalytic Cracking* **Jafari Nasr M.**, **Eghbal Hamed I.**

12:10 0478 *Development of a Novel Scale-up Methodology for Bubble Column Reactors* **Youssef A.**, **Dudukovic M. P.**, **Al-Dahhan M. H.**

12:30 0479 *Heat Transfer Metrology Issues in Slurry Bubble Column Reactors* **Beliard P.E.**, **Clement P.**, **Gauthier-Maradel P.**, **Tochon P.**, **Schweich D.**, **Dromard N.**

12:50 End of Session

GLS1C

520d

Reactive Systems

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

11:10 0480 *Reactive Absorption of Hydrogen Sulfide and Sulfur Dioxide in Solution* **Grandjean J.**, **Renaudot L.**, **Guillaume D.**, **Koudil A.**

11:30 0481 *Interfacial Mass Transfer in a Trickle-Bed Reactor During Catalyst Lifespan* **Roininen J.**, **Alopaeus V.**, **Toppinen S.**, **Aittamaa J.**

11:50 0482 *Photocatalytic Degradation of Red Water from Military Explosives Manufacturing Plants* **Vo D-V .N.**, **Nguyen T-H.**, **Lea J.**, **Reid J.**, **Adesina A.A.**

12:10 0483 *Wet Scrubbing Intensification Applied to Hydrogen Sulphide Removal* **Biard P.-F.**, **Couvert A.**, **Renner C.**, **Levasseur J.-P.**

12:30 0484 *Dynamic Adsorption of Isometric Octanols at Air/Water Interface* **Phan C.M.**

12:50 End of Session

Topical Conference - 4th EFCE Conference

EFCE1

513a

Design methodology

Organizer(s) - Prof. L. Janssen (Netherlands), Prof. dr. A.A. Broekhuis (Netherlands)

10:30 Keynote Lecture

10:30 0485 *Designing Performance Products* **Cussler E.**, **Marchal-Heussler L.**

11:10 0486 *Microstructure and Dissolution of Structured Product Containing Reactive Microcapsules* **Ansari M.**, **Stepanek F.**

11:30 0487 *Perfume Engineering: Odor Character, Diffusion and Performance* **Teixeira M. A.**, **Rodriguez O.**, **Mata V. G.**, **Rodriguez A. E.**

11:50 0488 *Adaptive Evolutionary Design of Extractants for the Separation of Organic Compounds* **Serrato J.C.**, Gomez J., Caicedo L.A.

12:10 0489 *Point-of-Care Diagnosis of Multidrug-Resistant Tuberculosis* **Pienaar E.**, Freifeld A., Viljoen H.J., Whitney S.E., Barletta R., Chacon O.

12:30 0490 *Prediction of Particle Size in Thermoplastic Vulcanizates* **Janssen C.H.C.**, Picchioni F., Janssen L.P.B.M

12:50 End of Session

EFPOS

4th EFCE Posters

Organizer(s) - Prof. L. Janssen (Netherlands), Prof. dr. A.A. Broekhuis (Netherlands)

From **12:50** until **20:10**

0491 *Atrazine Removal From Groundwater Using Different Adsorbents* **Simonc M.**, Tepus B

0492 *Copper Removal from Phosphoric Acid Using Liquid Liquid Extraction* **Bendada A.**, Meniai A.

0493 *Crystallization Process of Citric Acid Using Vibrated Bed* **Malagoni R. A.**, Sousa Júnior A. C. G., Finzer J. R. D.

Topical Conference - 4th IADC2009

IADC1

524a

Fundamentals

Organizer(s) - Dr. M. Benali (Canada), Dr. T. Kudra (Canada), Prof. R. Legros (Canada)

10:30 Keynote Lecture

10:30 0494 *Exergy as a Potential Tool for Sustainable Drying Systems* **Dincer I.**

11:10 0495 *Modelling the Mean Residence Time in a Rotary Dryer for Four Types of Solids* **Thibault J.**, Alvarez P.I., Blasco R., Vega R.

11:30 0496 *Water Diffusivity in Superheated Steam Drying of Noodles* **Genkowski S.**, Pronyk C.

11:50 0497 *Pore-Scale Modeling of Drying-Induced Cracks* **Kharaghani A.**, Metzger T., Tsotsas E.

12:10 0498 *Modelling of Continuous Fluidized Bed Drying Using a Population Balance Approach* **Cunăus U.**, Peglow M., Tsotsas E., Metzger T.

12:30 0499 *A Simple Pore-Scale Network Model to Transport of Water Vapor and Oxygen in Polymeric Films* **Segura L.A.**, Mayorga P., González J.

12:50 End of Session

Topical Conference - OILSANDS 2009

OS1

520e

In Situ Oil Sands Recovery

Organizer(s) - Prof. Z. Xu (Canada), Prof. I. Gates (Canada) and Dr. J. Czarnecki (Canada)

10:30 Keynote Lecture

10:30 0500 *Opportunity and Challenge - Shell Canada and the Athabasca Oil Sands* **Houle C.**

11:10 0501 *A Life Cycle Investigation of Emerging Oil Sands Technologies* **Kofoworola O.**, McKellar J.M., Bergerson J.A., MacLean H.L.

11:30 0502 *Optimization of Steam Assisted Gravity Drainage in a Bottom Water Athabasca Reservoir* **Wei W.**, Gates I.D.

11:50 0503 *Measurement and Modeling of Asphaltene-Rich Phase Composition* **George S.**, Satyro M.A., Yarranton H.W

12:10 0504 *Influence of Solubility Parameters of Diluents Blended with Bitumen for Pipeline Transportation* **Rahimi P.**, Fan Z., Hu E., Robertson B., Teclamariam A., Wiehe I.

12:30 End of Session

Process Safety Management

PSMF

512c

Process Safety Management - Special international symposium on the frequency component in the assessment of major accident hazards

Organizer(s) - G. Creedy (Canada), J.P. Lacoursiere (Canada)

10:30 0505 *Quantitative Risk Assessment: How Realistic are those Frequency Assumptions?* **Creedy G.D.**

11:00 0506 *History of Dutch process equipment failure frequencies and the Purple Book* **Pasman H.J.**

11:30 0507 *Influence of New Generic Frequencies on the QRA Calculations for Land Use Planning Purposes in Walloon Region (Belgium)* **Fievez C.**, **Delvosalle C.**, Tambour F., Cornil N., Servranckx L., Katz T.

12:00 0508 *RHAD: A Major Accident Frequency Database* **Christou M.**

12:30 End of Session

Monday PM

Advanced Polymer Hybrids, Composites and Alloys

APH2

514c

Advanced Polymer Hybrids, Composites and Alloys 2

Organizer(s) - Prof. S. Zhu (Canada), Prof. T. McKenna (Canada)

14:00 0509 *Phase Separation in Liquid Crystalline Polymer/Polycarbonate Blends* **Lee K.-W.D.**, Kamal M.R., Chan P.K.

14:20 0510 *Processing and Characterization of Conductive PET/MWCNT Microfibers and Nanofibers* **Mazinani S.**, Ajji A., Dubois C.

14:40 0511 *3D Polymeric Conducting Device Derived from Multi-percolated Co-continuous Polymer Blends* **Ravati S.**, Favis B.D.

15:00 0512 *Preparation, Characterization, and Properties of Wheat Straw-Clay-Polypropylene Composites* **Sardashti A.**, **Reddy R.**, Simon L.

15:20 0513 *First Synthesis of Montmorillonite Stabilized Silver Nanoparticles, Organic-inorganic Antibacterial Coatings* **Pourabbas B.**, Anarjan N., Jafarizadeh H., Salem A. PAPER WITHDRAWN

15:40 End of Session

APH3

514c

Advanced Polymer Hybrids, Composites and Alloys 3

Organizer(s) - Prof. S. Zhu (Canada), Prof. T. McKenna (Canada)

16:10 0514 *Development of New Bituminous Binders from MDI-Functionalized Reactive Polymers* **Carrera V.**, Garcia-Morales M., Partal P., Navarro F.J., Gallegos C.

16:30 0515 *The Effect of Nanoparticle Seeding on the Mechanism of One-Part Geopolymer Gel Formation*

Hajimohammadi A., Provis J.L., Van Deventer J.S.J.

16:50 0516 *Influence of Preparation Methods on Properties of Polymer Impregnated Mortar* Lee W.M., Nair P., Lee C.W., Ku D.H., Park J.S., Park H.Y.

17:10 0517 *Thermal Degradation Kinetics of Polysiloxane Emulsion Used in Aluminum Alloys Die Casting Process* Mohoric I., Krajnc M., Sebenik U.

17:30 0518 *Efficient Derivatization of Polysiloxanes via Click Technology* Gonzaga F., Yu G., Brook M. A.

17:50 End of Session

Bioenergy and Green Engineering

BGE2

520b

BioEnergy and Green Engineering 2

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

14:00 0519 *Butoxylation of Butyl Biodiesel and its Impact on Cloud Point* Smith P.C., O'Neill B.K., Ngothai Y., Nguyen Q.D.

14:20 0520 *Optimising Crystallisation Behaviour of Biodiesel Fuels: Nucleation Kinetics Analysis* Hussain Q., Roberts K.J., Hammond R.B., More I.

14:40 0521 *Evaluation of Biofuel Transportation and Preparation from Woody Biomass* Kojima T., Tsutsumi Y., Tahara K.

15:00 0522 *One Step Cellulosic Ethanol Production* Seunghyun Ryu S.H. Ryu, Karim M.N.

15:20 0523 *A Multi Step Process for Fractionation of Lignocellulosic Biomass* Varavadekar J., Konde P., Adhyapak S., Gujrathi S., Pooja A., Lali A.

15:40 0524 *Optimization of Butanol Production of CLOSTRIDIUM PASTEURIANUM Using Response Surface Methodology* Moon C., Kim S. W., Sang B.-I., Um Y.

16:00 End of Session

BGE3

520b

BioEnergy and Green Engineering 3

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

16:10 0525 *The Effect of Ultrasonic on Primary and Secondary Sludge Prior to Anaerobic Digestion* Aldin S., Elbeshbishy S., Nakhla G., Ray M.

16:30 0526 *Removal of Trace Compounds in Biogas by Adsorption onto Activated Carbon Materials* Boulinguez B., Le Cloirec P.

16:50 0527 *Co-generation of Power and Hydrogen from Biogas* Bensaid S., Federici F., Fino D.

17:10 0528 *Efficient and Comprehensive Utilization of Cornstover* Gao Pengfei, Fan Daidi

17:30 0529 *Incorporating Energy Generation into VOC Emission Treatment Using an SOFC* Borwankar D.S., Fowler M., Anderson B

17:50 End of Session

Biomaterials, Tissue Engineering and Regenerative Medicine

BMAT1

518b

Biomaterials, Tissue Engineering and Regenerative Medicine 1

Organizer(s) - Prof. M. Buschmann (Canada), Prof. Shoichet (Canada), Prof. M.S. Kallos (Canada)

14:00 Keynote Lecture

14:00 0530 *Scalable Expansion and Endoderm Differentiation of Human Embryonic Stem Cells* Lock L.T., Tzanakakis E.S.

14:40 0531 *Retrofit of Galphimine-B Through Micropopagated Plants* Rojas-Bribiesca M.G., Domínguez-Patiño M.L., Rodríguez-Martínez A.

15:00 0532 *Scale-up Production of Murine Embryonic Stem Cells (mESCs) on Microcarriers* Alfred R.K., Radford J.R., Rancourt D.E., Kallos M.S.

15:20 0533 *Searching for Novel Myogenic Proteins in FBS* Waly Z., Sancen-Chaparro L.E., Lemieux L., Tremblay J.P., Garnier A.

15:40 End of Session

BMAT2

518b

Biomaterials, Tissue Engineering and Regenerative Medicine 2

Organizer(s) - Prof. M. Buschmann (Canada), Prof. Shoichet (Canada), Prof. M.S. Kallos (Canada)

16:10 Keynote Lecture

16:10 0534 *Enhancing TAT-Mediated Delivery of Cargoes in Stem and Progenitor Cells* Manceur A., Sun W., Audet J.

16:50 0535 *Controlled Drug Release from a Hyaluronan-methylcellulose Hydrogel* Wang Y., Lapitsky Y., Kang C.E., Shoichet M.S.

17:10 0536 *Expanding Clinical-grade Human Fibroblasts for Xenogeneic Embryonic Stem Cell Bioprocesses* Fahr J.J., Kallos M.S., Krawetz R., Rancourt D.E.

17:30 0537 *Microfluidic Live Cell Imaging of Perfused Embryonic Stem Cell Colonies* Sikorski D., Caron N. J., Vaninsberghe M., Eaves C. J., Hansen C. L., Piret J. M.

17:50 End of Session

Bioproducts, Bioreactors and Bioprocesses

BBB2A

519a

Bioproducts, Bioreactors and Bioprocesses 2A

Organizer(s) - Dr. A. Margaritis (Canada)

14:00 Keynote Lecture

14:00 0538 *Influence of the Volumetric Power Input on Morphology and Productivity of Aspergillus niger* Lin P.-J., Krull R.

14:40 0539 *Attachment to Cellulose of Genetically Modified Bacteriophages* van de Ven T.G.M., Li Z., Tolba M., Griffith M.

15:00 0540 *Comparison of Low and High MOI Strategies to Produce Recombinant Adeno-Associated Vectors in Insect Cell Cultures* Mena J.A., Aucoin M.G., Montes J., Kamen A.

15:20 0541 *CLSM Evaluation of the Structure of Protein Enriched Oat Dough* Macdonald R.J., Kim E., Morison K.R.

15:40 0542 *Effect of Organic Solvents on Bubble Size Distribution and Gas Holdup in Bubble Column Bioreactor* Asgharpour M., Mehrnia M. R., Mostoufii N., Bonakdrapour B., Pajoum-Shariati F.

16:00 End of Session

BBB2B

512h

Bioproducts, Bioreactors and Bioprocesses 2B

Organizer(s) - Dr. A. Margaritis (Canada)

14:00 Keynote Lecture

14:00 0543 *Optimisation of a Fermentation Process for Butanol Production using PSO* **Mariano A.P.**, Costa C.B.B., Angelis D.F., Mauger Filho F., Atala D.I.P., Wolf Maciel M.R., Maciel Filho R.

14:40 0544 *Butanol Production by Clostridium Acetobutylicum: Assessment of Acidogenesis Kinetics* **Napoli F.**, Olivieri G., Russo M.E., Marzocchella A., Salatino P.

15:00 0545 *A New Multi-Environment Wastewater Treatment Technology: Operation and Hydrodynamic Characteristics* **Behzadian F.**, Yerushalmi L., Mulligan C. N.

15:20 0546 *Insights on Improved Biofiltration of Dimethyl Sulphide through Community Analysis* **Hayes A.C.**, Liss S.N., Allen D.G.

15:40 0547 *Phenol Bioremoval using Spouted Bed Bioreactor* El-Naas M., **Al-Zuhair S.**, Abdalla S., Makhoulf S.

16:00 End of Session

BBB3A 519a

Bioproducts, Bioreactors and Bioprocesses 3A

Organizer(s) - Dr. A. Margaritis (Canada)

16:10 Keynote Lecture

16:10 0548 *Microbioreactors: Design, Characterization, Instrumentation and Parallelization* **Franco-Lara E.**

16:50 0549 *Spray-Drying of Native Lactobacillus Plantarum Cultured under Osmotic Stress* **Bustos P.**, Borquez R., Fink M., Kunz B.

17:10 0550 *Gene Mutation of Streptomyces Avermitilis for Enhanced Avermectins Production by RF-APGD Plasmas* Wang L-Y., Li G., Zhao H-X., Li H-P., **Xing X-H.**, Bao C-Y. **PAPER WITHDRAWN**

17:30 0551 *Facile Phytosynthesis of Silver Nanoparticles Using Alfalfa Seed Exudate* **Lukman A.I.**, Harris A.T.

17:50 0552 *The Response of Staphylococcus Aureus to Methicillin* Pienaar E., Whitney S., **Viljoen H**

18:10 End of Session

BBB3B 512h

Bioproducts, Bioreactors and Bioprocesses 3B

Organizer(s) - Dr. A. Margaritis (Canada)

16:10 Keynote Lecture

16:10 0553 *A Multi-Population Model of a Microbial Fuel Cell* **Pinto R.P.**, Srinivasan B., Perrier M., Guiot S.R., Tartakovsky B.

16:50 0554 *Kinetics of Ferrous Iron Biooxidation by Leptospirillum ferriphilum at High Total Iron Concentrations* **Penev K.**, Karamanev D.

17:10 0555 *Bacteriophage Activity on Paper Surface: Effect of Paper Moisture* **Jabrane T.**, Dubé M., Mangin P.J.

17:30 0556 *Continuous Production of Polygalacturonases using Aspergillus Niger in a Surface Culture Bioreactor* **Abbasi H.**, Fazaalipoor M. H.

17:50 End of Session

Biorefinery/Biomass Transformation

BBT2 515a

Biorefinery/Biomass Transformation 2

Organizer(s) - Dr. T. Browne (Canada), Dr. F. Berruti (Canada), Prof. C. Briens (Canada)

14:00 0557 *Biosorption of Cd(II) and Ni(II) from Aqueous Solutions by Cystoseira Indica* **Montazer-Rahmati M.M.**, Rabbani P., Abdolali A.

14:20 0558 *Hydrolyzed Biomass for Dye Adsorption in Fixed Bed Systems* Batzias D.F., **Sidiras D.K.**

14:40 0559 *Mass Transfer of Water Adsorption from Ethanol Technical Grade in Corngrits* **Mindaryani A.**, Rahayu S.S

15:00 0560 *Extraction of Adhesives and Emulsifiers from Wastewater Biosolids* **García Becerra F.Y.**, Acosta E.J., Allen D.G.

15:20 0561 *Determination of Hydroxymethylfurfural in Cider Spent Yeast Treated with Subcritical Water* **Bahari A.**, Leeke G.A., Santos R.C.D., Bowra S.

15:40 0562 *Biorefining of Agricultural Residues by Organosolv Treatment* González Alriols M., García A., Egües I., Toledano A., Serrano L., Llano-ponte R., **Labidi J.**

16:00 End of Session

BBT3 515a

Biorefinery/Biomass Transformation 3

Organizer(s) - Dr. T. Browne (Canada), Dr. F. Berruti (Canada), Prof. C. Briens (Canada)

16:10 0563 *Technical and Financial Aspects of Biodiesel Production using Heterogeneous Catalysis* **Aranda D.**, Tapañes N., Gonçalves J., Encarnacao A., Carneiro J.

16:30 0564 *Thermodynamics and Kinetics of Biodiesel Production by Supercritical Technology* **Tang Z.**, Li X.

16:50 0565 *Flash Pyrolysis of Biodiesel Residues* **Hall K.**, Briens C., Berruti F.

17:10 0566 *Preliminary LCA of Biofuel from Fish Waste* **Hawboldt K.A.**, Jayashinghe P.

17:30 0567 *Bio-Oil from Rice Straw by Pyrolysis: Experimental and Techno-Economic Investigations* **Tewfik S.R.**, Sorour M.H., Abulnour A.M.G., Talaat H.A., **EIDefrawy N.M.**, Farah J.Y., Abdou I.K.

17:50 End of Session

CFD in Chemical Engineering and Industrial Processes

CFD2 515b

CFD in Chemical Engineering and Industrial Processes 2

Organizer(s) - Prof. J. R. Nunhez (Brazil), Dr. O. Simonin (France), Prof. K. Nandakumar (United Arab Emirates)

14:00 Keynote Lecture

14:00 0568 *OpenFOAM: Open Source CFD in Research and Industrial Use* **Jasak H.**

14:40 0569 *Simulation of Immobilized Photocatalytic Reactors using CFD* **Duran J.E.**, Taghipour F., Mohseni M.

15:00 0570 *A CFD Study about the Performance of Hydrocyclones with Different Geometries* Vieira L.G.M., Silverio B.C., Damasceno J.J.R., **Barrozo M.A.S.**

15:20 0571 *CFD Modelling of Hydrocyclone: Detailed Validation of Flow Field* **Mittal K.**, Nandakumar K, Masliyah J H, Sanders R S

15:40 0572 **Siangsanun V.**, Morchain J., Puprasert C., Guigui C., Marteil P., Breant P., Levecq C., Hebrard G.

16:00 End of Session

CFD3

515b

CFD in Chemical Engineering and Industrial Processes 3

Organizer(s) - Prof. J. R. Nunhez (Brazil), Dr. O. Simonin (France), Prof. K. Nandakumar (United Arab Emirates)

16:10 0573 *Coupling of Plug Flow Model into Fluent Simulations* **Chong S.**, Pareek V., Wang S., Tade M., Ang M.

16:30 0574 *Numerical Hydrodynamics Characterization and Design Optimization of a Water Tank* **Martinelli L.**, Haut B.

16:50 0575 *Effect of Convective Relaxation on Electroosmotic Flow in a Moving Slit Microchannel and Electrophoresis* **Quddus N.**, Bhattacharjee S., Moussa W.

17:10 0576 *Non-Newtonian Fluid Flow Analysis Using CFD in Plate Heat Exchangers* **Motevasseli F.**, Jafari Nasr M.R.

17:30 0577 *Effects of Natural Convection and Consumption of Reactant on Explosions* **Liu T.-Y.**, Campbell A. N., Hayhurst A. N., Cardoso S. S. S.

17:50 End of Session

Clean Coal Technology

CCT2

512g

Clean Coal Technology 2

Organizer(s) - Prof. R. Gupta (Canada), Prof. Miura (Japan), Dr. J. van Dyk (South Africa)

14:00 Keynote Lecture

14:00 0578 *Evaluation of the Gasification Characteristics of Western Canadian Feedstocks* **Amarnath A.**, **du Plessis D.**, Huq I., McDonald M.

14:40 0579 *Reaction Kinetics of Catalytic Steam Gasification of Hypercoal* **Sharma A.**, Saito I., Takanohashi T.

15:00 0580 *Steam Gasification of Coal in a Circulating Fluidized Bed System* **Matsuoka K.**, Kuramoto K., Suzuki Y., Hosokai S., Hayashi J.I.

15:20 0581 *Catalytic Hydrothermal Gasification of Extract Prepared by Hydrothermal Extraction of Brown Coal* **Miura K.**, Morimoto M., Worasuwannarak N., Nakagawa H.

15:40 0582 *Hydrogen from Australian Bituminous Coal and Lignite with CO₂ Capture* **Widyawati M.**, Harris A.T., Florin N.H.

16:00 End of Session

CCT3

512g

Clean Coal Technology 3

Organizer(s) - Prof. R. Gupta (Canada), Prof. Miura (Japan), Dr. J. van Dyk (South Africa)

16:10 0583 *Fischer-Tropsch Synthesis: A Products Selectivity Comparison between CSTR and PFR and Its Implications* **Lu X.**, **Hildebrandt D.**, Glasser D.

16:30 0584 *Syngas Chemical Looping Gasification Process for Hydrogen Production* **Li F.**, Sridhar D., Kim H., Zeng L., Tong A., Wang F., **Fan L.-S.**

16:50 0585 *Integrated Coal Pyrolysis with CO₂ Reforming of Methane* **Liu J.H.**, **Hu H.Q.**, Jin L.J., Wang P.F.

17:10 0586 *Fe/CNT Catalyst for Fischer-Tropsch Synthesis-Effect of Metal Site Position* **Malek Abbaslou R.M.**, Tavasoli A., Soltan J., Dalai A.K.

17:30 0587 *Efficiency Analysis of Fossil Fuel Based Water Splitting Thermochemical Cycles for Hydrogen Production* **Gupta M.**, Hill J.

17:50 End of Session

Energy Saving Distillation Technologies

ESDT2

512a

Energy Saving Distillation Technologies 2

Organizer(s) - Dr. K. Kataoka (Japan), Prof. Z. Olujic (Netherlands)

14:00 0588 *Dynamic Behaviour of Reactive Distillation System* **Matsuda K.**, Ikoshi T., Iwakabe K., Ohmori T., Nakaiwa M.

14:20 0589 *Targeting Synergetic Effect in Distillation Processes* **Nakaiwa M.**, Huang K., Matsuda K., Iwakabe K.

14:40 0590 *Theoretical Design of Internal Heat Integrated Distillation Columns* **Gadalla M.**, de Rijke A., Jiménez L., Olujic Z. **PAPER WITHDRAWN**

15:00 0591 *Optimization Based Design of Heat Integrated Distillation Processes* **Harwardt A.**, Kraemer K., Marquardt W.

15:20 End of Session

Environment - Air Pollution

AP2

522bc

Environment - Air Pollution 2

Organizer(s) - Mrs. E. Lord (Canada)

14:00 0592 *Treatment of Chloromethanes by Gas-Phase Hydrodechlorination with Pd/Carbon Catalysts* **Gómez-Sainero L.M.**, Álvarez-Montero M.A., Martín-Martínez M., Heras F., Rodríguez J.J.

14:20 0593 *Oxidation of H₂S to Sulfur over Antimony-Promoted REVO₄ Catalysts* **Li K-T**

14:40 0594 *Characteristics of Nano-Size Co₃O₄ for NO Oxidation* **Ayoub M.**, Irfan M.F., Ahmad N.

15:00 0595 *Synthesis of Dimethyl Carbonate from Methanol and Carbon Dioxide the Effect of Dehydration* **Eta V.**, Mäki-Arvela P., Murzin D.Y., Salmi T., Mikkola J.P.

15:20 0596 *Transport and Mechanism of Biosorption of Ni⁺² and Zn⁺² on Wheat Straw* **Baig K.S.**, Doan H.D., Wu J.

15:40 0597 *On-Site and Off-Site Greenhouse Gas Emissions: Industrial Wastewater Treatment Plants* **Haghighat F.**, Bani Shahabadi M., Yerushalmi L.

16:00 End of Session

AP3

522bc

Environment - Air Pollution 3

Organizer(s) - Mrs. E. Lord (Canada)

16:10 0598 *Effects of Operating Conditions on NO_x Reduction in NO_x Storage Catalyst* **Plat F.**, Bartova S., Stepanek J., Koci P., Marek M., Kubicek M.

16:30 0599 *DeNO_x Activity-TPD Correlations of NH₃-SCR Catalysts* **Greenhalgh B.R.**, Charland J.-P., Stanculescu M.

16:50 0600 *Reduction of NO_x Gases using Copper Zeolite Catalyst* **Hasna A.M.**

17:10 0601 *On the Use of Efficient Electrodisinfection Technique in Water Regeneration: Kinetics of Escherichia Coli Inactivation* **Ibáñez R.**, Garcia I., Ortiz I.

17:30 Chehbouni, A. - Marrakech's Pottery Village

17:50 End of Session

Food Processing and Emerging Trends

FPET2

524c

Food Processing and Emerging Trends 2

Organizer(s) - Prof. M. Benali (Canada), Prof. G. Ascanio (Mexico), Dr. E. Brito (Germany), Dr. K. Marcotte (Canada)

14:00 0602 *Rheology of Selected South African Honeys* **Ashrafi N.**

14:20 0603 *Modelling Moisture Transfer During Baking of Madeira Cake* **Neill G., Magee T.R.A.**

14:40 0604 *Modelling Kinetics of Water Activity During Osmotic Dehydration of Mango* **Khan M.A.M., Oliveira J.M.F., Oliveira F.A.R.**

15:00 0605 *Modelling of Ultraviolet Light Treatment of Low UV Transmittance Liquid Foods* **Koutchma T.**

15:20 0606 *Simplified Flow Pattern Model in SSHE During Crystallization Process* **Belhamri R., Fayolle F., Flick D.**

15:40 End of Session

FPET3

524c

Food Processing and Emerging Trends 3

Organizer(s) - Prof. M. Benali (Canada), Prof. G. Ascanio (Mexico), Dr. E. Brito (Germany), Dr. K. Marcotte (Canada)

16:10 0607 *Steam and Acid Decontamination of Salmonella Inoculated on Chicken Skin* **Lecompte J-Y., Collignan A., Cardinale E., Sarter S., Kondjoyan A.**

16:30 0608 *Model-Based Optimization Tool Dedicated to Continuous Microwave Tempering* **Boillereaux L., Curet S., Rouaud O.**

16:50 0609 *Dynamic Bayesian Networks for Modelling Food Processing: Application to the Cheese Ripening Process* **Baudrit C., Sicard M., Wuillemin P.H., Perrot N.**

17:10 0610 *Closed-Form Solutions and Orthogonal Collocation for Microwave Tempering Modelling* **Boillereaux L., Curet S., Rouaud O.**

17:30 0611 *CFD Analysis of Heat Transfer in a Pilot Oven* **Boulet M., Marcos B., Dostie M., Moresoli C.**

17:50 End of Session

Gasification, Syngas and CO2 Sequestration

GSC2

520c

Gasification, Syngas and CO2 Sequestration 2

Organizer(s) - Dr. K. Liu (USA), Prof. Dr. G. Xu (China), Dr. A. Avagliano (USA)

14:00 0612 *Simultaneous Gasification and CO2 Capture by Means of a Catalytic Sorbent* **Di Felice L., Foscolo P.U., Kiennemann A., Courson C., Jand N.**

14:20 0613 *Research on a Two-stage Dry-fed Entrained Flow Coal Gasifier* **Ren Y-G., Xu S-S.**

14:40 0614 *Solids Flow in a CFB Riser as Viewed by PEPT* **Chian C.W., Seville J.P.K., Parker D.J., Baeyens J.**

15:00 0615 *Steam Gasification of Biomass Parametric Model Analysis* **Salaices E., Serrano B., deLasa H.**

15:20 0616 *Hydrothermal Gasification of Winery Wastes* **Escot Bocanegra P., Barsan M.M., Butler I.S., Gökalp I., Kozinski J.**

15:40 0617 *Interactive Effect of Char and Volatiles on the Char Reactivity in the Biomass Gasification* **Wada T., Fushimi C., Tsutsumi A.**

16:00 End of Session

GSC3

520c

Gasification, Syngas and CO2 Sequestration 3

Organizer(s) - Dr. K. Liu (USA), Prof. Dr. G. Xu (China), Dr. A. Avagliano (USA)

16:10 0618 *Effect of Steam and Oxygen on the Thermal Cracking of Bio-Oil for Syngas Production* **Latifi M., Briens C., Berruti F.**

16:30 0619 *Exergetic Efficiency of Synthetic Natural Gas (SNG) Production from Biomass* **Ptasinski K.J., Jurascik M, Sues A**

16:50 0620 *Density/Size Fraction Effects on CFD of Entrained-Flow Coal Gasification* **Slezak A., Kuhlman J. M., Shadle L. J., Shi S.**

17:10 0621 *Chemical and Thermal Modification of Petroleum Coke* **Malekshahian M., Hill J.**

17:30 0622 *Filtration by Electrostatic Precipitator of Gas Stemming from Biomass Gasification* **Villot A., Gonthier Y., Gonze E., Bernis A.**

17:50 End of Session

Green Polymers

GP2

514a

Green Polymers 2

Organizer(s) - Prof. M-C. Heuzey (Canada), Prof. J. R. Dorgan (USA), Prof. L. Avérous (France)

14:00 Keynote Lecture

14:00 0623 *Next Generation Thermoplastic Starch-Based Polymer Development* **Halley P.J., Chaleat C., Russo M., Truss R.W.**

14:40 0624 *Dynamic Crystallization Kinetics of Polypropylene Compounds with Cassava Starch* **Papa J., Herrera Y., Rodríguez V., Albano C.**

15:00 0625 *PH Indicator Cassava Starch Based Biodegradable Film for Active Packaging* **Biazi L. E., Ditchfield C., Tadini C.C.**

15:20 0626 *Water Uptake and Diffusion in Co-Ground Starch-Filled Poly(Vinyl Acetate) Composites* **Le Bolay N., Seyni A., Hemati H.**

15:40 0627 *Degradation Kinetics of Polylactic Acid* **Codari F., Dossi M., Moscatelli D., Storti G., Morbidelli M.**

16:00 End of Session

Industrial Program

LNG

512b

LNG

Organizer(s) - J. Havens (USA), J. Cramer (AIChE), R. Andersson (CSChE)

14:00 0628 *National Fire Protection Association Perspective* **Lemoff T.**

14:40 0629 *Canadian LNG Standard CSA Z276* **Trusler N.**

15:20 0630 *A European Perspective* **Pasman H.J.**

16:00 End of Session

NASP

512d

North American Sustainability - Panel Discussion on Opportunities and Barriers for Energy Sustainability

Organizer(s) - M. Sejnoha (Canada), D. Schuster (USA), E. Aguilar (Mexico)

14:00 0631 *Roles for Academia to Advance Sustainable Energy in the U.S.* **Shonnard D.R.**

14:30 0632 *TMI-PALMAS is an Information System for the Strategic Measurements to Reach Sustainable Operation of an Industrial Production Center* **Longoria P.**

15:00 0633 *Managing Fossil Carbon Emissions in an Energy-hungry World* **Layzell D.B.**

15:30 0634 *Technology Selection for refineries under Sustainability and Genuine Progress Criteria* **Aguilar E.**

16:00 0635 *Technology for Sustainable Development of Alberta's Oil Sands* **Gray M.**

16:30 Panel Discussion - Chaired by D. Schuster, E. Aguilar, M. Sejnoha

17:50 End of Session

XTL**512f****XTL (X to Liquid)**

Organizer(s) - R. Cenni (Denmark), K. W. Hutchenson (USA), J. Lerou (USA), H. Yagi (Japan)

14:00 Courchesne - Life Cycle Assessment of BTL-fuels and conversion concepts

14:30 0636 *DME Promotion Project in Japan* **Hiroshi Kita H.K.**

15:00 0637 *Public Transit and Hydrogen Fuel Cell Vehicles -The Perfect Fit!* **Harmer H.R.**

15:20 0638 *The ecoTECHNOLOGY for Vehicles Program of Transport Canada* **Meyer N., Klomp R.**

15:40 0639 *Canada's National Electric Drive Transportation Initiative* **Takeda T.**

16:20 0640 *Transport Canada's Transportation Innovation Strategy* **Ross M.C.**

16:40 End of Session

FIRD**512e****Financing Industrial Research and Development**

Organizer(s) - P. Dafniotis (Switzerland), G. S. Patience (Canada)

14:00 0641 *University-Industry Collaboration at TOTAL.* **Minster J.F.**

14:30 0642 *Financing Industrial Research and Development through the French National Research Agency* **Choplin L.**

15:00 0643 *Research and Development Projects at Arkema* **Dirkx R.**

15:30 0644 *Research is an Investment* **Garnett D.I.**

16:00 Break

16:10 0645 *A Model for Maximizing Research and Development Effectness in a Corporation* **Seeley L.E.**

16:40 0646 *How to Leverage Industrial Resources and Risk with Universities* **Navarre A.**

17:10 0647 *Air Liquide's Innovative Technologies and Sustainable Solutions* **Shetty S.**

17:40 End of Session

Life Cycle Management**LCM2****518c****Life Cycle Management of Products and Services 2**

Organizer(s) - Prof. R. Samson (Canada)

14:00 Keynote Lecture

14:00 0648 *Life Cycle Analysis - From a Reactive to a Proactive Approach* **Gires J. M.**

14:40 0649 *"Well to Well" Life Cycle Assessment for Biodiesel Production* Amaya Ramirez B.H., Becerra Bayona S.M., Acevedo Pabón P.A., **Kafarov V.**

15:00 0650 *Life-Cycle Analysis of Exported Wood Pellets from Canada to Europe* **Pa A., Craven J., Bi X., Melin S., Sokhansanj S.**

15:20 0651 *Life-Cycle Analysis of Operating Alternative-Fuel Vehicles in Ontario, Canada* **Kantor I., Hajimiragha A., Fowler M., Elkamel A.**

15:40 0652 *Life Cycle Assessment of a Laptop Computer and its Contribution to Greenhouse Gas Emissions* Hoang A., Tseng W., **Viswanathan S., Evans H.**

16:00 End of Session

Mixing in Industrial Processes**MIX2****520f****Mixing in Industrial Processes 2**

Organizer(s) - Prof. S. Kresta (Canada), Prof. J. Derksen (Canada), Dr. S. Jaffer (USA)

Recognition of Prof. Bruce Nauman and Prof. Reg Mann

14:00 0653 *A Novel Technique for Measuring Local Bubble Size Distribution* Busciglio A., **Brucato A., Scargiali F., Grisafi F.**

14:20 0654 *Determination of Interfacial Area in Gas-Liquid Two Phase by Light Transmission* Ghiassi H., Safekordi A.A., **Goodarznia I., Babazadeh F.**

14:40 0655 *Gas-Liquid Mass Transfer in Stirred Tanks with Floating Solid Particles* **Fukuda R.PAPER WITHDRAWN**

15:00 0656 *Effect of Salt Concentration on Mixing and Mass Transfer in a Pilot Scale Airlift Reactor* **Al Taweel A.M., Idhbea B., Ghanem A., Fels M.**

15:20 0657 *New Impeller Meets Challenges of Gas Dispersion* **Wyczalkowski W.R., Wu B., Higbee R.**

15:40 0658 *Mixing Scale-Down Studies for the Scale Up of Beer Fermentation* **Nienow A. W., McCleod G., Hewitt C. J.**

16:00 End of Session

Nanotechnology**NAN2****518a****Nanotechnology 2**

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

14:00 Keynote Lecture

14:00 0659 *Advances in the Chemistry and Application of Carbon Nanomaterials* **Haddon R.C.**

14:40 0660 *Graphene Nanoplatelet and Carbon Nanotube Hybrid Filler for Composites for Thermal Management* **Yu A., Haddon R.**

15:00 0661 *Synthesis of Carbon Nanotubes Using Fine Cobalt Particles* **Sawada Y., Nagahama H., Toyoda M.**

15:20 0662 *Composites of Single-Wall Carbon Nanotubes and Styrene Latexes* **Chavez-Sumarriva I., Grady B.**

15:40 0663 *Carbon Nanotube Reinforced Intermetallics and Ceramics by Combustion Synthesis* **Groven L.J., Puszynski J.A.**

16:00 End of Session

NAN3**518a****Nanotechnology 3**

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

16:10 0664 *A Preliminary Study on Carbon Nanotube Growth on Short Carbon Fiber by Fluidized Bed CVD Reactor* **Rezaei F., Yunus R., Saleh M.A.**

16:30 0665 *Deactivation Studies on CNT Supported Cobalt Fischer-Tropsch Catalyst* **Trepanier M. D.**, Tavasoli A., Dalai A.K., Abatzoglou N.

16:50 0666 *High Surface Area Roselike-Alumina Prepared by Resorcinol-Formaldehyde Hydrogel Templating* **Pavarajam M.**, **Chantam M.**

17:10 0667 *DFT Study of Mechanism and Kinetics of Hydrogenolysis of Toluene* **Sharifi Y.**, **Achenie L.** **PAPER WITHDRAWN**

17:30 0668 *Synthesis of SAPO-34: The Effect of Synthesis Parameters on Size and Crystallinity* **Fatemi S.**, Omrani P., Mirfendereski S.M., Hashemi J.

17:50 End of Session

New Frontiers in Membrane Science and Technology

MST2

513e

New Frontiers in Membrane Science and Technology 2

Organizer(s) - Prof. Isabel Escobar (USA), Prof. T. S. Chung (Singapore), Prof. Vicki Chen (Australia)

14:00 Keynote Lecture

14:00 0669 *Membranes for Bioprocessing: Recent Progress and New Opportunities* **Zydney A.L.**

14:40 0670 *Dual-Layer Hollow Fiber Membranes for High-Performance Protein Separation* **Li Y.**, **Chung T.S.**, **Chan S.Y.**

15:00 0671 *ZSM-5 Zeolite-Filled Polydimethylsiloxane Membrane for 1-butanol/2, 3-butanediol Separation* **Kumar A.**, **Shao P.**

15:20 0672 *Development of Anti-Microbial Polypropylene Feedspacers for Reverse Osmosis* **Hausman R.**, Gullinkala T., Escobar I.

15:40 0673 *Novel Membrane Database in Chemical Process Design* **Mitkowski P.T.**, Gani R., Broniarz-Press L.

16:00 End of Session

MST3

513e

New Frontiers in Membrane Science and Technology 3

Organizer(s) - Prof. Isabel Escobar (USA), Prof. T. S. Chung (Singapore), Prof. Vicki Chen (Australia)

16:10 0674 *The Effect of Ethane on the Performance of Commercial Polyphenylene Oxide and Cardo-type Polyimide Hollow Fiber Membranes in CO₂/CH₄ Separation Applications* **Pourafshari Chenar M.**, **Soltanieh M.**, Savoji H., Matsuura T., Tabe-Mohammadi A.

16:30 0675 *Hollow Fibers with Double-Layer Mixed-Matrix Materials for Gas Separation* **Widjojo N.**, **Chung T.S.**, Kulprathipanja S.

16:50 0676 *Polymeric Ionic Liquid Membranes for Gas Separation* **Coleman M.R.**, Li P., Hakim H.

17:10 0677 *Pervaporation Dehydration of Alcohols via Novel Dual-Layer Hollow Fiber Membranes* **Wang Y.**, **Chung T.S.**

17:30 End of Session

Particle Technology and its Applications

PT2

524b

Particle Technology and its Applications 2

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

14:00 0678 *Colloidal Stability of Nanofluids of Tin Dioxide Synthesized via Microwave-Induced Combustion Route* **Habibzadeh S.**, Khodadadi A.A., kazemi A., Hosseinpour N., Mortazavi Y.

14:20 0679 *High Pressure Dispersing Technologies for Nanostructured Particle Suspensions* **Schuchmann H.P.**, Sauter C.

14:40 0680 *Determination of Nanoparticle Agglomeration Process and its Activation Energy* **Loria H.**, Pereira-Almao P., Scott C.E.

15:00 0681 *Liquid-Liquid Phase Transfer of Magnetite Nanoparticles* **Machunsky S.**, Peuker U.A.

15:20 0682 *Modeling of Jetsam Distribution for Binary Mixtures in Gas-Solid Fluidization* **Sahoo A.**, Mohapatra A., Srihari G.

15:40 0683 *Heat and Mass Transfer Correlations for Surfaces in Fluidised Beds* **Di Natale F.**, Nigro R.

16:00 End of Session

PT3

524b

Particle Technology and its Applications 3

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

16:10 Keynote Lecture

16:10 0684 *From Structures to Functions - Hierarchical Concepts of Product Design* **Peukert W.**

16:50 0685 *Nanoparticles Deposit Location Control on Porous Particles in Fluidized Bed* **Barthe L.**, Philippot K., Chaudret B., Le Bolay N., Hemati M.

17:10 0686 *MWCNT Nano-Fluids Enhancement of Copper Corrosion* **Baghalha M.**, Kamal-Ahmadi M.

17:30 0687 *Gas-Phase Particle Coating to Create Nanostructured Particles* **van Ommen J.R.**, Beetstra R., Nijenhuis J., Kelder E.M., Yurteri C., Ellis N.

17:50 End of Session

Polymer Engineering

PE2

514b

Polymer Engineering 2

Organizer(s) - Prof. Dr. D. Estenoz (Argentina), Prof. Dr. J.R. Leiza (Spain), Dr. J. Sosa (USA)

14:00 Keynote Lecture

14:00 0688 *Polymer Phase Separation in Composite Latex Particles During and After Polymerization* **Stubbs J.**, Sundberg D.

14:40 0689 *Monomer Solubilities in Polymer Emulsions: Measurements of USWP Velocity* **Vieira de Melo R.L.F.**, Pessoa F.L.P., Storti G., Morbidelli M., Pinto J.C.

15:00 0690 *Synthesis and Characterization of Polyethylene-Grafted SiC Particles by Polymerization Compounding* **Ebrahimpour O.**, Esmaeili B., Chaouki J., Dubois C.

15:20 0691 *Emulsion Polymerization in the Presence of Hydrophilic Monomers: Modelling and Experimental Results* **Rivas U.**, Asua J. M., Leiza J. R.

15:40 0692 *RT Calorimetry as an Easy Monitoring & Real Time Optimization Tool for Polymerization Processes* **Schellekens L.**

16:00 End of Session

PE3

514b

Polymer Engineering 3

Organizer(s) - Prof. Dr. D. Estenoz (Argentina), Prof. Dr. J.R. Leiza (Spain), Dr. J. Sosa (USA)

16:10 Keynote Lecture

16:10 0693 *Control and Optimization of Polymer Processes Using Industrial Databases* **MacGregor J.F.**

16:50 0694 *Multi-Objective Optimization of Dual Reactor Polyethylene Process Using Genetic Algorithms* **Goyal S.K.**, Boparai M.

17:10 0695 *Modeling of Photopolymerization Process* **Altun-Çiftçiolu G.A.**, Ersoy-Meriçboyu A. **PAPER WITHDRAWN**

17:30 0696 *Thermodynamic Modelling of Hyperbranched Polymers* **Zeiner T.**, Enders S.

17:50 End of Session

Process Design

PD2 513b

Process Design 2

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

14:00 0697 *A Wall Induced Heat Transfer Modelization in a Fixed-Bed Reactor* **Fiers B.**, Maillet D., Ferschneider G.

14:20 0698 *Improved Process Performance Using "Best Practices" In Alarm Management* **Andow P.**

14:40 0699 *Modeling a Disc Pump Stage for Heavy Oil* **Eskin D.**

15:00 0700 *Modelling Fluid Separation Processes Using a Complementary Approach* **Kenig E.Y.**

15:20 0701 *Prediction of Toxicity from Contaminated Sediments Using PLS-DA and CP-ANN Models* **Alvarez-Guerra M.**, Ballabio D., Amigo J.M., Bro R., Viguri J.R.

15:40 End of Session

PD3 513b

Process Design 3

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

16:10 0702 *Improvement and Monitoring of Industrial Processes Based on Productivity Rates* **Contreras-Valenzuela M.R.**, Rodríguez-Martínez A.

16:30 0703 *Rapid Design Algorithm for Evaporative Heat Exchangers in Evaporative Fluid Coolers* **Jafari Nasr M.R.**, Behfar R.

16:50 0704 *Modelling of a Staged Membrane Reactor for Methane Steam Reforming: Improved Catalyst Distributions* **Caravella A.**, Di Maio F.P., Di Renzo A., Barbieri G., Drioli E.

17:10 0705 *Sulfinol-X* Process - Efficiently Achieving Complex Contaminant Removal Objectives* **Bradley A.**, De Oude M., Van der Zwet G., **Nasir (Presenter) P.**

17:30 0706 *Recycling Polystyrene by Dissolution with Limonene. Influence of Molecular Weight of Polymer on the Solubility* **Saiz F.J.**, Garcia M.T., Gracia I., de Lucas A., **Rodríguez J.F.**

17:50 End of Session

Separation Science and Technology

SST2 519b

Separation Science and Technology 2

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

14:00 Keynote Lecture

14:00 P. Debenedetti - Water-Mediated Interactions: Fundamentals and Applications

14:40 0707 *Effect of PEG400 on CO₂ Absorption in DEA/Water Systems* **Provost E.**, Archane A., Furst W.

15:00 0708 *Computer Aided Conceptual Design of Reaction-Distillation-Processes* **Ryll O.**, Blagov S.A., Hasse H.

15:20 0709 *Separation of Isoparaffins and Naphthenes by Extractive Distillation* **Li S.**, Liu H.

16:00 End of Session

SST3 519b

Separation Science and Technology 3

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

16:10 Keynote Lecture

16:10 A.Z. Panagiotopoulos - Molecular Simulation of Phase Equilibria: Progress and Challenges

16:50 0710 *From Molecular Structure to Organics Passage in RO/NF Processes* **Rallo R.**, Giralt J., **Giralt F.**, Cohen Y, Rodriguez G., Phipps D.

17:10 0711 *Experimental Measurement and Thermodynamic Modeling of H₂S Solubility in Different Ionic Liquids* **Rahmati M.**, **Ghotbi C.**, Behzadi B., Jalili A.H

17:30 0712 *Carbon-Black Tail-Gas Valorization by Matrimid Membrane Separation* **Urtiaga A.M.**, Voinea O.C., Gorri E.D., Ortiz I.

17:50 0713 *Solubility Measurements and Thermodynamic Modeling of CaSO₄ in Hydrometallurgical Solutions* **Azimi G.**, Papangelakis V.G.

18:10 End of Session

Surface Forces, Interfacial Phenomena and Colloids

SF2 513f

Surface Forces, Interfacial Phenomena and Colloids 2

Organizer(s) - Dr. S. Giasson (Canada), Prof. M. Gee (Australia), Mr. S. Fraser (Canada)

14:00 Keynote Lecture

14:00 0714 *Van der Waals Interaction Energy and Disjoining Pressure at Small Separation* **White L. R.**, Cross G.L.

14:40 0715 *Oscillating Evaporating Meniscus* **Chatterjee A.**, **Plawsky J.L.**, **Wayner P.C. Jr**

15:00 0716 *Numerical Analysis the Surfactant Adsorption Kinetics: Effects of Size of the Drop* **Moreno J.**, Zepieri S.

15:20 0717 *Interaction Sites at Keratin Fiber's Surfaces and its Role on Polymer Adsorption* **Luengo G.S.**, Baghdadli N., Rubio R.G.

15:40 0718 *Friction and Force Between Human Hair Studied by AFM* **Mizuno H.**, Luengo G., Rutland M.W.

16:00 End of Session

SF3 513f

Surface Forces, Interfacial Phenomena and Colloids 3

Organizer(s) - Dr. S. Giasson (Canada), Prof. M. Gee (Australia), Mr. S. Fraser (Canada)

16:10 Keynote Lecture

16:10 0719 *Decoupled Solid-Liquid Phase Transitions in Supported Phospholipid Bilayer Membranes* **Badia A.**, Goren M., Ramkaran M.

16:50 0720 *Spincoated Supported Membranes as Powerful Biomembrane Models* **Simonsen A. C.**, Bernchou U.

17:10 0721 *The Surface Force Apparatus to Understand the Molecular Mechanism of Snare Driven Membrane Fusion* Feng L., Pincet F., Perez E., **Rodriguez N.**, Eng W.S., Melia T.J., Tareste D.

17:30 0722 *Nanoscale Study of the Mechanical Properties of Individual and Aggregated Bacteria using Atomic Force Microscopy* Wang H., **Gee M.L.**, Wilksch J., Strugnell R.A.

17:50 End of Session

Sustainability in Chemical Engineering

SUS2

525b

Sustainability in Chemical Engineering 2

Organizer(s) - Prof. H. de Lasa (Canada)

14:00 0723 *Intensification of SO₂ Recovery with Ionic Liquids* **Luis P.**, Garea A., Irabien A.

14:20 0724 *Intensifying Chemical Processes using Particles across Length Scales* **Ding Y.L.**, Chen H.S., Jiang Y.H., Cong T., Fang L.

14:40 0725 *Biogas Purification for Fuel Cells Application* **Hernández S.-P.**, Russo N., Fino D., Conti R.

15:00 0726 *Creative Generation of Design Alternatives Based on Alternatives Based on a Stand Alone Life Cycle Assessment and Life Cycle Based Screening of Alternatives During Early Stages of the Design Decision Processes* **Weston N.**, Basson L., White N., Clift R.

15:20 0727 *Reaction and Regeneration Process of a Novel Bi-Cu/SiO₂ Catalyst for Hydrochlorination of Acetylene to Produce Vinyl-Chloride Monomers* **Li X.G.**, Luo G.H.

15:40 0728 *One-Pot Beckmann Rearrangement to ϵ -Caprolactam in Ionic Liquid* Wang, **Zhao**, Wang

16:00 End of Session

SUS3

525b

Sustainability in Chemical Engineering 3

Organizer(s) - Prof. H. de Lasa (Canada)

16:10 0729 *Life Cycle Assessment of a Laptop Computer and its Contribution to Greenhouse Gas Emissions* Hoang A., Tseng W., **Viswanathan S.**, Evans H.

16:30 0730 *Measuring Sustainability: A Life Cycle Approach* **Azapagic A.**, Stichnothe H.

16:50 0731 *Assessing the Sustainability of a Car Fleet* **Smith T.W.**, Axon C.J., Darton R.C.

17:10 0732 *Flowrate Targeting for Inter-Plant Water Network* **Chew IML**, Foo DCY, Ng DKS, Tan RR, Saw SY, Lee L, Lim MH, Klemeš J, El-Halwagi MM

17:30 0733 *Regional Biomass Energy Supply Chain Management Strategy: P-Graph Approach* Lam H., Varbanov P., **Klemes J.**, Friedler F.

17:50 End of Session

Water Production and Wastewater Treatment - Technologies, Advances and Issues

WWT2

516a

Water Production and Wastewater Treatment 2

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

14:00 0734 *Enzymology of Activated Sludge: Extraction of Hydrolytic Enzymes* **Nabarlatz D.A.**, Stüber F., Font J., Fortuny A., Fabregat A., Bengoa C.

14:20 0735 *Optimization of Batch Cycle Time in a Sequencing Batch Reactor* **Berber R.**, Akyürek E., Atasoy I.

14:40 0736 *Optimization of Reactive Blue 221 Decolorization using Coprinus Cinerus Peroxidase* Yousefi V., **Kariminia H.R.**

15:00 0737 *Modified Constructed Wetland System: Alternative Wastewater Treatment* **Malaluan R.**, Jaque D., Homez E., Jaque J.

15:20 0738 *Investigation of Hydrocarbon Pollution Spreading in Soil Around Sarkoun Refinery* **Ebrahimi S.**, Shayegan J., Malakouti M. J., Akbari A., Atashjameh A.

15:40 0739 *Modeling of the Dispersion of Oil-Mineral Aggregates in Ice-Infested Waters* Devals C., **Doyon B.**, Heniche M.

16:00 End of Session

WWT3

516a

Water Production and Wastewater Treatment 3

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

16:10 0740 *Electrochemical Treatment of Industrial Wastewater Using BDD Anodes* Anglada A., Ortiz D., Ortiz I., **Urtiaga A.M.**

16:30 0741 *Removal of the Nanoparticles from the Industrial and Domestic Wastewater* Tourbin M., Liu Y., Lachaize S., **Guiraud P.**

16:50 0742 *Wastewater Quality Monitoring System using Sensor Fusion and Machine Learning Techniques* **Qin X.**, Gao F., Chen G.

17:10 0743 *The Strategy and Dynamic Control to Enhance the WWTP's Performance against Daily Fluctuation of Influent* **Xu N.**, Fan L., Liu Y., Shi H., Lim C. J., Grace J. R.

17:30 0744 *Kinetic and Reactor Modeling for the Degradation of Phenol in Water by UV/H₂O₂* **Mohajerani M.**, Mehrvar M., Ein-Mozaffari F.

17:50 End of Session

Topical Conference - CAMURE-7 & ISMR-6

CAM3

517a

Fundamentals

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

14:00 Keynote Lecture

14:00 0745 *Inducing Selective Chemistry on Metal Catalyst Surfaces* **McBreen P.**

14:40 0746 *Hydrodynamic Characteristics of Dual-Impeller Configurations in a Multiple-Phase Stirred Tank* Wang T, **Yu GZ**, Yong YM, Yang C, Mao ZS

15:00 0747 *Hydrodynamics Characterisation of Multiphase Stirred Tank Reactors Using Electrical Resistance Tomography* Abdullah B., Dave C., **Nguyen T.-H.**, Cooper C.G., Adesina A.A.

15:20 0748 *A Cell Model Approach to the Motion of a Cluster of Spherical Particles in a Continuous Fluid Phase* **Mao Z.-S.**

15:40 0749 *Experimental Investigation of Binary Fluidized Beds Using Densitometry and Radioactive Particle Tracking* **Upadhyay R.K.**, Roy S.

16:00 Break

16:10 0750 *Modeling of a Monolith Reactor for Supercritical Hydrogenation of Alpha-Methyl-Styrol* **Haering H.**, Wilhelm S., Mothes S., Bauer T., Lange R.

16:30 0751 *Modeling of Heat Uptake & Release with Embedded Phase Change Materials in Monolithic Microfluidized-Bed Reactors* Mittal A., **Roy S.**, Larachi F.

16:50 0752 *Modelling of a Combined DOC+NSRC+CDPF Monolith Catalytic System* **Schejbal M.**, Stepanek J., Koci P., Kubicek M., Marek M.

17:10 0753 *Characteristics of Gas-Solid Two-Phase Flow in a Plasma Fluidized Bed at Atmospheric Pressure* **Wang Q.**, Wu C., Hu Y., Jin Y., Cheng Y.

17:30 End of Session

CAM2**516e**

Catalysis & Reaction Engineering for Environmental and Materials Processing

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

14:40 0754 *Continuous Enantioselective Hydrogenation in Fixed-Bed Reactor* **AlHerz M.**, Tsofigkas A., Wood J., Simmons M.J.H.

15:00 0755 *Use of Reaction Calorimeter for Data Oriented Process Development* **Richner G.**, Neuhold Y.-M., Hungerbühler K.

15:20 0756 *Reactive Evaporation of Crude Glycerol in a Fluidized Bed Reactor* Rafii Sereshki B., Balan S.-J., **Patience G. S.**, Dubois J.-L.

15:40 0757 *CFD Modelling of Acetylene Pyrolysis for Vacuum Carburizing of Steel* **Buchholz D.**, Khan R. U., Bajohr S., Graf F., Reimert R.

16:00 Break

16:10 0758 *Gas Absorption in a Microstructured Mesh Reactor* **Constantinou A.**, Sun X., Gavriilidis A.

16:30 0759 *Experimental and Numerical Investigation of a High-Performance Micro-Separation Device* **Chasanis P.**, Kern J., Zecirovic R., Gruenewald M., Kenig E.Y.

16:50 0760 *Transient Behaviour and Stability in Miniaturized Multi-Phase Packed-Bed Reactors* Marquez N., Castaño P., Moulijn J.A., Makkee M., **Kreutzer M.T.**

17:10 0761 *Rapid and Selective Heck-Couplings with High Pressure and High-Temperature Water Microfluidic System* **Kawanami H.**, Sato M., Matsushima K., Yokoyama T., Suzuki T. M., Ikushima Y.

17:30 End of Session

CAM1**516d**

Catalysis & Reaction Engineering for Sustainable Energy Systems

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

14:40 0762 *Contacting Pattern Optikons for Biodiesel Production* **Dassori C.G.**

15:00 0763 *Modeling and Experimental Validation of Biomass Hydrogenations in a Trickle Bed Reactor* **Abreu C. A. M.**, Maranhão L. C. A., Cabral A. C. S.

15:20 0764 *Catalytic & Non-Catalytic Gasification of Microalgae in Supercritical Water* **Chakinala A.G.**, Brilman D.W.F., Veneman R., Kersten S.R.A.

15:40 0765 *Immobilized Palladium Nanoparticles as a Catalyst for Oxidative Carbonylation of Amines* Didgikar M.R., **Roy D.**, Joshi S.S., Gupte S.P., Chaudhari R.V.

16:00 Break

16:10 0766 *Effect of the Catalyst Load on Syngas Production in SCT-CPO Reactors* **Specchia S.**, Vella L.D., De Rogatis L., Montini T., Specchia V., Fornasiero P.

16:30 0767 *Fischer-Tropsch Hydrocarbon and Oxygenates Synthesis in a Slurry Reactor over a Commercial Co/Al₂O₃ Catalyst* Piché S., **Fongarland P.**, Khodakov A.Y., Schweich D.

16:50 0768 *Pulse WGS Reaction Over CuO-CeO₂ Catalysts: Influence of Morphological, Redox and Surface Acidity Properties on Activity* **Djinovic P.**, Batista J., Levec J., Pintar A.

17:10 0769 *Steam Reforming of Hexadecane over a Ni-Alumina Spinel Catalyst* **Fauteux-Lefebvre C.**, Abatzoglou N., Blanchard J., Gitzhofer F.

17:30 0770 *Production of Hydrogen by Steam Reforming of Ethanol over Pd-Ni-MCM-41 Bimetallic Catalysts* **Sener-Marti C.**, Arishtirova K., Dogu T., Dogu G., Damyanova S.

17:50 End of Session

Topical Conference - GLS 9

GLS1A**513c**

CFD and Bubble Dynamics

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

14:00 Keynote Lecture

14:00 0771 *Recent Advances in CFD Modeling of Bubble Columns* **Joshi J.B.**

14:40 0772 *Effect of Inertial Forces on Particle-Bubble Collisions Efficiency* **Huang Z.**, Legendre D., Guiraud P.

15:00 0773 *Numerical Simulations of Dynamics of Drop Impact and Spreading on Cylindrical and Spherical Surfaces* Bangonde S.S., Nikure P., **Buwa V.V.**

15:20 0774 *Development of Airlift Bubble Column Dispersed with Micro-Bubbles* Bando Y., Takeyama T., Kawase Y., Yasuda K., Wang Y., **Naito T.**, Haneda K.

15:40 0775 *Microbubbles Generation through Porous Media* **Khirani S.**, Augier F., Guigui C., Guiraud P., Hebrard G.

16:00 Break

16:10 0776 *Direct Meso-Scale Simulations of Flexible Fibres in Turbulent Liquid Flow* **Derksen J.J.**

16:30 0777 *Lift Force Acting on Mono-Dispersed and Poly-Dispersed Bubbles Rising in Sheared Liquids* **Buwa V. V.**, Rabha S. S.

16:50 0778 *Effect of Coalescence Retardation on Gas Holdup in a Pilot Scale Airlift Reactor Aerated by a Transonic Sparger* **Al Taweel A.M.**, Pallapothu S., Gomaa H.G., Ghanem A., Farag H.A.

17:10 0779 *Hydrodynamic Effects of Inclination Angle on Co-Current Gas-Liquid Packed Beds* **Schubert M.**, Hamidipour M., Duchesne C., Larachi F.

17:30 0780 *Study of Solids Concentration Distribution in a Rectangular CFB* **Xu J.**, Zhu J.

17:50 End of Session

GLS1B**513d**

Multiphase Reactors and Processes

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

14:00 0781 *A New Methodology for Hydrodynamic Similarity in Bubble Column Reactors* **Shaikh A.**, **Al-Dahhan M.**

14:20 0782 *Structuring Slurry Bubble Columns: A First Step* **van Ommen J.R.**, Hamersma P.J., Hooshyar N., Mudde R.F.

14:40 Keynote Lecture

14:40 0783 *Dynamics of binary fluidized beds* **Roy S.**

15:20 0784 *Semi-Theoretical Prediction of Mass Transfer Coefficients in a Bubble Column At Elevated Temperatures* **Nedelchev S.**, Schumpe A.

15:40 0785 *Decreasing the Surface Tension of the Liquid Phase in a Partially Aerated Bubble Column: Hold Up and Volumetric Mass Transfer Coefficient Variation* Cachaza E. M., Martin M., Diaz M. E., Montes F. J., Galan M. A.

16:00 End of Session

16:10 Keynote Lecture

16:10 0786 *Modeling and Optimization of Gas Oil H.D.S. in Trickle Bed Reactor* Abbasi R., Fatemi S.

16:50 0787 *Hydrodynamics of High-Pressure Trickle-Bed Reactors: Sensitivity of Relative Phase Permeabilities* Atta A., Roy S., Nigam K.D.P.

17:10 0788 *Wetting Efficiency in Trickle Bed Reactors: Viscosity and Packing Effects* Julcour C., Augier F., Maffre H., Wilhelm A.M., Delmas H.

17:30 0789 *A Multiscale Modelling Approach for Periodically Operated Trickle-Bed Reactors* Gruenewald M., Dietrich W., Agar D. W.

17:50 0790 *Pore Scale Study of Liquid Flow in a Packed Bed: Modelling and Experimental Analysis* Dumas T., Lesage F., Latifi M.A.

18:10 End of Session

GLS1C

520d

Reactive Systems

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

14:00 0791 *Modelling of Separation Processes in Reactive Gas-Liquid Systems* Brinkmann U., Janzen A., Kenig E.Y.

14:20 0792 *The Effect of PD-Catalyst Wettability on Hydrogenation of Nitrate to Hydroxylamine* Grote C., Rosu M., Schumpe A.

14:40 0793 *Model Comparison and Discrimination in Solid-Liquid Reactions: Leaching of Zinc with Ferric Iron* Grénman H., Bernas H., Wärnä J., Murzin D., Lampinen M., Laari A., Turunen I., Salmi T.

15:00 0794 *Kinetics and Mass Transfer in Hydroformylation - Bulk or Film Reaction?* Salmi T.O., Bernas A., Wärnä J.P., Mäki-Arvela P.E., Murzin D.Yu.

15:20 Keynote Lecture

15:20 0795 *Reactive Systems in GLS Reactors* Adesina A.

16:00 Break

16:10 0796 *Reactive-LIF Measurement and Modeling of Gas-Liquid Mass Transfer and Reaction* Hu Y., Liu Z., Wu C., Yang J., Cheng Y.

16:30 0797 *Chemical Reaction and RTD CFD Simulation of Catalytic Wet Oxidation in Trickle-bed Reactors* Lopes R.J.G., Quintana-Ferreira R.M.

16:50 0798 *Mass Transfer in Small Channels with Slug-Flow under Reacting Conditions* Haase S., Bauer T., Langsch R., Lange R.

17:10 0799 *Leaching Gibbsite and Boehmite in Sodium Hydroxide Solutions: Kinetics and Modeling* Grénman H., Salmi T., Murzin D.Y., Addai-Mensah J.

17:30 End of Session

Topical Conference - 4th EFCE Conference

EFCE2

513a

Industrial products

Organizer(s) - Prof. L. Janssen (Netherlands), Prof. dr. A.A. Broekhuis (Netherlands)

14:00 0800 *Cold Process Emulsion Technology* Zhuang J.

14:20 0801 *Prediction of Product Attributes for Co-stabilized Miniemulsion Polymerisation* Gomes V.G., Jung J., Altarawneh I.

14:40 0802 *Thermally De-Crosslinking Polymers: The Pathway to Reversible Thermosets* Broekhuis A.A., Zhang Y., Picchioni F.

15:00 0803 *Fischer Tropsch Synthesis over Cobalt Catalyst Supported on Carbon Nanotubes* Rohani A.A., Kazemini M., Karimi Z.

15:20 0804 *Technologies for Producing Microcapsules with Added Value* Rodrigues S., Martins I., Mata V., Barreiro F., Rodrigues A.

15:40 0805 *Development of Wood-Adhesives from Chemically Modified Polyketones* Hamarneh A.I., Zhang Y., Broekhuis A.A., Picchioni F.

16:00 End of Session

EFCE3

513a

CPD&E Education

Organizer(s) - Prof. L. Janssen (Netherlands), Prof. dr. A.A. Broekhuis (Netherlands)

16:10 0806 *Chemical Product Technology: The Third Paradigm or a Pipe-Dream?* Broekhuis A.A., Picchioni F.

16:30 0807 *Chemical Product Technology: An Academic Perspective* Picchioni F., Broekhuis A.A., Jonker G.H.

16:50 0808 *Mechanical Properties of Formulated Products Single-Particle-Tester* Broeckel U., Kirsch R.

17:10 0809 *Chemical Product Design: Schools of Thought and Biorefinery Practice* Janssen M., Chambost V., Stuart P.

17:30 End of Session

Topical Conference - 4th IADC2009

IADC1

524a

Fundamentals

Organizer(s) - Dr. M. Benali (Canada), Dr. T. Kudra (Canada), Prof. R. Legros (Canada)

14:00 Keynote Lecture

14:00 0810 *Product Formulation by Drying* Tsotsas E.

14:40 0811 *Modelling of Contact Drying by Boiling: Application to Sludge Treatment* Arlabosse P.

15:00 0812 *Modeling of Microwave Drying of Fruits and Vegetables* Arballo J.R., Campañone L.A., Mascheroni R.H.

15:20 0813 *Determination of Agglomeration Kinetics in Fluidized Beds* Dervedde M., Hampel R., Peglow M., Tsotsas E.

15:40 0814 *Hydrodynamic Study of the Transition between Dense and Dilute-Phase Spouting* Barrozo M.A.S., Duarte C.R., Epstein N., Lim C.J., Grace J.R.

16:00 Break

16:10 0815 *Dehydrofreezing of Packham's Pears, Mass Transfer and Quality Indexes* Bianchi M., Milisenda P., Guarnaschelli A., Mascheroni R.H.

16:30 0816 *Numerical Simulation of a Pneumatic Dryer Using Computational Fluid Dynamics* Jamaledine T., Ray M.

16:50 0817 *Chemical Energy Transportation for Drying by Waste Energy Recyclic Utilization* Ogura H., Ozawa E

17:10 0818 *Drying of Single, Spherical, Boundary-Demarcated Bodies* Cronin K.

17:30 0819 *Design and Optimization of Novel Hydrocyclones Using a CFD Model* Xu P., Ray M., Mujumdar A., Yu B.

17:50 End of Session

Topical Conference - OILSANDS 2009

OS1

520e

In Situ Oil Sands Recovery

Organizer(s) - Prof. Z. Xu (Canada), Prof. I. Gates (Canada) and Dr. J. Czarnecki (Canada)

14:00 0820 *Expanded Fluid Based Viscosity Correlation for Hydrocarbons* Yarranton H.W., Satryo M.A.

14:20 0821 *Bitumen Rheological Properties - Reconciliation of "Viscosity" Measurements* Bazyleva A., Ho R., Hasan M.A., Fulem M., Shaw J.M.

14:40 0822 *In-Situ Up-Grading of Heavy Oil/Natural Bitumen: Capri Process Optimisation* Shah A., Wood J., Fishwick R.P., Greaves M., Rigby S.P.

15:00 0823 *Convection at the Edge of a SAGD Steam Chamber* Sharma J., Gates I.D.

15:20 0824 *Reaction Mechanisms in Petroleum: From Experimentation to Upgrading and Geological Conditions.* Lannuzel F., Burklé-Vitzthum V., Bounaceur R., Marquaire P-M., Michels R.

15:40 0825 *AMSO'S Novel Approach to In-Situ Oil Shale Recovery* Burnham A. K., Day R. L., Hardy M. P., Wallman P. H.

16:00 Break

16:10 0826 *Measurement of Pore Architecture of Carbonate Reservoirs Using Computerized Tomography* Shafiee M., Kantzas A.

16:30 0827 *Control of Hydrolysis of Emulsified Salts in Canadian Bitumens* Kaur H.K., Eaton P.E., Gray M.R.

16:50 End of Session

Process Safety Management

PSMF

512c

Process Safety Management - Special international symposium on the frequency component in the assessment of major accident hazards

Organizer(s) - G. Creedy (Canada), J.P. Lacoursiere (Canada)

14:00 0828 *Introduction of Frequency in France following the AZF Accident* Durand C.

14:30 0829 *Probabilistic Accident Assessment in the Context of the French Regulation* Lenoble C., Deust C.

15:00 0830 *Management of the UK HSE Failure Rate and Event Data.* Keeley D., Turner S., Harper P.

15:30 0831 *Learning from the Application of Probabilistic Safety Assessment (PSA) in the Chemical Industry* Charvet C., Taveau J.

16:00 0832 *Frequency Data and Modification Factors used in International QRA Studies* Pitblado R., Bain B., Litland K., Spitzenberger C.

16:30 Discussion

17:30 End of Session

Tuesday AM

Plenary Lectures

PLE3

517a

Plenaries 5, 6, 7

Organizer(s) - Prof. Philippe Tanguy

08:00 0833 *Plenary Lecture 5* Brunelle J.P.

08:40 0834 *Plenary Lecture 6* Sejnoha M.

09:20 0835 *Plenary Lecture 7* Tembo A.

10:00 End of Session

Advanced Polymer Hybrids, Composites and Alloys

APH4

514c

Advanced Polymer Hybrids, Composites and Alloys 4

Organizer(s) - Prof. S. Zhu (Canada), Prof. T. McKenna (Canada)

Keynote Lecture

10:30 0836 *Microgel-Ferofluid Composite Membranes for Triggerable Molecular Flux* Hoare T.R., Santamaria J., Goya G., Lau S.F., Langer R., Lin D., Kohane D.S.

11:10 0837 *Novel Interfacial Erosion in Reactive Polymer Blending* Bhadane P., Tsou A.H., Cheng J., Favis B.D.

11:30 0838 *Functionalized Surfadditive for Polymer Surface Modification* Gu H., Zhang J., Faucher S., Zhu S.

11:50 0839 *Functionalized Surfadditive for Polymer Surface Modification: Processing and Testing* Zhang J., Gu H., Faucher S., Zhu S.

12:10 End of Session

Bioenergy and Green Engineering

BGE4

520b

BioEnergy and Green Engineering 4

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

10:30 0840 *Aqueous Extraction Process to Recover Oil from Press-Cakes* Li L., Lanoiselle J-L., Ding L., Clause D.

10:50 0841 *Biodiesel Production with Solid Base Catalysis of Calcium Oxide* Kouzu M., Hidaka J., Komichi Y., Nakano H., Yamamoto M.

11:10 0842 *Energy Efficiency Enhancement of Industrial Processes Using Modeling* Berghoff A., Zwicknagl R., Blesgen A., Tömmers S., Kuhnén F., Schouten M., Hass V.C.

11:30 0843 *Auto-Dry-Reforming of Propane over Cerium Promoted Catalysts* Althenayan F.M., Adesina A.A.

11:50 0844 *The Potential for Renewable Energy in the State of Alabama* Peters R.W., Watson C.

12:10 0845 *Eco-Industrial Cluster Centered on a Kraft Mill in Rural Canada* Mateos-Espejel E., Marinova M., Mostajeran-Goortani B., Paris J.

12:30 0846 *Heat Recovery from Stack Gases in Kraft Process to Reduce Steam Demand* Mostajeran-Goortani B., Mateos-Espejel E., Paris J.

12:50 End of Session

Biomaterials, Tissue Engineering and Regenerative Medicine

BMAT3

518b

Biomaterials, Tissue Engineering and Regenerative Medicine 3

Organizer(s) - Prof. M. Buschmann (Canada), Prof. Shoichet (Canada), Prof. M.S. Kallos (Canada)

10:30 Keynote Lecture

10:30 0847 *Three Dimensional Cell Guidance Strategies* **Shoichet M.**, Wylie R., Aizawa Y., Yu L.

11:10 0848 *Delivery of Drug Macromolecules from Thermally-Responsive-Gel Implants to the Posterior Eye* **Ninawe P.**, **Hatzivramidis D.**, Parulekar S.

11:30 0849 *Development and Characterization of a Biomimetic Elastin Based Vascular Scaffold* **Srokowski E.M.**, **Woodhouse K.A.**, **Blit P.**, **Santerre J.P.**, **McClung W.G.**, **Brash J.L.**

11:50 0850 *Effect of TiO₂ Nanoparticles on the Calcification Capacity of Porous PHEMA Hydrogels* **Li C.**, **Lai M.L.**, **De Pinho M.**, **Lou X.**

12:10 0851 *Scaffolds Immobilized with VEGF and Angiopoietin-1 to Create Cardiovascular Grafts* **Chiu L.L.Y.**, **Radisic M.**

12:30 0852 *Polyurethane-Based Physically Crosslinked Hydrogels for Biomedical Applications* **Patel A.**, **Mequanint K.**

12:50 End of Session

Bioproducts, Bioreactors and Bioprocesses

BBB4 **519a**

Bioproducts, Bioreactors and Bioprocesses 4

Organizer(s) - Dr. A. Margaritis (Canada)

10:30 0853 *Mass Transfer Through Biocatalytic Membrane Reactors* **Nagy E.**

10:50 0854 *Visualization of Complex Drop Formation in Multiphase Fermentations* **Corkidi G.**, **Rojas A.**, **Córdova-Aguilar M. S.**, **Pimentel A.**, **Galindo E.**

11:10 0855 *Influence of Shear Conditions on Clavulanic Acid Production by Streptomyces Clavuligerus* **Cerri M.O.**, **Hokka C.O.**, **Badino A.C.**

11:30 0856 *Removal of Heavy Metals and Dyes from Aqueous Solution by Date Pits* **Al-Lagtah N.**, **Salmh Y.**, **Walker G.**, **Ahmad M.N.M.**, **Al-Ghouti M.A.**

11:50 0857 *Chitosanase Production by Paenibacillus Chitinolyticus* **Binder M.G.P.**, **Araujo N.K.**, **Silva N.M.P.**, **Assis C.F.**, **Santos E.S.**, **Macedo G.R.**

12:10 0858 *Biosynthesis and Characterization of Laccase from White-Rot Fungus Cerrena Uicolor* **Ledakowicz S.**, **Antecka A.**, **Bizukojc M.**

12:30 0859 *Stochastic Simulation of Disinfection of Bacteria: Non-linear Approach* **Argoti A.**, **Fan L. T.**, **Chou S. T.**

12:50 End of Session

Biorefinery/Biomass Transformation

BBT4 **515a**

Biorefinery/Biomass Transformation 4

Organizer(s) - Dr. T. Browne (Canada), Dr. F. Berruti (Canada), Prof. C. Briens (Canada)

10:30 0860 *Catalytic Conversion of Biogas to Biofuels - Tap Studies* **Olea M.**, **Sasaki T.**, **Aoki N.**, **Khodakov A.Y.**, **Balcaen V.**, **Wang W.**, **Pietrzyk S.**, **Adgar A.**, **Hodgson S.N.**, **Mae K.**, **Marin G.B.**

10:50 0861 *Non-enzymatic Decrystallization and Depolymerization of Cellulose: A Potential Route for High Yield Production of Glucose* **Lavoie J-M.**, **Bélanger K.**, **Chornet M.**, **Chornet E.**

11:10 0862 *Understanding the Effects of Reactor Design on Biomass Sugar Recovery* **McKenzie H.L.**, **DeMartini J.D.**, **Studer M.**, **Wyman C.E.**

11:30 0863 *Development and Testing of a Novel Induction Microreactor to Test Catalysts for Bio-Oil Gasification* **Rohani S.**, **Latifi M.**, **Berruti F.**, **Briens C.**

11:50 0864 *Ni/MCM-41 and Co/MCM-41 Catalysts for Enhanced H₂ Production from Biomass* **Zhao M.**, **Harris A.T.**

12:10 0865 *Gasification of Char from the Flash Pyrolysis of Biomass* **Klaas M.**, **Briens C.**, **Berruti F.**

12:30 0866 *Production of Hydrocarbons by Hydrotreating Triglycerides using Modified H-ZSM-5 Catalysts* **Murata K.**, **Inaba M.**, **Takahara I.**, **Liu Y.**

12:50 End of Session

Biotechnology

BPOS

Biotechnology Posters

Organizer(s) - Prof. A. Hrymak (Canada), Prof. J. Chaouki (Canada), Prof. P. Tanguy (Canada)

From **12:50** until **19:10**

0867 *Effect of Fluid Viscosity on the Friction of Metal of Polyethylene* **Fam H.**, **Kontopoulou M.**, **Bryant J.T.**

0868 *Medium Composition Effect on the eIF Antigen of Leishmania Chagasi* **Vaz M.R.F.**, **Andrade S.L.S.**, **Pedrini M.R.S.**, **Santos E.S.**, **Macedo G.R.**

0869 *Calculating the Velocity and Analysing the Changes in Shear Stress with Remodelling in the Chicken Embryo* **Javan Roshtkhari S.**, **Jones E.A.V.**

0870 *Analysis of Notch Cleavage in Single Cells using Capillary Electrophoresis* **Brown R.**, **Audet J.**

0871 *Green Process Engineering: A New Undergraduate Program at Western* **Ray AK**

0872 *Ethanol Production from Glucose/Xylose Mixtures Using Escherichia Coli KO11* **Li X.**, **Gandier J.A.**, **Thibault J.**

0873 *A Novel Growth Strategy for Propagation and Bacteriocin Production of Lactobacillae* **Zacharof M.P.**, **Lovitt R.W.**

0874 *The Response of Endothelial Progenitor Cells to Shear Stress* **Jahnsen E.D.**, **Jones E.A.V.**

0875 *Purification of Enhanced Green Fluorescent Protein from Uncultured Escherichia coli* **Chang Y.K.**, **Lu C.H.**

0876 *Estimation of Biomass Concentration of Trichoderma reesei in Insoluble Medium* **Rahumathulla R.**, **Patel N.**, **Thibault J.**

0877 *Computational Fluid Dynamics Design of a Bioreactor Mixing System* **Gelbras V.**, **Drugmand J.-C.**, **Haut B.**

0878 *Industrial Wastewater Treatment in the Inverse Fluidized Bed Biological Reactor* **Sokol W.**, **Woldeyes B.**, **Korpál W.**

0879 *Prolonged Delivery of Basic Fibroblast Growth Factor (bFGF) through Silica Nanoparticles-laden Biomimic Matrix* **Zhang J.**, **Gardiner R.**, **Abdul M.**, **Harris R.**

0880 *Evaluation of Iota-Carrageenan as a Potential Tissue Engineering Scaffold* **Mehrban N.**, **Smith A.M.**, **Grover L.M.**

0881 *Pancreatic Islet Culture Strategies In Vitro* **Daoud J.**, **Petropavlovskaja M.**, **Rosenberg L.**, **Tabrizian M.**

- 0882 *The Effect of Molecular Weight of Imprinted Chitosan on Template Uptake* **Shapka S.**, Tabrizian M.
- 0883 *What role of low molecular weight Chondroitin sulfate A play in chondrocytes 3D culture* **I-ming C.**, **Chih-chiang Y.**
- 0884 *Nanoparticles of Amphiphilic Copolymer Dextran-grafted-poly(caprolactone) and Their Applications in Drug Delivery System* **I-ming C.**, En-en-chi H.g
- 0885 *Preparation and Hemostatic Efficacy of Ordered Mesoporous Silicas* **Dai C.**, **Liu C.**
- 0886 *Flow and Oxygen Transport Resistance in Human Lungs* **Przekop R.**
- 0887 *Localized Drug Delivery System for the Treatment of Cancer* **Colon M.**, Williams E., Toomey R., Alcantar N.
- 0888 *Effect of Amino Acids on Manganese Peroxidase Production* **Fujihara S.**, **Sakurai A.**, Sakakibara M.
- 0889 *Evaluation of Probiotic Strains as Biological Control Agents in Aquaculture* **Daga P.**, Feijoo G., Moreira M.T., Guillan A., Daga E., Lema J.M.
- 0890 *Hibrid Solution Method for Paclitaxel Separation from a Multicomponent Mixture in a Simulated Moving Bed* **Cremasco M.A.**, Starquit A.
- 0891 *Performance of an Amidase-Immobilised Membrane Bioreactor* **Du Preez R.**, **Clarke K.G.**, Cowan D.A., Burton S.G.
- 0892 *Optimization of Solvent Recovery in the Production of Butanol by Fermentation* **Napoli F.**, **Marzocchella A.**, **Salatino P.**
- 0893 *Naphthalenetic Acid (NAA) Effect on In Vitro Rooting in Brugmansia Candida* **Otálvaro A.M.**, Velásquez M.E.
- 0894 *Control and Optimization of Cell Immobilization in a Fibrous-bed Bioreactor for Recombinant Yeast Fermentation.* **Kilonzo P.M.**, Margaritis A., Bergougou M.A.
- 0895 *On-line Monitoring of Ethanol Concentration During a Continuous Flash Fermentation Process using ANN-Based Software Sensors* **Rivera E.C.**, **Atala D.I.P.**, **Maciel Filho R.**
- 0896 *Disintegration Kinetics of Yeast Cells* **Solecki M.**
- 0897 *Chitosan Derivatives with Synergistic Antibacterial and Wet-Strength Activities* **Sun S.**, Li X., Wang C., Qian L., He B., **Xiao H.**
- 0898 *Generating High Surface Area Activated Carbons by Intercalation of Bagasse* **Zhang K.**, **Cheung W.H.**, **Valix M.**
- 0899 *Improvement of SBR Model with MPCA Analysis and Neural Network* **Shahhosseini S.**, **Navvab Kashani M.**
- 0900 *Serum-Free Medium and Large-Scale Process for Myoblast Expansion* **Parent V.A.**, **Garnier A.**, Tremblay J.P.
- 0901 *The Potential of Three Indigenous Isolated Bacteria for Production of Biosurfactant and Application in EOR* **Amani H.**, **Sarrafzadeh M. H.**, Mehrnia M. R., Haghighi M., Keshtkar M. J., Amoabedini Gh.**PAPER WITHDRAWN**
- 0902 *Biofouling Effect on Removal Efficiency of Oily Pollutants from Wastewater in a Submerged Membrane Bioreactor System* **Mafirad S.**, **Mehrnia M.**, **Sarrafzadeh M.**, **Azami H.**, **Kazemzadeh M.**, **Madaeni S.S.**
- 0903 *Effect of Light Intensity and CO2 on Growth of Chlorella Vulgaris* **Sasi D.**, **Powell E.E.**, Hill G.
- 0904 *Optimal Conditions for Preparing IMAM for Enzyme Purification* **Ke Y-M.o.**, **Chen C-I.**, **Yao C-J.**, **Liu Y-C.**
- 0905 *Overall Oxygen Transfer Coefficient in an Air/liquid Membrane Bioreactor* **Kazemzadeh M.**, **Sarrafzadeh M.**, **Mehrnia M.**, **Pajoum Shariati F.**, **Mafirad S.**, **Azami H.**
- 0906 *Biotransformation by Heterogeneous Enzyme Models of Peroxidase/Mesoporous Materials* **Nazari K.**, **Najar-Safari A.**, **Mahmoudi A.**, **Adhami F.**
- 0907 *Inhibition of KLEBSIELLA PNEUMONIAE by 1,3-Propanediol and Glycerol* **Jun S-A.**, **Sang B-I.**, **Um Y**
- 0908 *Preparation of Indirubin by Biotransformation with Engineered Cytochrome P450 BM-3* **Hu S.**, **Mei L.**, **Yu Q.**, **Fan E.**, **Huang J.**
- 0909 *Effect of Deviation in Storage Temperature on the Shelf Life of a Food Product* **Byrne E.P.**, **Cronin K.**
- 0910 *Cyclical Variations of Air Temperature on Garlic Convective Drying* **Francois C.**, **Lilia M.**, **Juan R.**
- 0911 *Mathematical Modeling of the Resistance Time Distribution in Horizontal Tubular Loop Bioreactor* **Aghamiri Z.**, **Mehrnia M.**, **Shojaosadati S.A.**, **Yazdian F.**, **Fatemi S.**
- 0912 *Biotreatment of Inhibitory Wastewater using an Automatic Discontinuous Reactor* **Buitrón G.**, **Moreno-Andrade I.**
- 0913 *Effect of Using Whey in the Submerged Culture of Grifola umbellata* **Hua bing C.**, **Hung-Chang H.**, **Jiun-Yan W.**, **Chih-I C.**, **Yung-Chuan L.**
- 0914 *Strategies for Improved Enzymatic Saccharification of Hemicellulose* **Nair R.**, **Pooja A.**, **Lali A.**
- 0915 *Expanded Bed Adsorption of an Alkaline Lipase from Pseudomonas cepacia* **Padilha G.S.**, **Curvelo Santana J.C.**, **Ferreira J.F.**, **Monte Alegre R.**, **Tambourgi E.B.**
- 0916 *Fusion Protein Secretion by Salmonella Type III Secretion System* **Hong S.H.**, **Vo Dinh L.T.**
- 0917 *Taxonomic Relevance Correlates to the Coverage of Protein-Protein Interactions (PPIs)* **Sihombing I.R.S.**, **Lin Y-H**
- 0918 *Factors Affecting the Stability and Binding Capability of Single Chain Variable Fragment Libraries* **Bernhard W.**, **Lin Y-H.**, **Geyer R.**, **Sanche S.**
- 0919 *Dynamic Modeling of Parkinson's Disease Development* **Poliquin P.O.**, **Cloutier M.**, **Wellstead P.**
- 0920 *Metabolic Phenotype Characterization for the Production of Adenoviral Vectors* **Gerdtsen Z.P.**, **Salgado J.C.**, **Andrews B.A.**, **Asenjo J.A.**
- 0921 *Making a Perforated Pan Pat Compliant* **Manca D.**, **Funaro C.**, **Gandolfi N.**
- 0922 *Modeling, Simulation and Experimental Study of Hybrid Chromatography-Crystallization Process for Chiral Separation* **Zhang Y.**, **Rohani S.**, **Ray A.K.**
- 0923 *Atomization of Medicinal Solutions in Pneumatic Spraying Device* **Sosnowski T.R.**
- 0924 *Metastable Zone Identification in Pharmaceutical Crystallisation Using Bulk Video Monitoring* **Simon L.L.**, **Nagy Z.K.**, **Hungerbuehler K.**
- 0925 *Selection of Co-Crystal Formers for Pharmaceutical Co-Crystal having Optimal Physical Properties* **Abd Rahim S.**, **Hammond R.B.**, **Roberts K.J.**, **Sheikh A.Y**
- 0926 *Conformational Changes Suffered by Amyloid Beta Peptide Molecules: Implications for Alzheimer's Disease Therapies* **Hupaló N.**, **Jimenez J.**, **Morgan D.**, **Alcantar N**
- 0927 *Cell Culture Viral Vaccines: Continuous Annular Chromatographic Separation of hcDNA* **Özdural N.**, **Tanyolac D.**, **Özdural A.R.**
- 0928 *Active Substances Incapsulation for Solid Dosage Form Production* **Menshutina N.**, **Gordienko M.**, **Makovskaya Yu.**, **Kasimova A.**

0929 *Polymorph Selection by Heterogeneous Nucleation on Polymeric Membrane Surfaces* **Curcio E.**, Di Profio G., Drioli E.

0930 *Polymorph Selection by Heterogeneous Nucleation on Polymeric Membrane Surfaces* **Curcio E.**, Di Profio G., Drioli E.

0931 *Effect of L-Phenylalanine on the Polymorphic Transformation of L-glutamic Acid* **Wu H.**, Ristic R. I.

CFD in Chemical Engineering and Industrial Processes

CFD4 **515b**

CFD in Chemical Engineering and Industrial Processes 4

Organizer(s) - Prof. J. R. Nunhez (Brazil), Dr. O. Simonin (France), Prof. K. Nandakumar (United Arab Emirates)

10:30 Keynote Lecture

10:30 0932 *Filtered Two-Fluid Models for Fluidized Gas-Particle Suspensions* **Sundaresan S.**

11:10 0933 *Stokesian Dynamics and the Settling Behaviour of Particle-Fibre Mixtures* **Feist M.**, Keller F., Dörfler W., Nirschl H.

11:30 0934 *Parametric Study for Vapour-Liquid Flow in a Narrow Channel* **Haelssig J.B.**, Etemad S.Gh., Tremblay A.Y., Thibault J.

11:50 0935 *Drag Force Formulation in Macroscopic Particle Model and its Validation* **Agrawal M.**, Ookawara S., Ogawa K.

12:10 0936 *Natural Convection in a Cavity Squared with a Horizontal Immersed Cylinder* **Rojas M.**, Campo A., Moreno J., Lacoa U.

12:30 0937 *Modeling Oil-Water Separation from Solid Particles* **Fan E.S.C.**, Bussmann M., Acosta E.J.

12:50 End of Session

Chemical Engineering Education

CEE1 **512h**

Chemical Engineering Education 1

Organizer(s) - Jules Thibault (Canada)

10:30 0938 *Application of Excel Macro Programming to Core Chemical Engineering Subjects* **Barford J.P.**, Wong K.

10:50 0939 *Implementation and Impact of a Week-Long Second-Year Industrial Field Trip* **Fraser D.M.**, Kotta L.

11:10 0940 *Investigation of Behaviour and Application of Fuel Cells and Making a Laboratorial Specimen* **Zarmehri E.**, Miremadoddin R., Sharifian M.

11:30 0941 *Development of an Interactive Virtual Anaerobic Digester* **Blesgen A.**, Hass V.C.

11:50 0942 *Hidden Treasures in Some Simple Engineering Problems* **Thibault J.**, Etemad S.G.

12:10 0943 *Engineering Ethics and Chemical Engineering Education* **Allia K.**

12:30 0944 *Evolving Trends in Chemical Engineering Education* **Varma A.**

12:50 End of Session

Clean Coal Technology

CCT4 **512g**

Clean Coal Technology 4

Organizer(s) - Prof. R. Gupta (Canada), Prof. Miura (Japan), Dr. J. van Dyk (South Africa)

10:30 Keynote Lecture

10:30 0945 *Sulphation of CaO-based Sorbent Modified in CO₂ Looping Cycles* Manovic V., **Anthony E.**, Loncarevic D.

11:10 0946 *Experimental Research on the Mechanism of HCN Removal Using Calcium Oxide* Tan H., **Wang X.**, Wang C., Xu T.

11:30 0947 *Capture of Carbon Dioxide Through Clathrate Hydrate Crystallization* **Kumar R.**, Linga P., Ripmeester J., Englezos P.

11:50 0948 *Minor Component Effects on Membrane Gas Separation for Carbon Capture* **Scholes C.A.**, Kentish S.E., Stevens G. W.

12:10 0949 *Post-Combustion CO₂ Capture by Reactive Absorption with Alkanolamines* **Mangalapally H.P.**, Hoch S., Notz R., Toennies I., Hasse H.

12:30 0950 *Steam-Enhanced CO₂ Capture using Partially Sulphated Sorbent* **Symonds R.T.**, Lu D.Y., Anthony E.J.

12:50 End of Session

Energy Saving Distillation Technologies

ESDT3

512a

Energy Saving Distillation Technologies 3

Organizer(s) - Dr. K. Kataoka (Japan), Prof. Z. Olujic (Netherlands)

10:30 0951 *Reactive Distillation in Dividing Wall Columns: Methyl Acetate Hydrolysis Example* **Geissler E.**, Ryll O., Sander S., Hasse H.

10:50 0952 *Model Validation for Dividing-Wall Columns as Basis for Process Control* Niggemann G., **Hiller C.**, Fieg G.

11:10 0953 *Optimal Synthesis of Petyuk and Equivalent Distillation Arrangements* Alcantara-Avila R., **Jiménez-Gutiérrez A.**

11:30 0954 *Power of Separation and Energy Requirements in Distillation* **Ayotte-Sauvé E.**, Sorin M., Rheault F., Sadeghi F.

11:50 0955 *Distillation Processes for Azeotropic Mixture by using Self-Heat Recuperation Technology* **Kansha Y.**, Tsuru N., Fushimi C., Tsutsumi A.

12:10 End of Session

Environment - Air Pollution

AP4

522bc

Environment - Air Pollution 4

Organizer(s) - Mrs. E. Lord (Canada)

10:30 0956 *The Role of CaO in SO₂ Abatement in Cement Preheaters* **Rasmussen M.H.**, Wedel S., Illerup J.B., Thomsen K., Dam-Johansen K.

10:50 0957 *Sulfur Dioxide Removal using Synthesized South African Limestone/Siliceous Sorbents* Onyango D.O., Lee K.T., Otara S.Z., **Mbarawa M**

11:10 0958 *Diesel Particulate Traps Based on Li-Cr Delafossite Soot-Combustion Catalysts* Bensaid S., **Russo N.**, Fino D., Saracco G., Specchia V.

11:30 0959 *Controlling Sulphur Dioxide and Mercury Emissions Using Oil-Sands Fluid Coke* **Morris E.A.**, Jia C.Q.

11:50 0960 *Characterization of Innovative Metallic Microsieves as a New Filter Medium for Fine Particulate Matter Removal from Gases* **Stahl E.**, Robert J., Deerberg G.

12:10 0961 *The Basic Study on the Absorption of Thin Sulfur Dioxide from Diesel Exhausted Gas* **Osaka Y.**, Mamiya M., Kobayashi N., Matsuyama A.

12:30 0962 *Appraisal of a DE-NOx System Based on Board H2 Generation for Light-Duty Diesel Engine Vehicles* Bensaid S., Furfuri S., Russo N., Fino D., Saracco G., Specchia V.

12:50 End of Session

Food Processing and Emerging Trends

FPET4 524c

Food Processing and Emerging Trends 4

Organizer(s) - Prof. M. Benali (Canada), Prof. G. Ascanio (Mexico), Dr. E. Brito (Germany), Dr. K. Marcotte (Canada)

10:30 Keynote Lecture

10:30 0963 *High Hydrostatic Pressure Processing of Foods: Challenges for Pasteurization and Sterilization* Koutchma T., Marcotte M.

11:10 0964 *Supercritical Fluid Extraction of Triterpenoids from Powdered White Birch Barks* Boumghar Y., Benali M., El-Mehdi N., Martel A.C.

11:30 0965 *Fouling Monitoring During Ohmic Heating of Dairy Products with a Cell Jet* Ghnimi S., Debreyne P., Filladeau L.

11:50 0966 *Magneto-responsive Lanthanide Doped Phospholipid Systems* Beck P., Liebi M., Kohlbrecher J., Fischer P., Windhab E.J.

12:10 0967 *Comparison of Stability of Water Soluble Saccharides and Phenols in Longan Fruit Pericarp in Drying Process* Shi J., Xue S., Jiang Y.

12:30 0968 *Thermodynamic Characterization of Jenipapo Drying Process* Oliviera Junior A. M., Abud A. K. S., Santos J. C., Santos S. C.

12:50 End of Session

Gasification, Syngas and CO2 Sequestration

GSC4 520c

Gasification, Syngas and CO2 Sequestration 4

Organizer(s) - Dr. K. Liu (USA), Prof. Dr. G. Xu (China), Dr. A. Avagliano (USA)

10:30 0969 *CO2 Gasification of Wheat Straw Char Particles* Mani T., Mahinpey N., Murugan P.

10:50 0970 *Gasification of Rice Husk in Supercritical Water* Basu P., Vichuda M., Leon M. A.

11:10 0971 *A Techno-Economic and Environmental Assessment of a Tire Pyrolysis Plant* Fels M., Pegg M.J.

11:30 0972 *In-Situ CO2 Capture for Unmixed Steam Reforming* Pimenidou P., Rickett G.L., Dupont V.

11:50 0973 *Exceptionally High Activity of Homogeneous, Ruthenium-based Water Gas Shift Catalysts via Supported Ionic Liquid Phase (SILP) Technology* Werner S., Haumann M., Szesni N., Wasserscheid P.

12:10 Keynote Lecture

12:10 Avagliano, A. - Environmentally Sustainable Development of Coal Gasification Technology

12:50 End of Session

Green Polymers

GP3 514a

Green Polymers 3

Organizer(s) - Prof. M-C. Heuzey (Canada), Prof. J. R. Dorgan (USA), Prof. L. Avérous (France)

10:30 Keynote Lecture

10:30 0974 *New Trends in PLA-Based (Nano)Composites* Dubois P., Murariu M.

11:10 0975 *Packaging Properties of Cassava Starch Nanocomposite Films* Souza A.C., Ferrão E.S.P., Montelato F., Tadini C.C.

11:30 0976 *Nano Bio-Composite Food Packaging: Tailor Made Design and Safety Aspects* Gontard N., Guillaume C., Guilbert S., Gastaldi E.

11:50 0977 *Influence of Nanoclay as Reinforcement in Thermoplastic Starch using Different Plasticizers* Guerrero L., Tunjano V., Jimenez I., Salcedo F., Alvarez O., Medina J.

12:10 0978 *100% Green-Nanocomposite: Influence of the Silica Nanofiller on the Molecular Dynamic of a Wheat Flour Matrix* Galandon A., Gattin R., Leblanc N., Saiter J-M.

12:30 0979 *Bioplastic Blends and Ecobionanocomposites* Dorgan J. R., Sobkowicz M.J., Patel R., Nichols V., Braun B., Hollingsworth L.O.

12:50 End of Session

Industrial Program

ESM 512e

Energy & Sustainable Manufacturing

Organizer(s) - Prof. G. Patience

10:30 0980 *Energy Maps: A Key Component of Energy Saving Opportunity Identification* Martin J S., Woodcock D C

11:00 0981 *Efficient Energy Conversion in a Sulfite Pulping Process* Périn-Levasseur Z., Maréchal F., Paris J.

11:30 0982 *Energy Saving Methodology in Multipurpose Chemical Batch Plants* Szijjarto A.S., Papadokonstantakis S.P., Hungerbühler K.H.

12:00 Mehrpooya - Analysis of Exergy and Simulation of the Propane Refrigeration Cycle Used in C2+ Recovery Plant

12:30 End of Session

LNG 512b

LNG

Organizer(s) - J. Havens (USA), J. Cramer (AIChE), R. Andersson (CSChE)

10:30 Introduction and Welcome

10:50 0983 *U.S. Coast Guard Perspective* Clark P.

11:30 Brent Foster - A State Perspective

12:10 0984 *A Firefighter Perspective* O'Rourke P.

12:50 End of Session

XTL 512f

XTL (X to Liquid)

Organizer(s) - R. Cenni (Denmark), K. W. Hutchenson (USA), J. Lerou (USA), H. Yagi (Japan)

10:30 0985 *Aspects of Sustainable Methanol Production from a Technology Supplier's Perspective* Perregaard J.

11:00 0986 *Methanol-to-Gasoline (MTG) Technology* Lattner J.R., Tabak S.A.

11:30 0987 *Slurry Phase DME Synthesis Technology* Yagi H., Ohno Y., Inoue N., Aoki S., Okuyama K.

12:00 0988 *Next Generation of Fischer-Tropsch Technology* McDaniel J., Atkinson D.

12:30 End of Session

PRISM

512d

Process Intensification for Sustainable Manufacturing

Organizer(s) - J.-F. Jenck (France), G. S. Patience (Canada)

10:30 Keynote Lecture

10:30 0989 *Process Intensification: Its Drivers and Hurdles for Commercial Implementation* **Harmsen G.J.**

11:00 0990 *Energy-Saving Heat Integrated Distillation System of 12 Hydrocarbon Separator*

Nakanishi T., Nishida N., Adachi N., Ikeda H., Matsuda K., Iwakabe K., Horiuchi K., Ohmori T., Nakaiwa M.

11:30 0991 *Fluid Dynamics in Sandwich Packings* **Brinkmann U.**, Hoffmann A., Kaibel B., Joedecke M., Kenig E.Y.

12:00 0992 *THE RAPTOR® : AN INTENSIFIED CONTINUOUS MINIREACTOR FOR BULK AND FINE CHEMICAL PRODUCTION.* Falk L., **Machefer S.**, de Panthou F., Marie S.

12:30 End of Session

Mixing in Industrial Processes

MIX3

520f

Mixing in Industrial Processes 3

Organizer(s) - Prof. S. Kresta (Canada), Prof. J. Derksen (Canada), Dr. S. Jaffer (USA)

10:30 0993 *Visualization of Flow Patterns with the Maxblend®* **Ascanio G.**, Yatomi R., Zenit R., Hidalgo-Millan A., Palacios C., Tanguy P.A.

10:50 0994 *Determination of the Characteristics of PBT and KPC Impellers* **Machado M. B.**, Joaquim Jr C. F., Nunhez J. R., Kresta S. M.

11:10 0995 *Power Consumption and Whole Mixing Capacity in the Stirred Tank* **Katagiri N.**, Yamauchi Y., Fukuda M., Ookawara S., Yoshikawa S., Ogawa K.

11:30 0996 *Operational Behavior of Impingement Mixers* **Schuetz S.**, Kissling K., Plesche M.

11:50 0997 *Experimental Evidence of Mixture Segregation by Particle Size Distribution* Devriendt L., Gatamel C., **Berthiaux H**

12:10 0998 *Flow Patterns and Segregation with Toroidal Powder Motion* **Bouffard J.**, Dumont H., Bertrand F., Chaouki J.

12:30 0999 *Mixing Characterization of a 30 ml Eccentric Stirred Tank for Biotechnology Screening Applications* **Bulnes-Abundis D.**, Moreno-Cuevas, J.E., Carrillo-Cocoom L.M., Murugappan G., Aguilar-Yáñez J.M., García-Ulloa A., **Alvarez M.M.PAPER WITHDRAWN**

12:50 End of Session

Nanotechnology

NAN4

518a

Nanotechnology 4

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

10:30 1000 *Shape-Controlled Synthesis and Oxidation State of Monodisperse Samarium Orthovanadate Nanocrystals* **Nguyen T. D.**, **Cao T. D.**, Do T. O.

10:50 1001 *Microwave Synthesis of Zinc Oxide Nanostructures* **Lee K.-H.**

11:10 1002 *Nano Structure Carbon Electrodes for Energy Storage in Lithium Oxygen Batteries* **Mirzaeian M.**, Hall P.J.

11:30 1003 *Engineering of Hierarchically Structures with Microporous Carbon Films* **Glenk F.**, **Etzold B.**

11:50 1004 *Fuel Cell Quality Hydrogen from Logistic Fuels with Zero Carbon Footprints* **Azad A.-M.**, Sundararajan D.

12:10 1005 *Nanostructured NiCo Film Deposited on Dielectric by Polyol Process* **Zhang J.**, Ding J., Chow G.M.

12:30 1006 *Heat Transfer of Nanofluids in a Shell and Tube Heat Exchanger* **Farajollahi B.**, **Etemad S.Gh.**

12:50 End of Session

Non-Intrusive Methods and Modeling in Particle Technology

NIM1

513e

Non-Intrusive Methods and Modeling in Particle Technology 1

Organizer(s) - J. Doucet (Canada), Prof. F. Bertrand (Canada), Prof. J. Chaouki (Canada)

10:30 1007 *Resolution, Sensitivity and Accuracy of the Radioactive Particle Tracking Technique* **Upadhyay R.K.**, Roy S.

10:50 1008 *Dynamics of Mono-Shaped Non-Spherical Particles in a Cylindrical Tumbler* **Dubé O.**, Bouffard J., Legros R., Bertrand F., Chaouki J.

11:10 1009 *Location of Agglomeration in Industrial HSRB by Acoustic Sensors* **Cao Y.J.**, Liu W., Wang J.D., Yang Y.R.

11:30 1010 *Flow Profiles in Liquid Chromatographic Columns Resolved by X-ray CT* **Lottes F.**, Arlt W., Stenby E. H.

11:50 1011 *Particle Agglomeration in Cyclones: Pacyc Model* **Paiva J.**, Salcedo R., Araujo P.

12:10 1012 *Modeling of Solids Holdup in Circulating Fluidized Bed Risers* **Miao Q.**, Zhu J., Barghi S., Wang C., Yin X.L., Wu C.Z.

12:30 1013 *Characterization of Free-Flowing Particle Jets into Storage Silos Using Particle Image Velocimetry and DEM Simulations* **Zigan S.**, Thorpe R.B., **Tuzun U.**

12:50 End of Session

Other Contemporary Topics in Chemical Engineering

OCPOS

Other Contemporary Topics Posters

Organizer(s) - Prof. R. Munz (Canada), Prof. J. Chaouki (Canada), Prof. P. Tanguy (Canada)

From 12:50 until 19:10

1014 *Partitioning Modeling of Carboxylic Acid Between Oil and Water Phases* **Campanella A.**, Mandagarán B.A., Campanella E.A.

1015 *Ion Exchange Equilibria Between Zeolite NaY and Na⁺/Zn²⁺ Solutions* **Ostroski I.C.**, **Barros M.A.S.D.**, Dantas J.H., Queiroz C.E.S., Bortoli T., Silva E.A., Arroyo P.A.

1016 *Progressive Freeze Concentration of Sucrose Solutions* **Ruiz R.Y.**, Caicedo L.A., **Serrato C.**

1017 *Transport Properties of Hydrogen Bonding Liquids: Molecular Simulation and Taylor-Dispersion Measurements* **Guevara-Carrion G.F.**, Vrabec J., Hasse H.

- 1018 *Liquid-Liquid Equilibria of Biodiesel Production System with N-Butylamine as a Cosolvent* Kuo Y.C., Lin H.M., **Lee M.J.**
- 1019 *Polymorphous P-Tert-Butylcalixarene as Nucleating Agent for Poly(L-Lactic Acid)* Wen L., **Xin Z.**
- 1020 *Center for Self-Assembled Chemical Structures* **Reven L., Giasson S.,** and collaborators
- 1021 *Evaluation of Thermal Treatment of Zeolite in the Capacity of Removal of SO₂* Medeiros S.H. W., Vieira M.G.A., Gimenes M.L., **da Silva M.G. C**
- 1022 *SFA Study of Poly (Acrylic Acid) Brushes Grafted on Activated MICA* **Borozenko O., Skene W., Lego B., Giasson S.**
- 1023 *Retraction of the Edge of an Initially Discotic Liquid Sheet* **Oka H., Homma S., Koga J.**
- 1024 *Effect of Co-Rotating Array Vortex Generators Near the Blade Tip with Roughness* Fuentes J., **Garcia S.**
- 1025 *Algorithm for Obtaining a Conforming Bed and 2D-Bending Templates in Naval Ship System* Soto E.M., **Garcia S., Leiceaga X.A.**
- 1026 *Simulated Velocity Profiles for Eccentric Annular Flow with Inner Rotation* Vieira Neto J.L., Martins A.L., Silveira Neto A., Ataide C.H., **Barrozo M.A.S.**
- 1027 *Front-Tracking Method for Three Immiscible Fluids* **Yokotsuka M., Homma S., Koga J.**
- 1028 *Numeric Analysis of a Confined Turbulent Two Phase Jet Flow Under High Velocity* **Bastos J.C. S., Mori M., Fritsching U., Meier H.F., Decker R.K.**
- 1029 *The Unstable Dynamics of Single Drops Rising in Immiscible Viscous Fluids* **Ohta M., Akama Y., Yoshida Y., Sussman M.**
- 1030 *Influence of Viscosity on the Thermodiffusion Process in Hydrocarbon Mixtures* **Srinivasan S., Saghir M. Z.**
- 1031 *Model Discrimination by Reaction Dynamics of Steam Reforming of Methanol with CO Formation* **Lwin Y., Yusuf S., Subbarao D.**
- 1032 *An Innovative Approach for Treatment of Large Wastewater Lagoons* Wu B, **Wyczalkowski W**
- 1033 *Momentous Flow Technology: The New Way of Mixing* **Hutchinson T, Wu B, Wyczalkowski W**
- 1034 *Mixing in Flows Induced by Rayleigh-Bénard Convection* Puigjaner D., Simó C., Herrero J., **Giralt F.**
- 1035 *Power Consumption, Flow, and Mixing of Multiple PBT Impellers* **Liu M., Grenville R.**
- 1036 *Optimizing a Hydrofoil with CFD and an Optimization Method to Ensure Wider Industrial Application* Spogis N., **Nunhez J. R.**
- 1037 *Scale of Segregation in Mixing Applications* **Kukukova A., Aubin J., Kresta S.M.**
- 1038 *Study on Promotion of SDS on Gas Hydrate Formation* **Ma Q., Luo H., Chen G., Sun C.**
- 1039 *Multi-Scale/Multi-Fractal Analysis of Electrostatic Signal and Flow Pattern Recognition* **Xu Y., Yang Y.R., Wang J.D.**
- 1040 *Modeling of Particle Growth in Fluidized Bed Spray Agglomeration* **Terrazas-Velarde K., Peglow M., Tsotsas E.**
- 1041 *On-line Monitoring of Hydrocyclones by Use of Image Analysis* **Leeuwner M.J., Aldrich C., Auret L., Bezuidenhout C.**
- 1042 *Modeling of Particle Growth in Fluidized Bed Spray Agglomeration* **Terrazas-Velarde K., Peglow M., Tsotsas E.**
- 1043 *Coalescence Between Bubbles in Non-Newtonian Media* Kemiha M., Dietrich N., **Poncin S., Li H.Z.**
- 1044 *Layer Inversion Prediction of Inverse Binary-Solid-Fluidized Beds* **Asif M.**
- 1045 *Viscoelastic Behavior of Polymer Micro-Hydrogels Observed by Quartz Crystal Microbalance* **Nakano Y., Seida Y., Nakano Y.**
- 1046 *Rain Algorithm - A Novel Optimization Algorithm* **Sadeghi M., Tabari A.**
- 1047 *Dynamic Simulation and Optimal Design for Growth of Gallium Nitride by Metalorganic Chemical Vapor Deposition* Chuang Y.-C., **Chen C-T.**
- 1048 *Fluid Dynamic Model and Control of Distillation Column with Distributed Heating* **Werle L.O., Teleken J.G., Machado R.A.F., Marangoni C., Sayer C., Quadri M.B.**
- 1049 *Safe-parking of a Styrene Polymerization Process* **Gandhi R., Baldwin D., Mhaskar P.**
- 1050 *Safe-Steering of Batch Processes* **Aumi S., Mhaskar P.**
- 1051 *Industrial Application of a Novel Clustering Technique* **Horowitz G.I., Dorbesi C., Maestri M., Cassanello M.C.**
- 1052 *Fuzzy Troubleshooting of a Complex Desalination / Dehydration Plant* **Zahedi G.Z., Saba S.**
- 1053 *Design of GMC-ASE Control Scheme for Nonlinear CSTR* **Patle D., Angira R.**
- 1054 *Multi Variable PIP Control of FCC Riser-Regenerator System* **Bashi A., Sadeghi J., Samimi A., Khorram M.**
- 1055 *Interest of Coupling Methods for Fault Diagnosis and Process Monitoring* **Olivier-Maget N., Negny S., Hétreux G., Le Lann J.M.**
- 1056 *Optimization of Styrene Reactor Using Tabu Search and Genetic Algorithms* **shahhoseini S., vakili S.**
- 1057 *Optimisation of Kinetic Parameters of Hydrogenation Reaction Using Genetic Algorithm* **Kadivar A., Sadeghi M.T., Sotudeh-Gharebagh R., Mahmudi M.**
- 1058 *An Optimization Model for Refinery Production Scheduling (Design a Software using Genetic Algorithms & MILP)* **Azarmi M., Jahanmiri A., Vakili S.**
- 1059 *Optimization of the Kinetic Parameters of Ethylene Polymerization over Ziegler-Natta Catalyst using Genetic Algorithm* **Shahverdi K., Hakim A., Fatemi S.**
- 1060 *Guidelines for Robust PID Controller Tuning of FOPTD Processes* **Amiri M.S., Shah S.L.**
- 1061 *Shear Rate Dependent Thermal Conductivity Measurements of Stokesian Liquids* **Broniarz-Press L., Pralat K.**
- 1062 *Efficient Management and Control of Concentrated Particulate Waste Streams* **Omokanye Q., Biggs S.**
- 1063 *Influence of Processing on the Rheological Properties of Enteral Nutrition Puddings* **Nunez N., Valencia C., Partal P., Franco J.M., Brito-de la Fuente E., Gallegos C.**
- 1064 *A Statistical Approach to the Design of Disinfectant Formulations* **Omidsbakhsh N., Duever T.A., Elkamel A., Reilly P.M.**
- 1065 *A Bayesian Methodology for Optimizing Peroxide Based Disinfecting Formulations* **Omidsbakhsh N., Duever T.A., Elkamel A., Reilly P.M.**
- 1066 *A Relatively Low Cost Microwave Heated High Temperature Rheometer* **Ros-Polski V., Schmidt F. L., Silva R. F., Marsaioli Junior A., Vitali A. A.**

- 1067 *Thermo-Rheological Behavior of Bio-Lubricating Greases Based on Castor Oil and Cellulosic Derivatives* Sanchez R., Delgado M.A., Franco J.M., Valencia C., **Gallegos C.**
- 1068 *Electrorheology of Poly(Ethylene Glycol) Suspended in Low-Viscosity Oil* **Hirose Y.**, Otsubo Y.
- 1069 *On-line Study on Dissolution of Lithium Carbonate* **Sun Y.**, Song X.
- 1070 *Treatment of Wastewater Containing of Heavy Metals.Purification Process of Chromium and Cadmium* **Hassaine-sadi F.**, Sadoun L, Bouchabou H.
- 1071 *Cobalt Ion Exchange in Zeolites ZSM-5 and Mordenite* Zola A.S., **Barros M.A.S.D.**, Sousa-Aguiar E.F., Arroyo P.A.
- 1072 *Influence of Sodium Nitrate on Copper Removal from Aqueous Solution* **Bakalár T.**, Búgel M., Pavolová H.
- 1073 *Dynamic Simulation of Multicomponent Separation in Complex Distillation Columns* **Woinaroschy A.**, Isopescu R.
- 1074 *Phase Equilibria of Carbon Dioxide Hydrate in the Presence of Cyclic Ether Compounds* **Seo Y.**, Kang S.P., Yoon S.J., Lee J.
- 1075 *Liquid-Liquid Equilibria of {N-HEPTANE + TOLUENE +ANILINE} Ternary System* Merzougui A., **Hasseine A.**, Binous H.
- 1076 *Electrocoagulation of Biorefinery Wastewater* **Barton G.W.**, Carrasco C., Gadd A., Kavanagh J., Ryan D.
- 1077 *Estimation Des Parameteres de Coalescences Par Methode Inverse* **Hasseine A.**, Kabouche A.
- 1078 *Liquid-Liquid Extraction of Aromatic Hydrocarbons by Mixed Ionic Liquids* **García J.**, García S., Torrecilla J.S., Rodríguez F.
- 1079 *Vapour Phase Mass Transfer Coefficient of Naphthalene in Structured Packing* van der Westhuizen F.E., **Schwarz C.E.**, Knoetze J.H., Burger A.J.
- 1080 *Design of Supercritical Fluid Processes for High Molecular Mass Petrochemicals* **Schwarz C.E.**, Knoetze J.H.
- 1081 *Separation of Alkanes and Alcohols with Supercritical Fluids* **Schwarz C.E.**, Bonthuys G.J.K., van Schalkwyk R.F., Knoetze J.H., Burger A.J.
- 1082 *Application of Electrodialysis for NaOH Recovery from Waste Stream of Merox Process* Keramati N., Moheb A., **Ehsani M.R.**
- 1083 *Solid-Liquid Equilibrium of Ternary Systems with Rare Earths Salts* **SOUZA C.P.**, MACIEL H.S., MORIYAMA A.L.L.
- 1084 *Natural Gas Dew Point Adjustment: Parametric Sensitivity Analysis* Ale Ruiz L., Mercado L., Tarifa E., **Erdmann E.**
- 1085 *Equilibrium in Thiols + Hydrocarbons and Thiols + Water. A Review* **Carroll J.J.**, Mather A.E.
- 1086 *Simulation of Behavior of Sunflower Oil Extraction by Supercritical Carbon Dioxide* Esmaeili A., **Vafajoo L.**, Zolfaghari Sh., Towfighi J.
- 1087 *SEM Evaluation of the Structure of Dried Oat Starch Granules* **Macdonald R.J.**, MacManus R.L., Morison K.R.
- 1088 *Recovery of Propionic Acid from Discharge Water in Vitamin B₁₂ Production with Tributyl Phosphate* **Liu H.Z.**, Chang Z.D., Wang K., Ma Y.C., Lei C., Wu Y., Hu X., Hua C.
- 1089 *Density, Excess Volume, of Binary Systems at Different Temperatures* **García O.**, Soto H., Hernández S., Peralta R., Cortez G., Wisniak J.
- 1090 *A New Method for the Determination of Crystallization Kinetics* **Borchert C.**, Sundmacher K.
- 1091 *Adsorptive Purification of Tocopherols from Deodorized Distillate of Corn Oil* **Tandale J.**, Lali A.
- 1092 *Apparent Diffusion-concentration Relationship in Extraction Processes by Means of a Luenberger Observer* **Martinez C.**, Ruíz R., Vizcarra M., Alvarez J.
- 1093 *Heteroaggregation in Binary Particle Mixtures: Population Balance Modelling and Experiments* **Rollié S.**, Sundmacher K.
- 1094 *Experimental and Theoretical Studies of Metal Ion in Solution* **Asakuma Y.**, Nakano S., Takeda S., Maeda K., Fukui K.
- 1095 *Experimental and Theoretical Description of Spiralling Non-Newtonian Liquid Jets.* **Hawkins V. L.**, Simmons M. J. H., Uddin J., Decent S. P.
- 1096 *Influence of Preoxidation on Fecralloy Efficacy as a Catalyst Support* **Adegbite S.A.**, Barigou M., Simmons M.J.H., Wagland A., Stitt E.H.
- 1097 *Effect of Surface Conditions on the Wetting of Heat-Treated Jack Pine* **Huang X.**, Kocaefe D., Boluk Y., Kocaefe Y., Pichette A.
- 1098 *Diffusion Characteristics of Cationic PVA Polymers into Fiber Pores* **Fatehi P.**, MacMillan B., Xiao H.
- 1099 *Interactions of Drag-Reducing Polymers and Surfactants* **Pal R.**, **Prajapati K.**, Mohsenipour A.
- 1100 *The Critical Casimir Effect: Measuring and Tuning Femto-Newton Forces* **Gambassi A.**, **Dietrich S.**
- 1101 *Self-Assembly Structure of Nonionic Surfactants on Colloidal Silica Beads* **Lugo D.**, Karg M., Prévost S., Oberdisse J., Findenegg G.H.
- 1102 *Characterization of Concentrated O/W Emulsions prepared with Surfactant Blends* **Ayala A.S.**, Blanco C., Di Scipio S.
- 1103 *Colloid-Probe AFM of Polyelectrolyte Multilayer Films Containing Cellulose Nanocrystals* **Cranston E. D.**, Gray D. G., Rutland M. W.
- 1104 *Investigation on the Molecular Shear-Induced Organisation of Confined Thin Films* **Charrault E.**, Banquy X., Giasson S.
- 1105 *Superlubricity Using Repulsive van der Waals Forces* **Feiler A. A.**, Bergström L., Cranston E. D., Rutland M. W.
- 1106 *The Effect of NaCl on Foam Stability* **Khazaeizadeh L.**, Moosavian M.A
- 1107 *The Influence of Modified Starch on the Process Water Quality in the Papermaking* **Zakrajsek N.**, Golob J., Knez S., Ravnjak D.
- 1108 *Polymer Brush Covalently Attached onto OH-Functionalized Mica Surface via Surface-Initiated ATRP* **Lego B.**, François M., Skene W., Giasson S.
- 1109 *Aggregate Formation Dependence on Turbulence in Liquid-Solid Horizontal Pipe Flow* **Harbottle D.**, Fairweather M., Biggs S.
- 1110 *Innovative Method for Simultaneous Determination of Mass Transfer Coefficient and Effective Pore Diffusivity for Adsorbers* **Fan H.**, Noll K.E., Furuya Eiji
- 1111 *Solid Propellant Erosive Burning* **Badrnezhad R.**, Rashidi F.
- 1112 *Development Discouragement: The Developing World and the Kyoto Protocol* **Wright M**

1113 *Incremental Global Parameter Estimation in Dynamic Models* **Michalik C.**, Chachuat B., Marquardt W.

1114 *Degradation of Construction Material of a Reactor for Acrylates Production* Behunek M., Martinec J., **Provaznikova M.**, Kriz A., Dvorak D.

1115 *Effect of Radiation Heterogeneity on Photocatalytic Reaction Rates* **De Visscher A.**, Karimi Golpayegani M., Jarandehi A.

1116 *Modeling of Sequencing Batch Reactor using Dynamic Neural Network* **Navvab Kashani M.**, Shahhosseini S.

1117 *Kinetics of the Thermal Cracking of Model Compounds Representative of Biomass, Bio-oils and Fossil Hydrocarbon Feedstocks* **Barker-Hemings E.I.**, Berruti F., Briens C., Bozzano G., Dente M.

1118 *Catalyst Effects on 2-Methylpyridine N-Oxide Thermal Decomposition* **Saenz L.**, Papadaki M., Carreto Vasquez V., Liu L., Rogers W., Mannan S.

1119 *Investigation of Castor Oil Polyurethanes for Used Nuclear Fuel Containment* **Mortley A.**, Bonin H.W., Bui V.T.

Particle Technology and its Applications

PT4

524b

Particle Technology and its Applications 4

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

10:30 Keynote Lecture

10:30 1120 *Opportunities and Challenges in Bulk Solids Handling* **Carson J.W.**

11:10 1121 *Hygroscopic Bulk Solids: How to Handle Them Really without Problems* **Aschenberger P.**

11:30 1122 *Anisotropic Behaviour of Bulk Solids and its Effect on Silo Design* **Ittershagen T.**, Morgeneyer M., Schwedes J., Kwade A.

11:50 1123 *Influence of Surcharge Pressures on Arching in Mass-Flow Hoppers* **Roberts A.W.**, Donohue T.J., Wiche S.J.

12:10 1124 *Quantifying Flowability of Pharmaceutical Formulations* **Llusa M.**, Muzzio F., Pingali K.

12:30 1125 *Study of Pressure Distribution in Hopper During Aerated Discharge* **Huang W.J.**, Guo X.L., Gong X., Dai Z.H., Zhao J.C., Xiong Y.J.

12:50 End of Session

Polymer Engineering

PE4

514b

Polymer Engineering 4

Organizer(s) - Prof. Dr. D. Estenoz (Argentina), Prof. Dr. J.R. Leiza (Spain), Dr. J. Sosa (USA)

10:30 1126 *Modeling Mixing Effects in Fluidized-Bed, Ethylene-Polymerization Reactors with Condensing Agents* **Chiovetta M.G.**, Bortolozzi R.A.

10:50 1127 *Mathematical Modeling of PAG and NIPAM-Based Polymer Gel Dosimeters Contaminated by Oxygen and Inhibitor* Koeva V.I., Senden R.J., Imam A.H.MK, Schreiner L.J., **McAuley K.B.**

11:10 1128 *Prediction of Acrylonitrile-Based Copolymers Microstructures by Monte Carlo Simulation Method* Hoseinzadeh Nik Z., Jafari S.H., Houshmand Moayed S., **Sanatkar N.**

11:30 1129 *New Techniques to Detect the Phase Inversion During Modified Polystyrene Synthesis* Diaz de Leon R., **Morales G.**, Acuña P.

11:50 1130 *CO₂-induced Crystal Phase Transition in Isotactic Poly-1-butene: Kinetics and Mechanism of Form II to I* Li L., Liu T., **Zhao L.**, Zhang Z-B., Yuan W-K.

12:10 1131 *Experimental Investigation and Modeling of Particle Growth in Propylene Polymerization* **Dashti A.**, Ramazani S.A. A.

12:30 1132 *Di-Block Copolymers via RAFT-Based Transfer Process in Emulsion Polymerization* **Gomes V.G.**, Altarawneh I.S., Srour M.H.

12:50 End of Session

Process Control and Optimization

PCO1

518c

Process Control and Optimization 1

Organizer(s) - Amos Ben-Zvi (Canada) and Carl Duchesne (Canada)

D.G. Fisher Award Lecture

10:30 Keynote Lecture

10:30 1133 *Challenges in Biosystems Control and Optimization* **Perrier M.**

11:10 1134 *On the Stability and Regulation of a Continuous Aerobic Bioreactor via a Class of Nonlinear Proportional Controller* **Lopez Perez P.A.**, Acevedo Gomez R., Aguilar Lopez R.

11:30 1135 *A Safe-Parking Framework for Plant-Wide Fault-Tolerant Control* **Gandhi R.**, Mhaskar P.

11:50 1136 *Stabilization of Chemical Reactors using Approximate Dissipative Hamiltonian Realization* Hudon N., **Guay M.**

12:10 1137 *Safe-Steering of Switched Nonlinear Processes* **Du M.**, Mhaskar P.

12:30 1138 *LQG Control for Sheet and Film Processes* **Ramarathnam J.**, Huang B., Shah S.L.

12:50 End of Session

Process Design

PD4

513b

Process Design 4

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

10:30 Keynote Lecture

10:30 1139 *Process Modeling and Simulation for Energy, the Environment and Medicine: An Industry Perspective* **Chen C.-C.**

11:10 1140 *Applying Kinetics over Phase Boundaries* **Laavi H.**, Qu Q., Lipäinen K., Alopaeus V.

11:30 1141 *Feasibility Analysis and Conceptual Design of Double Feed Reactive Distillation Processes* **They R.T.**, Steger C.S., Meyer X.M., Meyer M.M

11:50 1142 *Gas-Phase Combustion in the Freeboard of a Fluidized Bed* **Laviolette J-P.**, Patience G.S., Chaouki J.

12:10 1143 *New Scheme for Hydrotreating of Heavy Oil Fractions. Joint Analysis for Sulfur, Nitrogen and Aromatic Compounds* Jimenez F., **Kafarov V.**, Nuñez M.

12:30 1144 *A Graphical Approach to Process Synthesis and its Application to Steam Reforming* Fox J.A., Hildebrandt D., Glasser D., **Patel B.**

12:50 End of Session

Separation Science and Technology

SST4**519b**

Separation Science and Technology 4

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

10:30 1145 *Biothermodynamic Studies of Adsorption of Monoclonal Antibodies on Chromatographic Resins* **Blaschke T.**, Hasse H., Dieterle M.

10:50 1146 *Adsorption/Desorption onto Activated Carbon of Tetrahydrothiophene from Natural Gas - Fuel Cell Applications* **Boulinguez B.**, Le Cloirec P.

11:10 1147 *Esiex: Electrical Swing Ion Exchange* Lu W., **Grevillot G.**, Muhr L.

11:30 1148 *Study of CR(III) and MN(II) Removal on Bovine Bone Charcoal* **Barros M.A.S.D.**, Brum R.F.L., Marinuchi R., Gomes J.M., Arroyo P.A., Tavares C.R.G.

11:50 1149 *Microwave Assisted Synthesis of Nano Zeolite Membrane and Investigation of its Permeation Properties for H₂ Separation* Sistani S., **Ehsani M.R.**, Kazemian H., Didari M.

12:10 1150 *Experimental Study and Modeling of HF Adsorption on NaF* **Afzal S.**, Rahimi A., **Ehsani M.**

12:30 1151 *Trans-Esterification Reaction Coupled with Vapour-Liquid Equilibrium in a Quaternary System* **Aim K.**, Wichterle I.

12:50 End of Session

Surface Forces, Interfacial Phenomena and Colloids

SF4**513f**

Surface Forces, Interfacial Phenomena and Colloids 4

Organizer(s) - Dr. S. Giasson (Canada), Prof. M. Gee (Australia), Mr. S. Fraser (Canada)

10:30 Keynote Lecture

10:30 1152 *Molecular Mechanisms of Friction at Soft Polymer Interfaces* **Léger L.**, Restagno F., Cohen C.

11:10 1153 *Surfactant/polymer Boundary Lubricant Films* **Drummond C.**, Lagleize J.-M., Richetti P.

11:30 1154 *Nanorheology Close to Supported Phospholipid Bilayers* **Leroy S.**, Trunfio A.M., Steinberger A., Cottin-Bizonne C., Charlaix E

11:50 1155 *Surface Interactions Between End-Grafted Dual-Responsive Polymer Layers* **Nordgren N.**, Rutland M. W.

12:10 End of Session

Sustainability in Chemical Engineering

SUS4**525b**

Sustainability in Chemical Engineering 4

Organizer(s) - Prof. H. de Lasa (Canada)

10:30 1156 *Greener Alkene Epoxidations via Use of Novel Polymer-Supported Mo(VI) Catalysts in a Continuous Reactive Distillation Process* **Saha B.**, Ambroziak K., Mbeleck R., Sherrington D.C.

10:50 1157 *From Dust to Dusts: Solid/Solid Hybrid Mixture Explosions* **Dufaud O.**, Perrin L., Dubut F., Bideau D., Traore M., Laurent A.

11:10 1158 *Towards the Three-Dimensional Modelling of Dust Mixtures Self-Ignition* **Bideau D.**, Dufaud O., Le Guyadec F., Perrin L., Génin X.

11:30 1159 *ULECeS: Ultra Low Energy Cement Synthesis; Molten-Salt Separation System* **Simons S.S.**, Photiadis G.P., Maries A.M., Tyrer M.T., **Sheikh R.S.**

11:50 1160 *Separation of Benzene and Cyclohexane by Ionic Liquid Extraction* **Lu Y.**, Yang Xi., Luo G.

12:10 End of Session

Water Production and Wastewater Treatment - Technologies, Advances and Issues

WWT4**516a**

Water Production and Wastewater Treatment 4

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

10:30 Keynote Lecture

11:10 1161 *Effects of Influent Oil Concentration on the Performances of Membrane Bioreactor in Wastewater Treatment* **Yang Bin**, Chen Guohua

11:30 1162 *Assessing Reverse Osmosis and Ion-Exchange for Condensates Recycling in Fermentation* **Gavach M.**, Fargues C., Bouix M., Lameloise M.-L.

11:50 1163 *Rejection of Non-Spherical Bacteria and Viruses by Microfiltration Membranes* **Baltus R.E.**, Badireddy A.R., Xu W., Chellam S.

12:10 1164 *Application of UV/H₂O₂ Advanced Oxidation Process for Treatment of Drinking Water* Sarathy S.R., **Mohseni M.**

12:30 1165 *Removal of Arsenic from Drinking Water Using Iron Oxide Ceramic Membranes* **Sabbatini P.**, Rossi F., Marajofsky A., Thern G., **Fidalgo de Cortalezzi M.**

12:50 End of Session

Topical Conference - CAMURE-7 & ISMR-6

CAM3**517a**

Fundamentals

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

10:30 Keynote Lecture

10:30 1166 *Hydrothermal Energy Conversion and Recovery from Biomass and Geothermal Resources* **Tester J.W.**

11:10 1167 *Fluidized Bed Process Intensification: Novel Technologies and Perspectives* **De Wilde J.**, de Broqueville A.

11:30 1168 *Rotating Foam Reactors: Mass Transfer and Reaction Rate* Tschentscher R., **Nijhuis T.A.**, van der Schaaf J., Kuster B.F. M., Schouten J.C.

11:50 1169 *Effect of Bed Configuration on Dispersion in a Packed Bed Reactor* **Gupta R.**, Bansal A.

12:10 1170 *Effect of Spray Nozzle Pulsations on Jet Bed Interaction in Fluidized Beds* **Sabouni R.**, Berruti F., Briens C.

12:50 1171 *Cycles Across an Equilibrium: Studies of the Reverse and Forward WGS Reaction* **Yablonsky G.**, Pilasombat R., Breen J., Burch R., S. Hengrasme S.

CAM2**516e**

Catalysis & Reaction Engineering for Environmental and Materials Processing

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

11:10 1172 *Hydrogenation of 2-Butyne-1,4-Diol Using Novel Bio-Palladium Catalysts* **Wood J.**, Bodenes L., Bennett J.A., Creamer N.J., Macaskie L.E.

11:30 1173 *New Process for the Production of Glycerol Ter-Butyl Ethers* **Di Serio M.**, Casale L., Tesser R., Santacesaria E.

11:50 1174 *New Process for Producing Epichlorohydrin via Glycerol Chlorination* **Santacesaria E.**, Tesser R., Di Serio M., Casale L.

12:10 1175 *Kinetic Analysis of Enzymatic Oleic Acid Esterification under Monophasic and Biphasic Condition* **Mahmud M. S.**, Safinski T., Nelson M. I., Sidhu H. S., Adesina A. A.

12:30 1176 *Investigation of the MTO Reaction in Fluid Bed by MS* **Kaarsholm M.**, Cenni R., Joensen F., Chaouki J., Patience G.S.

12:50 End of Session

CAM1

516d

Catalysis & Reaction Engineering for Sustainable Energy Systems

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

11:10 1177 *New Methods for Hydrogen Generation from Boron Compounds and Water* **Varma A.**, Diwan M., Hanna D.

11:30 1178 *Counteracting Catalyst Deactivation in Methane Aromatization with a TZFB Reactor* **Menendez M.**, Gimeno M.P., Soler J., Herguido J.

11:50 1179 *Experimental Study of the Kinetics of Methane Catalytic Cracking for Hydrogen Production in a Fluidized Bed* **Amin A.**, Croiset E., Epling W.

12:10 1180 *Effect of CoB Catalysts on Production Rate of Hydrogen by Sodium Borohydride Hydrolysis* Alper E., **Oz H.**, Bahar T.

12:30 1181 *Preparation of Ultradispersed Nickel Nanocatalysts* **Al-khalidi S.J.**, Husein M.M.

12:50 End of Session

CIPOS

Camure-7 & ISMR-6 Posters

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

From **12:50** until **20:10**

1182 *Oxidative Dehydrogenation of Light Hydrocarbons over Vanadium and Magnesium Substituted Apatite* Sanuy N., Ruiz A., **Papa J.**, Brito J. L., Gonzalez G., Guerra J.

1183 *Catalytic Cloth in Flow Hydrogenation Reactor: Comparison with Pellets and Monolith* **Matatov-Meytal U.**, Sheintuch M.

1184 *Multifunctional Reactors for Oxidation Accompanied with Reversible Catalyst Deactivation* Gogová Z., **Hanika J.**

1185 *Kinetic Analyses of Biomass Tar Pyrolysis using DAEM by TG/DTA Technique* **Li C.**, **Suzuki K.**

1186 *New Nickel-Based Catalyst for Tar Reforming with Superior Resistance to Carbon Poisoning* **Li C.**, Hirabayashi D., Suzuki K.

1187 *Model-Based Control of a Flow Reversal Reactor* Aksikas I., **Fuxman A.M.**, Forbes J.F., Hayes R.E., Sapoundjiev H.

1188 *Anaerobic Oxidative Dehydrogenation of n-butane Over MgVO Catalysts* Guaran N., Fandiño M., **Papa J.**, Brito J.

1189 *Lactic Acid Based Functional Copolymers* Mantourlias T., Seretis A., Karidi K., Parouti S., **Kiparissides C.**

1190 *Partial Oxidation of Benzene in Reaction-Extraction System - part 2* **Yamada H.**, Mizuno T., Tagawa T.

1191 *Sugar Hydrogenation Over a Ru/C Catalyst* **Sifontes Herrera V.**, Oladele O., Kordás K., Eränen K., Murzin D., Salmi T.

1192 *Catalysts for Benzyl Alcohol Oxidation in Trickle Bed Reactors* Muzen A., Ramos M.E., **Cassanello M.C.**, Bonelli P.R., Cukierman A.L.

1193 *Alkane ODH Reaction on V₂O₅/TiO₂-Al₂O₃ Catalysts: In-situ DRIFT and Reactivity studies* **Shee D.**, Deo G.

1194 *Comparison of Cocurrent and Countercurrent HDS Reaction by Dynamic Modelling of TBRS* **Abbasi R.**, Fatemi S.

1195 *Chemical Depuration by the Fenton's Process of POS-Biological Treated Wastewater from the Cheese Production* **Martins R.C.**, Rossi A.F., Quinta-Ferreira R.M.

1196 *CO and CO₂ Hydrogenation Study on Iron FT Synthesis Catalyst* **Yao Y.**

1197 *Carbonation-Calcination Reaction Process for High Temperature CO₂ and Sulfur Removal* Fan L.S., **Ramkumar S.**, William W., Li S., Wong D., Iyer M., Gumuluru S., Statnick R.

1198 *An Integrated Multifunctional Reactor for Steam Reforming* **Gomes V.G.**, Rawadieh S.

1199 *Studies on Pt-Re-Sn/C Electrocatalyst for Direct Ethanol Fuel Cell* **Basu S.**, **Biswas S.**, Pande C., Kumar A.

1200 *Experimental and Modeling Study of Sorption Enhanced Catalytic Methane Reforming to Pure Hydrogen with In Situ Carbon Dioxide Capture* **Halabi M.H.**, de Croon M.H.J.M., van der Schaaf J., Cobden P.D., **Schouten J.C.**

1201 *Optimum Kinetics for Polystyrene Batch Reactor by Neural Networks Approach* **Hosen M.A.**, Hussain M.A., S.M. Farouq

1202 *Modeling of Wall-Coated Reactor for Steam Reforming of Ethanol* Hernández L., **Kafarov V.**

1203 *Hydrogen Production from Butane Steam Reforming Over Ag/Ni/MgAl₂O₄ Catalysts* **Jeong H.**, **Kang M.**

1204 *Evaluating Reaction Rate Expressions for CO₂ and MEA in 2-Propanol* du Preez L.J., **Schwarz C.E.**, Knoetze J.H.

1205 *Hydrogen Production by Reforming of Methanol with Pd/CeO₂-Sm₂O₃ Catalysts* **Gómez-Sainero L.M.**, Baker R.T., Vizcaino A.J., Francis S.M., Calles J.A., Metcalfe I.S., Rodriguez J.J.

1206 *Water Photolysis by NaTaO₃ Catalyst Co-Doped with C and La by Spray Pyrolysis* **Kang H. W.**, Park S.B.

1207 *Two-Zone Fluidized Bed Reactor to Improve Dehydrogenation Processes* **Menendez M.**, **Herguido J.**, Tellez C., Lobera M.P.

1208 *Kinetics of Nickel Hydroxide Produced from Aqueous Complexation-Precipitation* Cheng JC, Mao ZS, **Yang C.**, Zhao CJ

1209 *Oxidative Coupling of Methane on Binary Catalysts Using Carbon* **Hamidzadeh M.**, Fadaie M., Mohammadi N.

1210 *Real-Time Simulation of an Industrial Scale Slurry-Loop Reactor* Touloupides V., Kanellopoulos V., Pladis P., Krallis A., **Kiparissides C.**

1211 *Kinetic Modelling of Industrial VGO Hydrocracking in a Life Term of Catalyst* **Barkhordari A.**, Fatemi S., Daneshpayeh M.

1212 *Gas-Solid Dynamics in Corrugated Plate Fluidized Beds* **Wardag A.N. K.**, Larachi F.

1213 *Kinetic Modeling of the Fischer-Tropsch Reactions on Fe/HZSM5 Functional Catalyst* **Ahmadi Marvast M.**, Ganji H.

1214 *Difussion Coefficients in Non-Newtonian Solutions of Carboxymethyl Cellulose* Piovano S., Cassanello M., Bohm U.

1215 *Reaction Network Analysis of Photochemical Processes within Mesopause Region* Hadac O., Kohout M., Nevorál V., Marek M., Schreiber I.

1216 *Emergent Dynamics in Interacting Mass-Coupled CSTRs with Complex Ph-Oscillatory Reaction* Schreiberova L., Pesek O., Simcikova P., Schreiber I.

1217 *Cost Effective SCR Catalyst Management Strategies* Jung Bin L., InYoung L.

1218 *Modelling Catalyst Deactivation during Fluidized-bed Catalytic Cracking* Jiménez-García G., Aguilar-López R., Quintana-Solórzano R., Maya-Yescas R.

1219 *Nanostructured Sulphur-Doped PD/SBA 15 as Catalysts for Vegetable Oil Hardening* Kemache N., Hamoudi S., Arul J., Belkacemi K.

1220 *Intrinsic Kinetic Model for Reaction of Synthesis-Gas to Light Olefins on CO/Mn Catalyst* Shayegh F., Ghotbi C., Bozorgmehri R., Manafi H.

1221 *Application of Neural Networks to Model the Reactive Chromatography Process* Molga E.J., Ciach M.

1222 *Yield in Trickle Bed Reactors with Liquid Induced Pulsing Flow* Ayude M.A., Cechini J., Cassanello M.C., Martinez O.M., Haure P.M.

Topical Conference - GLS 9

GLS2A

513c

Heat and Mass Transfer

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

10:30 1223 *Analysis of the Instantaneous Heat Transfer Signal in a Three-Phase Fluidized Bed* Myre D., Macchi A.

10:50 1224 *Heat Transfer in Structured Packings for Three-Phase Fixed Bed Reactors* Vervloet D., Nijenhuis J., van Ommen J.R., Kapteijn F.

11:10 1225 *Scale-up Effects on Local Heat Transfer Coefficients in Bubble Columns* Jhavar A., Prakash A.

11:30 1226 *Dynamic Surface Characteristics of Selected Industrial Streams and their Impact on Gas Liquid Contacting* Al Taweel A.M., Rafi M.S., Luo J.J., Keast B., Yuet P., Odedra D., Boucher H.

11:50 1227 *Simulation of the Two-Phase Gas-Liquid Flow in Fixed Catalyst Bed Reactor Using an Interface Tracking Method* Koudil A., Harlouy J.

12:10 1228 *Dynamical Mass-Transfer of a CO₂-Bubble Measured via LIF/HPTS and Photoelectric-Probing* Hanyu K., Yamamoto M., Matsuda K., Ozawa Y., Saito T.

12:30 1229 *Heat Convection on Spheres in High Turbulent Flows* Boguslawski L.

12:50 End of Session

GLS2B

513d

Measurement Techniques

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

10:30 1230 *A New Approach for Measuring the Local 3D Velocity Field of Thin Film Flows with a Common μ PIV Application* Paschke S., Repke J.-U., Wozny G.

10:50 1231 *Slip Velocity in Downer Reactors: Effect of Operational Variables* Islam M.A., Krol S., de Lasa H.I.

11:10 1232 *Gas-Liquid-Solid Characterisation Novel Frequency Sweep Spectroscopy Technique Using ERT* Oguh U.I., Hall J.F., Bolton G.T., Castillo M., Stitt E.H.

11:30 1233 *Propagation of Solitary Liquid Waves in Trickle Beds via Electrical Capacitance Tomography & Computational Fluid Dynamics* Atta A., Hamidipour M., Roy S., Nigam K. D. P., Larachi F.

11:50 1234 *Application of Chaos Theory to CT Data: Identification of Transition Velocities in a Bubble Column* Nedeltchev S., Shaikh A., Al-Dahhan M.

12:10 1235 *Destabilisation of a Homogeneous Bubbly Flow in an Annular Gap Bubble Column* Al-Oufi F.M., Rielly C.D., Cumming I.W.

12:30 1236 *Quantitative Characterization of Long-Period Fluctuations Observed in a Bubble Column* Masamori Higuchi M.H., Koichi Morikawa K.M., Takayuki Saito T.S.

12:50 End of Session

GLSP

GLS-9 Posters

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

From 12:50 until 20:10

1237 *An Advanced PIV/LIF and Shadowgraphy System to Visualize Flow Structure in Two-Phase Bubbly Flows* Sathe Mayur, Joshi Jyeshthar

1238 *Separation by Density Difference in Liquid-Solid Fluidized Bed* Tatemoto Y., Mori M., Suzuki Y., Ishii A., Bando Y., Kawase Y.

1239 *Hot CO₂ Recovery Using Lithium Silicate Suspende in Molten Salt* Ozaki Y., Kanai Y., Kobayashi D., Terasaka K.

1240 *Simulation of Direct Leaching of Zinc Concentrate in a CSTR* Lampinen M., Laari A., Turunen I.

1241 *Measurement of Bubble Size Distributions Using Overlapping Object Recognition Algorithm* Laari A., Honkanen M., Kuosa M.

1242 *Modeling of Gold Cyanidation in a Gas-Liquid-Solid CSTR* Srithammavut W., Laari A., Turunen I.

1243 *Transient Gas-Liquid Mass Transfer Model for Liquid Films on Structured Packings* Wenmakers P.W.A.M., Meeuwese M., de Croon M.H.J.M., van der Schaaf J., Schouten J.C.

1244 *Effect of Coalescencs Retardation on Gas Holdup in a Pilot Scale Airlift Reactor Aerated by a Transonic Sparger* Al Taweel A.M., S. Pollapothu S., Gomaa H.G., Ghanem A., Farag H.A.

1245 *Liquid Load Point Measurement in a Reactive Distillation Packing by X-ray Tomography* Aferka S., Viva A., Toye D., Brunazzi E., Crine M., Marchot P.

1246 *Gas-Liquid Interfacial Area in Oxygen Absorption into Oil-in-Water Emulsions* Gómez-Díaz D., Gomes N., Teixeira J. A., Belo I.

1247 *Hydrodynamic Studies of Trickle Bed Reactor* Kannan S., Sharfuddin B., Khanna A.

1248 *Effect of Solids on Gas-Liquid Mass Transfer* Costa J., Ferreira A., Rocha F., Teixeira J.A.

1249 *Warning of Excessive Foam from the Analysis of Pressure Fluctuations* Fraguio M.S., Cassanello M.C., Dudukovic M.P.

1250 *Dynamic Behavior of Microbubbles in Ultrasonic Field* Kobayashi D., Hayashida Y., Sano K., Terasaka K.

1251 *Liquid Fluidization Assisted with Structured Packings as Internals* Montmany E., D'Agostino M., Delgado P., Piovano S., Cassanello M., Bohm U.

1252 *Kinetic Study of CO₂ with Newly Developed Aqueous Amine Based Solvent* **Singh P.**, Brilman D.W.F., Groeneveld M.J.

1253 *Aqueous Solutions of Sterically Hindered Amines for the Removal of CO₂ from Gas Streams using Membrane Contactors* **Iliuta M.C.**, **Bougie F.**

1254 *Calculation of Bubble Added Mass using VOF Model* **Simcik M.**, Ruzicka M.C., Drahos J.

1255 *Flow Regime Transition Identification and their Validation in Two Phase Bubble Column* **Kumar S.**, Srinivasulu N., Khanna A.

1256 *Scale-up Effects on Local Heat Transfer Coefficients in Bubble Columns* **Jhavar A.**, **Prakash A.**

1257 *Aggregates Motion in an Agitated Three-Phase Slurry Reactor* **Fraguio M.S.**, Salierno G., **Cassanello M.C.**, Cardona M.A., Hojman D., Somacal H.

1258 *Measurement of Hydrodynamic Non-Uniformities and their Dynamics in Porous Particle Packings using Capacitance Wire-Mesh Sensors* **Schubert M.**, Schäfer T., da Silva M., Thiele S., Hessel G., Kryk H., Hampel U.

1259 *Coalescence of Bubbles: A Case Study* **Orvalho S.**, Ruzicka M.C., Drahoš J.

1260 *Kinetic Study of CO₂ with Newly Developed Aqueous Amine Based Solvent* **Singh P.**, Brilman D.W.F., Groeneveld M. J.

1261 *Effect of Thermal Properties of a Fischer-Tropsch-catalyst in a Fixed-bed* **Philippe R.**, Schweich D., Lacroix M., Dreibine L., Pham-Huu C., Edouard D., Savin S., Luck F.

Topical Conference - 4th EFCE Conference

EFCE4

513a

Product quality-processing relationships

Organizer(s) - Prof. L. Janssen (Netherlands), Prof. dr. A.A. Broekhuis (Netherlands)

10:30 Keynote Lecture

10:30 **Moscicki, L.** - Thermoplastic Starch: Promising Material For Packaging

11:10 1262 *Superabsorbent Properties of Cassava Starch Grafted with (Poly) Acrylic Acid* **Witono-Retti J.**, Noordergraaf I.W., Heeres H.J., Janssen L.P.B.M.

11:30 1263 *Shear Induced Structure Formation of Starch-Zein Blends* **Van der Goot A.J.**, Habeych E.A., Boom R.M.

11:50 1264 *Investigation of Thermal Conductivity Kinetics of Crust/Core Regions of Fried Potato Using a Modified Lees Method* **Ziaifar A.M.**, Heyd B., Courtois F.

12:10 1265 *Influence of Formulation and Process Parameters in Direct Compaction of Pharmaceutical Powders* **Falk V.**, Perrin A., Bardin-Monnier N.

12:30 1266 *Thermoplastic Starch Application in Processing of Packaging Materials* **Moscicki L.**, Mitrus M., Janssen L.P.B.M.

12:50 1267 *Opportunities to Enhance Industrial Vacuum Drying Operations* **Mesa D.**, **Ó Súilleabháin C.**, O'Sullivan I.J.

Topical Conference - 4th IADC2009

IADC2

524a

Drying Techniques and Technology

Organizer(s) - Dr. M. Benali (Canada), Dr. T. Kudra (Canada), Prof. R. Legros (Canada)

10:30 Keynote Lecture

10:30 1268 *The Role of Surface Properties on Coating of Spouted Particles and Drying of Suspensions* **Rocha S.C.S.**, Donida M.W.

11:10 1269 *Fluid Dynamic and Drying of the Poly-Hydroxybutyrate (PHB) in Rotating-Pulsed Fluidized Bed* **Godoi F.C.**, Boin E.A.S.F., Pereira N.R., **Rocha S.C.S.**, Taranto O.P.

11:30 1270 *Effects of Temperature and Surface Area on Air-Drying of Raspberry* **Monem Y.A.**, Verma M., **Ghaly A.E.**, Brooks M.S.

11:50 1271 *Probiotics Spray Drying: Process Development and Scale-Up* **Menshutina N.**, **Gordienko M.**, Voinovskiy A.

12:10 1272 *Geometry and Temperature Effects on Air-Drying of Two Tomato Varieties* **Brooks M.S.**, Ghaly A.E.

12:30 1273 *Process of Drying Poultry Manure for Use as Animal Feed* **Mason R.**, **Ghaly A.E.**

12:50 End of Session

IAPOS

4th IADC2009 Posters

Organizer(s) - Dr. M. Benali (Canada), Dr. T. Kudra (Canada), Prof. R. Legros (Canada)

From 12:50 until 20:10

1274 *Minimizing Board Moisture Content Variability in Timber Processing* **Cronin K.**, Prestwich S., Byrne E.P.

1275 *Numerical and Experimental Validation of Thermo-Hygro-Mechanical Behaviour of Wood During Drying Process* **Thibault F.**, Marceau D., Younsi R., Kocaefe D.

1276 *Modeling of Freeze Drying in Fluidized Bed* **Zerkaev A.**, **Didenko A.**, Menshutina N., Leuenberger H.

1277 *Effect of Operating Conditions in Atmospheric Freeze-Drying* **Reyes A.**, Vega R., Bruna R.

1278 *Spectral Analysis of Pressure Drop Fluctuation in Vibrofluidized Bed Drying* **Moris V.A.S.**, **Rocha S.C.S.**

1279 *Immobilization of Endophytic Fungal Lipase by Spray Drying* **Costa - Silva T.A.**, Souza C.R.F., Said S., **Oliveira W.P.**

1280 *Comparative Study of Commercial Powders Used for Gastro-Resistant Pellet Coating* **Nitz M.**, Leme L. F. O., Hopf M. A. F., Mori V., Gonzalez J. G., Oliveira D. S., Moffa M.

1281 *Numerical Simulation and Experimental Verification of the Drying of Homogenized Whole Egg in a Spouted Bed* **Almeida A.R.F.**, Freire F.B., Freire J.T.

1282 *Effect of Carriers on the Solubility of Spray Dried Pomegranate Powders* **Emam-Djomeh Z.**, Yousefi Sh., Mousavi S.M.

1283 *Simulation of Bovine Pericardium Freeze-Drying using Mathematical Modeling* **Borgognoni C.F.**, Bevilacqua J.S., Pitombo R.N. M.

1284 *Fluid Dynamic Study of a Half-Column Spouted Bed: Evaluation of the Specularity Coefficient Using CFD* **Béttega R.**, Rosa C. A., **Corrêa R. G.**, Freire J. T.

1285 *Application of Markov Chains to the Modelling of Paddle Dryers* **Djerroud D.**, **Arlabosse P.**, Mizonov V., **Berthiaux H.**

1286 *Hydrodynamic of a Vibrating Fluidized Bed Dryer by Modular Neural Networks* **Cubillos F.A.**, Blasco R.A., Alvarez P.I., Vega R.E.

1287 *Experimental and Simulation Study of Fertilizer Drying in a Rotary Dryer* **Arruda E.B.**, Lobato F.S., Assis A.J., **Barrozo M.A.S.**

1288 *Cyclical Variations of Air Temperature on Garlic Convective Drying* Castaigne F., **Mendez Lagunas L.**, Rodriguez Ramirez J.

1289 *Concentration of Liquid Feed in Hydrocyclone to Reduce Drying Energy Use* **Kudra T.**, Hashmi K.

1290 *Effectiveness of Hybrid Drying* **Kowalski S.J.**, Rajewska K.

1291 *Comparison of Performances of Roto-Fluidized and Cascading Rotary Dryers* Arruda E.B., Façanha J.M.F., Pires L.N., Assis A.J., **Barrozo M.A.S.**

1292 *Identification of Fluid Dynamic Regimes in Gas-Solid Fluidized Beds* **Felipe C. A. S.**, Rocha S. C. S., Braga M. B., Santos P. H.

1293 *Excel-Based Tool to Analyse Energy Performance of Convective Dryers* **Kudra T.**, Platon R., Navarri P.

1294 *Dense and Dilute Phase Transition in a Pneumatic Dryer with Spouted Bed Feeder* Sousa R.C., Almeida A.R.F., **Ferreira M.C.**, Freire J.T.

1295 *Mathematical Modeling of Hazelnuts Drying in Fluidized Beds* **Saatchi A.**, Fatemi S.

1296 **Martínez C.**, Ruíz R.S., Vizcarra M., Alvarez J.

1297 *Modelling of Drying and Rehydration Kinetics of Carrots* **Zielinska M.**, Markowski M.

1298 *Application of Spouted Bed Technology for Goat Milk Powder Production* Medeiros U.K.L., Medeiros M.F., **Passos M.L.**

1299 *Mass Transfer Kinetics of Osmodehydrated Guavas: Evaluation of Vacuum Pulse* **Correa J.L.G.**, Pereira L.M., Vieira G.S., Hubinger M.D.

1300 *Effect of Operating Conditions in Atmospheric Freeze-Drying* **Reyes A.**, Vega R., Bruna R.

1301 *Spray Drying of Eugenia Pyriformis Juice* Guedes R.C.M., Oliveira W.P., **Souza C.R.F.**

1302 *Drying of Mango Slices by use of the Refractance Window Drying Technique* **Ochoa-Martinez C.I.**, Quintero-Patiño P.T., Ayala-Aponte A.A.

1303 *Effect of Reconstituted Milk on Properties of Spray Dried Milk* Enriquez-Hernandez B.E., **Sosa-Morales M.E.**, Velez-Ruiz J.F.

1304 *Investigation of Moisture Variation of Flat Bread in an Impingement Oven During Drying* **Banooni S.**, Mujumdar A.S.

1305 *Foam-Mat Freeze-Drying of Bifidobacterium Longum ROI75: Viability and Storage Stability* Izquierdo-Lopez D., **Goulet J.**, Ratti C.

1306 *Analysis of Drying of Eucalyptus Camaldulensis Leaves by Air Humidity Curve in the Drier Outlet* **Mochi V.T.**, **Creмасco M.A.**

1307 *Ultrasonically Assisted Intermittent Drying for Foodstuffs : Preliminary Results* Váqui-ro H.A., Mulet A., De Bonis M.V., Ruocco G., **Bon J.**

1308 *Spray Drying of Protein Hydrolysate of Chicken Breast Meat* **Kurozawa L.**, Morassi A., Park K., **Hubinger M.**

1309 *The Effects of Drying at High Temperature on Some Physical Properties of Wild Pear Wood* **Gunduz G.**, Aydemir D.

1310 *The Effect of Blanching on Osmotic Dehydration of Whole Cranberries* **Rennie T.J.**, Mercer D.G., Ginter A.

1311 *The Effect of Blanching on Convective Drying of Whole Cranberries* Mercer D.G., **Rennie T.J.**, Ginter A.

1312 *Effect of Osmotic Dehydration on the Air-Drying Characteristics of Chayote* **Herman-Lara E.**, Martínez-Sánchez C.E., Vivar-Vera M.A., Huerta-Mora I.R., Ruiz-López I.I.

1313 *Spray Drying of AÇAI (Euterpe oleraceae Mart.) Juice* **Tonon R.V.**, Freitas S.S., Hubinger M.D.

1314 *Fluidization of Agricultural Materials: Influence of Particle Sphericity on Fluid Dynamic Parameters* Lima R.A.B., **Ferreira M.C.**

1315 *Fluidized Bed Drying of Osmotically Pretreated Blueberries and Cranberries* **Grabowski S.**, Marcotte M., Taherian A., Zareifard R.

12:50 End of Session

Topical Conference - OILSANDS 2009

OS2

520e

Oil Sands and Water Treatment

Organizer(s) - Prof. Z. Xu (Canada), Prof. I. Gates (Canada) and Dr. J. Czarniecki (Canada)

10:30 Keynote Lecture

10:30 1316 *Current State of Technology for Bitumen Recovery from Athabasca Mineable Oil Sands Deposits* **Masliyah J.**

11:10 1317 *Non-Aqueous Extraction of Bitumen from Alberta Oil Sands* **Hooshiar A.**, Uhlik P., Adeyinka O. B., Liu Q., Etsell T. H., Ivey D. G.

11:30 1318 *Clay Minerals Characterization from Alberta Oil Sands after Nonaqueous Extraction* **Uhlik P.**, Hooshiar A., Ivey D.G., Etsell T.H., Liu Q.

11:50 1319 *Towards the Development of a Virtual Bitumen Froth Settling Process* **Kirpalani D.M.**

12:10 1320 *Mobility of Solid Particles in Stirred Bingham Liquids* **Derksen J.J.**, Prashant

12:30 1321 *Adsorption of Selected Solvents on Kaolinite by Inverse Gas Chromatography* **Daher N.**, Choi P.

12:50 End of Session

Process Safety Management

PSMF

Process Safety Management - Special international symposium on the frequency component in the assessment of major accident hazards

Organizer(s) - G. Creedy (Canada), J.P. Lacoursiere (Canada)

10:30 1322 *Development of Algorithms for Predicting Ignition Probabilities and Explosion Frequencies* **Moosemiller M.D.**

11:00 1323 *Reliability Data Acquisition and Evaluation in Process Plants* **Hauptmanns U.**

11:30 1324 *The Impact of Differences in Reliability Data on the Results of Probabilistic Safety Analyses* **Hauptmanns U.**

12:00 1325 *A Proposal of Generic Event Trees and Probabilities for the Diverse Types of Releases* **Casal J.**, Vilchez J.A., Espejo V.

12:30 1326 *New Approach to Calculate the Probability of Ignition* **Srekl J.**, Golob J.

Tuesday PM

Advanced Polymer Hybrids, Composites and Alloys

APH5

514c

Advanced Polymer Hybrids, Composites and Alloys 5

Organizer(s) - Prof. S. Zhu (Canada), Prof. T. McKenna (Canada)

14:00 Keynote Lecture

14:00 1327 *Effect of Silica Treatment on Functionalized PP / Polyolefin Elastomer / Nanosilica Composites* Bailly M., **Kontopoulou M.**

14:40 1328 *Continuous Process for Hydrogenation of Nitrile Butadiene Rubber in a Static Mixer Reactor* Madhuranthakam C.R., Pan Q., **Rempel G.L.**

15:00 1329 *Surface Modification Via Atom Transfer Radical Polymerization Grafting for Protein-Resistant Polyurethane* Jin Z., Feng W., Brash J.L., **Zhu S.**

15:20 1330 *The Preparation and Characterization of Inorganic/Organic Hybrid Materials* Holmes R.L., Campbell J.A., **Burford R.P.**

15:40 1331 *Thermo-Responsive Membranes with Grafted Linear and Crosslinked Poly(N-Isopropylacrylamide)* Gates Chen Y., Xie R., Yang M., Li P-F., **Chu L-Y.**

16:00 End of Session

Bioenergy and Green Engineering

BGE5

520b

BioEnergy and Green Engineering 5

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

14:00

14:00 1332 *Symbiosis Between Bioenergy and Hydrogen Economy* **Kozinski J.A.**, Gokalp I., Dalai A.

14:40 1333 *Py-GC/MS Studies to Evaluate the Effect of Thermal Pre-Treatment on the Yield of Sugars Resulting from Fast Pyrolysis* Johnson R., **Perez M.**, Liaw S-S., S., Lin S.S-Y., Chen S.

15:00 1334 *Supercritical CO₂ Fractionation of Bio-oil Produced from Wheat-Hemlock Biomass* **Naik S.N.**, Goud V.V., Rout P.K., **Dalai A.K.**

15:20 1335 *Biomass Fast Pyrolysis: Experimental Analysis and Modelling Approach* **Al Haddad M.**, **Mauviel G.**, Rendek E., Corriou J.-P., Lede J.

15:40 1336 *Catalytic Fast Pyrolysis of Biomass* Pattiya A., Bridgwater A.V., **Titiloye J.O.**

16:00 End of Session

BGE6

520b

BioEnergy and Green Engineering 6

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

16:10 1337 *Ash Deposition in Co-Firing Biomass/Peat and Coal in Fluidized Bed* **Shao Y.**, **Xu C.**, Preto F., Tourigny G., Li H., Wang J., Zhu J.

16:30 1338 *Dilute Sulfuric Acid Cycle Spray Flow-Through Pretreatment of Corn Stover* **Zhang H. M.**, Huang H., Yan L. S., Jin Q

16:50 1339 *Hydrodeoxygenation of 4-Methylphenol over Molybdenum Catalysts* **Whiffen V.M.**, **Smith K.J.**

17:10 1340 *Biomass Gasification in a Bubbling Fluidized Bed: Numerical Modeling and Experiments* **Lavoie J.**, Chaouki J., Drouin G.

17:30 1341 *IrO₂ - RuO₂ Electrocatalyst Supported on Sb-Doped SnO₂* Marshall A.T., **Haverkamp R.G.**

17:50 End of Session

Biomaterials, Tissue Engineering and Regenerative Medicine

BMAT4

518b

Biomaterials, Tissue Engineering and Regenerative Medicine 4

Organizer(s) - Prof. M. Buschmann (Canada), Prof. Shoichet (Canada), Prof. M.S. Kallos (Canada)

14:20 1342 *Manipulation of Cell Attachment on Photocleavable Poly (Ethylene Glycol)-Gold Surfaces* **Cheng N.**, **Cao X.**

14:40 1343 *PPE:N Coating Enhances HUVEC Adhesion on PET Films* **Gigout A.**, Major A., Girard-Laurialt P.-L., Wertheimer M. R., Lerouge S., Jolicoeur M.

15:00 1344 *Antibacterial Behaviour of ZnO Nanoparticles Coated on PVC Films* **Jiang Y.**, Zhang L., O'Neill A., **Ding Y.**

15:20 End of Session

BMAT5

518b

Biomaterials, Tissue Engineering and Regenerative Medicine 5

Organizer(s) - Prof. M. Buschmann (Canada), Prof. Shoichet (Canada), Prof. M.S. Kallos (Canada)

16:10 1345 *Oriented Immobilization of Epidermal Growth Factor for Tissue Engineering Applications* **Boucher C.**, Liberelle B., St Laurent G., Loignon M., Jolicoeur M., Durocher Y., **De Crescenzo G.**

16:30 1346 *Photothermal Ablation of Glioblastoma Using Carbon Nanotubes Functionalized with Anti-CD133* **Peng C.-A.**, Wang C.-H.

16:50 1347 *An Alginate/Fibroblast/Keratinocyte Construct for Tissue Engineering Skin* **Hunt N.C.**, Shelton R.M., Cooper P.R., Gbureck U., Grover L.M.

17:10 End of Session

Bioproducts, Bioreactors and Bioprocesses

BBB5

519a

Bioproducts, Bioreactors and Bioprocesses 5

Organizer(s) - Dr. A. Margaritis (Canada)

14:00 Keynote Lecture

14:00 1348 *Growth and Adhesion of Microalgae: Development of a Microalgal Bioreactor Utilizing Wastewater* Nadarajah N., Irving T., **Allen D.G.**

14:40 1349 *Effect of Light Intensity on Growth of *Chlorella vulgaris* in a Novel Circulating Loop Photobioreactor* **Sasi D.**, Hill G.A., Powell E.E.

15:00 1350 *Mixing Study in a Bioreactor by LES and Particle Tracking* Delafosse A., **Morchain J.**, Guiraud P.

15:20 1351 *Optimization of a Fermentation Medium using Artificial Neural Networks* **Nowruzi K.**, Elkamel A., Scharer J.M., Moo-Young M.

15:40 1352 *Recombinant Yeast Cell Kinetics and Modelling of an Airlift-Driven Fibrous Bed Bioreactor* **Kilozzo P.M.**, Margaritis A., Bergougnou M.A.

16:00 End of Session

BBB6

519a

Bioproducts, Bioreactors and Bioprocesses 6

Organizer(s) - Dr. A. Margaritis (Canada)

16:10 Keynote Lecture

16:10 1353 *Paper Modified with Microencapsulated Enzymes: Towards Bioactive Paper* **Rocheft D.**, Zhang Y., Kouisni L., Gendron K.

16:50 1354 *A Novel Two-Liquid Phase Biodesulfurization Process Using Ionic Liquids* **Soleimani M.**, Bassi A., Margaritis A.

17:10 1355 *Biofiltration of Odorous Sulfur Compounds* **Dumont E.**, **Andrès Y.**, Da Silva Cabral F., Belli Filho P., Le Cloirec P.

17:30 1356 *Interfacial Gas-Liquid Transfer in Alkane-Aqueous Dispersions* Correia LDC, **Clarke KG**, Aldrich C

17:50 1357 *Isolation and Expression of Gene Products of Streptococcus thermophilus Bacteriophage 2972* **Dorval Courchesne N.M.**, Parisien A., McKinnon C., Lan C.Q.

18:10 End of Session

Biorefinery/Biomass Transformation

BBT5**515a****Biorefinery/Biomass Transformation 5**

Organizer(s) - Dr. T. Browne (Canada), Dr. F. Berruti (Canada), Prof. C. Briens (Canada)

14:00 1358 *The Edmonton Biofuels Facility* **Schubert J. W.**, du Plessis D., Chornet E.

14:20 1359 *Intermittent Slug Injection System for Biomass Particles fed into Fluid Bed Pyrolysis Reactors* Berruti F.M., Ferrante L., Briens C., **Berruti F.**

14:40 1360 *A Commercial-Scale Mobile Pyrolyzer for Biomass Conversion to Bio-Oil and Bio-Char* **Ferrante L.**, Briens C., Berruti F., Golden R.

15:00 1361 *Pyrolysis of Dried Distiller's Grains in Pyrolyzers of Two Scales* **Xu R.**, Ferrante L., Briens C., Berruti F., Golden R.

15:20 1362 *Thermal Conductivity of Wood Pellets* **Guo W.**, Lim C. J., Sokhansanj S., Bi X., Melin S.

15:40 1363 *CFD Modeling of Fast Gas-Solid Separator* **Huard M.**, Briens C., Berruti F.

16:00 End of Session

CFD in Chemical Engineering and Industrial Processes

CFD5**515b****CFD in Chemical Engineering and Industrial Processes 5**

Organizer(s) - Prof. J. R. Nunhez (Brazil), Dr. O. Simonin (France), Prof. K. Nandakumar (United Arab Emirates)

14:00 Keynote Lecture

14:00 Keynote Lecture being given in Mixing Symposium, MIX4 in Room 520f. Fox. R. - Models for Mixing-Limited Chemical Processes: From RTD to CFD

14:40 1364 *In-Line Settling of Two Spheres in a Polymeric Fluid* Frank X., Kemiha M., **Li H.Z.**

15:00 1365 *Modeling the Flow of Suspensions in a Radial Cell* **Apostolou K.**, Hrymak A.N.

15:20 1366 *Multi-Scale Modelling of Soot Filtration in Diesel Particulate Traps* **Bensaid S.**, Marchisio D.L., Fino D

15:40 1367 *CFD Modeling of Dust Explosions: Rapid Combustion in a 20 L Siwek Apparatus* **Bind V. K.**, Roy S., Rajagopal C.

16:00 End of Session

Chemical Engineering Education

CEE2**512h****Chemical Engineering Education 2**

Organizer(s) - Jules Thibault (Canada)

14:00 1368 *Teaching Chemical Process and Plant Design* **Giulietti M.**, Ruotolo L. A. M.

14:20 1369 *Chemical Engineering Design Training at the University of Saskatchewan* **Evitts R.W.**, **Wang H.**, Hill G.A., Phoenix A.V., Lin Y.-H., Muench T.

14:40 1370 *Concept Inventory for Fundamentals of Material and Energy Balances* **Ngothai Y.**, Shallcross D.C., Davis M.

15:00 1371 *Contemporary Problem Based Learning Projects in Chemical Engineering Product Design* **Harris A.T.**, Briscoe-Andrews S.

15:20 1372 *Strategic Role of the Chemical Engineer in the World Rational Development: Formation of New Generations of Chemical Engineers* **Zhuzhell R.V.**

15:40 End of Session

Clean Coal Technology

CCT5**512g****Clean Coal Technology 5**

Organizer(s) - Prof. R. Gupta (Canada), Prof. Miura (Japan), Dr. J. van Dyk (South Africa)

Bantrel Award**14:00 Keynote Lecture**

14:00 1373 *Current State of Technology for Mercury Emission Control from Coal-fired Power Plants* **Xu Z.**

14:40 1374 *NO_x Emission from a Biomass-Coal Co-Combustion CFB Boiler* **Yang S.**, Liu Q., Yang H.R., Zhang H., Lu J.F., Yue G.X.

15:00 1375 *Ammonia Decomposition with Metal Catalysts Supported on Canadian Peat-Derived Carbons* **Xu C.**, **Donald J.**, Hashimoto H., Byambajav E., Ohtsuka Y.

15:20 1376 *Removal of Alkali Vapours from Simulated Syngases by Solid Sorbents* **He I.**, Lu D., Hughes R., Anthony E.J.

15:40 1377 *Simulation of Slag Flow in a High Temperature Coal Gasifier* **Omidghane M.**, Gupta R.

16:00 1378 *Release Behavior of Mercury During Heat Treatments of Coals* **Kato T.**, Sugawara K.

16:20 End of Session

Energy Saving Distillation Technologies

ESDT4**512a****Energy Saving Distillation Technologies 4**

Organizer(s) - Dr. K. Kataoka (Japan), Prof. Z. Olujic (Netherlands)

14:00 1379 *Maximizing Energy Integration for HIDIC Designs using the CGCC* Cabrera-Ruiz J., **Jiménez-Gutiérrez A.**, Segovia-Hernández J.G.

14:20 1380 *Simulation and Optimization of Extractive Distillation for CO₂-Ethane Separation* **Lastari F.**, Pareek V., Trebble M., Tade M.O., Chinn D., Tsai N.C., Chan K.I.

14:40 1381 *Separation of Acetone/Methanol Mixture by Extractive Distillation* **Gil I.D.**, Botia D., Ortiz P., Sánchez O.

15:00 1382 *Feasibility Studies on Dehydration of Ethanol by Distillation Using Salt Effect on Vapor Liquid Equilibrium* **Ohe S.**

15:20 1383 *Hollow Fibers as Structured Packing for Olefin/Paraffin Distillation* **Yang D.,** Devlin D., Barbero R., Wright R., Cussler E.

15:40 End of Session

Environment - Air Pollution

AP5 **522bc**

Environment - Air Pollution 5

Organizer(s) - Mrs. E. Lord (Canada)

14:00 1384 *Experimental Study on SO₂ in Reducing PCDD/F Formation by De-Novo-Synthesis* **Yan J.,** Shao K., Li X., Lu S.

14:20 1385 *Molten Salt Synthesis of the Cement Compound Dicalcium Silicate* **Photiadis G.M.,** Simons S.J. R., Maries A., Tyrer M.

14:40 1386 *Usage of a Cyclone as a Cut Off Device for Measurements of Fractionated Metal Working Fluid Mist Emissions* **Höflinger W.,** Laminger T.

15:00 1387 *Porous Burner Design for Ultra-Lean Methane Combustion* **Harris A.T.,** Wood S., Tierney C., Fletcher D.F.

15:20 1388 *Effective Hydration and Carbonation of Fluidized Combustion Ash* **Wang J.,** Wu Y., Jia L., Anthony E.J.

15:40 1389 *Novel Method for Measuring Cr (III) in Tanning Liquors* **Escalera C.**

16:00 End of Session

AP6 **522bc**

Environment - Air Pollution 6

Organizer(s) - Mrs. E. Lord (Canada)

16:10 1390 *Kinetics of Aerobic Waste Stabilization of Old Municipal Landfills* **Krzystek L.,** Slezak R., Ledakowicz S.

16:30 1391 *Extending the Prime Plume Rise Model to Include Flare Combustion* **De Visscher A.**

16:50 1392 *Turbulent Plumes with Internal Generation of Buoyancy by Chemical Reaction* **Campbell A.N.,** Barrie P.J., Cardoso S.S.S.

17:10 1393 *Analysis of BC Transport to Canadian High Arctic in Winter* **Huang L.,** Gong S.L., Jia C.Q.

17:30 1394 *Ozone Level Forecasting by Fuzzy Neural Network Method* **Zahedi G.Z.,** Saba S., Elkamel A.

17:50 End of Session

Food Processing and Emerging Trends

FPET5 **524c**

Food Processing and Emerging Trends 5

Organizer(s) - Prof. M. Benali (Canada), Prof. G. Ascanio (Mexico), Dr. E. Brito (Germany), Dr. K. Marcotte (Canada)

14:00 Keynote Lecture

14:00 1395 *Food Quality Optimization in Thermal Processing* **Martynenko A.I.**

14:40 1396 *Nutraceutical Potential of Canadian Sea Buckthorns* **El-Mehdi N.,** Martel A.C., **Boumghar Y.**

15:00 1397 *Assessment of Pork Quality Levels by Hyperspectral Imaging Technology* **Liu L.,** **Ngadi M.O.,** Prasher S., Gariepy C.

15:20 1398 *Prediction of Supercritical-Carbon-Dioxide-Drying Kinetics of Foodstuffs in Packed Beds* **Khalloufi S.,** Almeida-Rivera C., Bongers P.

15:40 1399 *Scraped Surface Heat Exchangers with Alternated Blades for Nut Paste Sterilization* **Carotenuto C.,** D'Addio L., Di Natale F., Nigro R.

16:00 End of Session

FPET6 **524c**

Food Processing and Emerging Trends 6

Organizer(s) - Prof. M. Benali (Canada), Prof. G. Ascanio (Mexico), Dr. E. Brito (Germany), Dr. K. Marcotte (Canada)

16:10 1400 *Submicron Sized Functional Emulsions for the Formulation of (Bio-) Active Ingredients* **Schuchmann H.P.**

16:30 1401 *Ultrasonic Velocity Measurements for Determining the Composition of Cheese Spreads* **Telis-Romero J.,** Váquiros H., Bon J., Mulet A., Benedito J.

16:50 1402 *Microwave Process Optimisation Using Dielectric Composite Materials* **Curet S.,** Rouaud O., Boillereaux L.

17:10 1403 *Energy Consumption and Energy Efficiency Index of Bread Refrigeration* **JURY V.,** PINSON A., LAUNAY J., LE-BAIL A

17:30 1404 *Modifier Effects on Lycopene Profile from Tomato by Supercritical CO₂ Extraction* **Shi J.,** Xue S., Yi C.

17:50 End of Session

Gasification, Syngas and CO₂ Sequestration

GSC5 **520c**

Gasification, Syngas and CO₂ Sequestration 5

Organizer(s) - Dr. K. Liu (USA), Prof. Dr. G. Xu (China), Dr. A. Avagliano (USA)

14:00 1405 *The Solvent Effects During Preparation of Fischer-Tropsch Synthesis Catalysts* **ZHANG Y.,** Endo Y., TSUBAKI N. **PAPER WITHDRAWN**

14:20 1406 *Towards Application of Palladium Membrane Reactors in Large Scale Production of Hydrogen* **van Delft Y.C.,** Overbeek J.P., Saric M., Groot A., Dijkstra J.W., Jansen D.

14:40 1407 *The Effect of Remarkable Ce and Zr Mixed Oxide Nanoparticles Petrochemical's Support* **Fakhrouieian Z.,** Shafiekhani A., Yousefi M., Afroukhteh Langroudi N., Karami M., Esmaeizadeh P., Varmazyar H., Rajabi E., Taheri SA.

15:00 1408 *Inhibition of Char-Steam and Char-CO₂ Gasification by Syngas* **Huang Z.,** Zhang J., Yue G., Suda T., Narukawa M.

15:20 1409 *Experimental Study on CO₂ Absorption by Ammonia* **Bouallou C.,** Rivera-Tinoco R.

15:40 1410 *Accelerated Carbonation of MSWI APC Residues Using Flue-Gas CO₂* **Simons S.J.R.,** Sun J.

16:00 End of Session

Green Polymers

GP4 **514a**

Green Polymers 4

Organizer(s) - Prof. M-C. Heuzey (Canada), Prof. J. R. Dorgan (USA), Prof. L. Avérous (France)

14:00 Keynote Lecture

14:00 1411 *Fundamental Design of Bio-Based Polymers and Composites: Solutions to Global Warming* **Wool R.P.**

14:40 1412 *Towards the Improvement of Eco-Materials Based on Green Polymers* **Averous L.,** Pollet E.

15:00 1413 *Edible Coating for Potato French Fries* ***Arab Tehrani E.**, Jacquot M., Al-Sayed Mahmoud K., Linder M

15:20 1414 *Synthesis and Characterization of the Next Generation Biopolyol and Bio-foam* ***Bandyopadhyay-Ghosh S.**, Ghosh S.B., Ghosh Roy S., Sain M.

15:40 End of Session

GP5**514a****Green Polymers 5**

Organizer(s) - Prof. M-C. Heuzey (Canada), Prof. J. R. Dorgan (USA), Prof. L. Averous (France)

16:10 1415 *Morphology Control in Polymer Blends with Thermoplastic Starch* Li G., Sarazin P., ***Favis B.D.**

16:30 1416 *Sorbitol and Glycerol as Plasticizers for Thermoplastic Starch in TPS/PLA Blends* Li H., *Huneault M. A.

16:50 1417 *Nanofibrous Mats of Chitosan/Polyethylene Oxide Prepared by Electrospinning* **Pakravan Lonbani M.**, *Heuzey M-C., Aji A.

17:10 1418 *Toughening of Poly(Lactic Acid) by Elastomeric Nanoparticles: Mechanical Investigations* *Covavisaruch S., **Petchwattana N.**

17:30 1419 *Application of the Core-shell Morphology for Recycling Applications in Polymer Blends* **Le Corroller P.**, Favis B.D

17:50 End of Session

Industrial Program**ESM****512e****Energy & Sustainable Manufacturing**

Organizer(s) - Prof. G. Patience

14:00 1420 *The Difficult Dialogue - Rationality of Experts contra Morality of Laymen* ***Jischa M. F.**

14:30 1421 *Improving the Energy Efficiency of a Limestone Rock Kiln* **Walmsley M.R.W.**, Moffatt W.

15:00 1422 *Waste Heat Recovery Power Generation with WOWGen®* **Romero M.H.**

15:30 1423 *The Global Nuclear Safety and Security Regime* **McDermott C.A.**

16:00 1424 *Application of Thermal Plasma to Waste Treatment and Energy Recovery* ***Kaldas A.**

16:30 1425 *Deconstructing Heavy Oils via the Jetshear Process* **Chronopoulos C.**, Chornet M., Pellerin F., Tremblay P., Dehkissia S.

17:00 1426 *A New Pyrolysis of Biomass Waste with NaOH addition for Efficient Dechlorination and Heat Recovery* **Hayashi S.**, Amano H., Niki T., Yokota M., Mae K.

17:30 End of Session

LNG**512b****LNG**

Organizer(s) - J. Havens (USA), J. Cramer (AIChE), R. Andersson (CSChE)

14:00 1427 *Determination of Credible Events* ***Hightower M.**

14:40 1428 *Consequence Analyses for Credible LNG Hazards* ***Havens J.**

15:20 1429 *LNG Vessel Cascading Damage Research Program* ***Petti J.**

16:00 End of Session

XTL**512f****XTL (X to Liquid)**

Organizer(s) - R. Cenni (Denmark), K. W. Hutchenson (USA), J. Lerou (USA), H. Yagi (Japan)

14:00 1430 *Public Private Partnership Perspective in the Hydrogen Transportation Sector* **Gauthier P.**

14:30 1431 *Unlocking the Chemical Potential of Carbonaceous Feed-stocks* **Hausberger B.P.**, *Glasser D., Hildebrandt D., Patel B

15:00 1432 *Coal and Biomass Conversion to Liquid Fuels and Hydrogen* *Cicero D., **Headley L.**

15:30 1433 *Continuous Improvement of Shell Gas-to-Liquids Technology* ***Bos A.N.R.**, Hoek A.

16:00 1434 *Oryx GTL, Haldor Topsoe Reformer* **Bakkerud P.K.**

16:30 1435 *Development of Novel Synthesis Gas Production Technology* **Kawazuishi K.**, Minami T., Imagawa K., Kado S., Kawai H., Suehiro Y.

17:00 1436 *Research and Development of Large-scale Coal Gasification Technology* ***Wang F.**, Yu G., Gong X., Liu H., Wang Y., Ling Q.

17:30 End of Session

PRISM**512d****Process Intensification for Sustainable Manufacturing**

Organizer(s) - J.-F. Jenck (France), G. S. Patience (Canada)

14:00 1437 *Progress of High Gravity Technology -- From Fundamentals to Nanomaterials, Chemicals, and Pharmaceutical Industrial Applications* ***Chen J-F.**, Shao L.

14:30 1438 *Effect of Co-Feeding Gas and Liquid on Mass Transfer in a Rotor-Stator Spinning Disc Reactor* **Meeuwse M.**, van der Schaaf J., *Schouten J.C.

15:00 1439 *Development of a Stripping Process of Thermoplastic Elastomers* ***Yoshimi T.**, Miyamoto M., Furukawa N.

15:30 1440 *Dielectric Heating of Solid Catalyst Particles* **Durka T.**, Van Gerven T., Stankiewicz A.I.

16:00 1441 *Influence of Microwave Heating on Polyesterification Reaction* ***Komorowska M.**, Van Gerven T., Stankiewicz A.

16:30 1442 *Plant Capacity Up-rating: Changing Existing tubes with Twisted Tube Bundle* **Jafari Nasr M. R.**, *Hemmat Aida

17:00 1443 *Rotating Spiral Contacting: Progress on a Novel Separation Technique* ***MacInnes J.M.**

17:30 End of Session

Micro Process Technology**MPT1****512g****Micro Process Technology 1**

Organizer(s) - Dr. C. deBellefon (France), Dr. V. Hessel (Germany), Dr. J. Lerou (USA)

16:10 1444 *Pilot Plant Facility for Continuous Synthesis of Ionic Liquids* **Minnich C.B.**, *Liau M.A., Greiner L., Reimers C., Løb P., Uerdingen M.

16:30 1445 *Fast Reaction Networks Studies by Coupling Quantitative Online-NMR-Spectroscopy with Microreactors* ***Hoch S.**, Albert K., Hasse H.

16:50 1446 *Characterization of Chemical Reactions by Using an Infrared Millifluidic Calorimeter* ***Hany C.**, Pradere C., Toutain J., Batsale J.-C.

17:10 1447 *Optical Investigations of Evaporation in Multi-Microchannel Arrays* **Maikowske S.**, Brandner J.J., Schubert K., Lange R.

17:30 1448 *Extraction Characteristics in Opposed-flow and Cross-flow Inlet Configurations Microchannels* Zhao Y., **Chen G.**, Yuan Q. **PAPER WITHDRAWN**

17:50 End of Session

Mixing in Industrial Processes

MIX4

520f

Mixing in Industrial Processes 4

Organizer(s) - Prof. S. Kresta (Canada), Prof. J. Derksen (Canada), Dr. S. Jaffer (USA)

14:00 Keynote Lecture

14:00 1449 *Models for Mixing-Limited Chemical Processes: From RTD to CFD* **Fox R. O.**

14:40 1450 *Stoichiometry Effects in Mixing Sensitive Reactions* **Shah S.I.A.**, **Kresta S.M.**, **Kostiuk L.W.**

15:00 1451 *Preparation of P(MePEGCA-CO-HDCA) Nanoparticles Loaded with Doxorubicin: Mixing Issues* **Lince F.**, **Marchisio D.L.**, **Stella B.**, **Bolognesi F.**, **Dosio F.**, **Barresi A.A.**

15:20 1452 *Precipitation of Silica from Aqueous Solutions* **Baldyga J.**, **Jasinska M.**, **Malski-Brodzicki M.**

15:40 1453 *Effect of Operating Variables on the Precipitation of Griseofulvin by Submerged Impinging Jets* **Di Benedetto G.**, **Sukcik E.**, **Armenante P. M.**

16:00 End of Session

MIX5

520f

Mixing in Industrial Processes 5

Organizer(s) - Prof. S. Kresta (Canada), Prof. J. Derksen (Canada), Dr. S. Jaffer (USA)

16:10 1454 *The Mixing Performance in Vessels with a Rising Free Surface* **Neal G.**, **Simmons M.J.H.**, **Hough J.A.**, **Fryer P.J.**

16:30 1455 *An Investigation of Magnesium Stearate Mixing Through Gamma-Ray Measurement* **Perrault M.**, **Chaouki J.**, **Bertrand F.**

16:50 1456 *Pellets Velocity Measurements in Stirred Tank Using High-Speed* **Ascanio G.**, **Galindo E.**, **Cordova S.**, **Sanjuan-Galindo R.**

17:10 1457 *Three-Dimensional Analysis of Deformation Processes Associated with Trailing Vortices in Stirred Vessels* **Bouremel Y.**, **Schafer M.**, **Yianneskis M.**, **Ducci A.**

17:30 1458 *Mammalian Cells Cultured in Rotating Platforms Characterization of Mixing Effects* **Alvarez M. M.**, **Collados-Larrumbe M.T.**, **Carrillo-Cocoom L.M.**, **Murugappan G.**, **Rivas-Arreola M.J.**, **Johnson K.**, **Morga-Ramirez M.** **PAPER WITHDRAWN**

17:50 End of Session

Nanotechnology

NAN5

518a

Nanotechnology 5

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

14:00 Keynote Lecture

14:00 1459 *State of Nanotechnology in Biology and Medicine* **Chan W.C.**

14:40 1460 *Peptide Self-Assembly and its Effect on Hydrogel Properties and Plasma Protein Interaction* **Saini A.**, **Unsworth L.D.**

15:00 1461 *Cellular Automata for Simulation of the Drug Release from Aerogels* **Gurikov P. A.**, **Kolnoochenko A. V.**, **Menshutina N. V.**

15:20 1462 *Enhancing Oral Delivery of Hydrophobic Actives Using Linker-Based Microemulsions* **Chu J.**, **Acosta E.**

15:40 1463 *Molecular Imprinted Silica for Separation of Sugars from Cellulosic Biomass* **Osei-Prempeh G.**, **Knutson B. L.**, **Rankin S. E.**, **Nokes S. E.**, **Lehmler H.-J.**

16:00 End of Session

NAN6

518a

Nanotechnology 6

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

16:10 1464 *Sugar / Cationic Surfactant Templating of Functional Mesoporous Metal Oxides* **Rankin S.E.**, **Xing R.**, **Rahman M.S.**

16:30 1465 *Fe-Doped Carbon Micro/Nano Particles for Arsenic Removal in Wastewater* **Sharma A.**, **Nalini S.**, **Sharma A.**, **Verma N.**

16:50 1466 *Using Plants as Biological Factories to Synthesize Gold Nanoparticles* **Bali R.**, **Lukman A.**, **Harris A.T.**

17:10 1467 *One-Pot Synthesis of Ag/TiO₂ Nanoparticles with Potent Antibacterial Activity* **Zhang H.J.**, **Chen G.H.**

17:30 1468 *The Effects of Pulse Injection Cross Flow on the ZnO Nanoparticles* **Pavarajam M.**, **Charnhattakorn M.**

17:50 End of Session

Non-Intrusive Methods and Modeling in Particle Technology

NIM2

513e

Non-Intrusive Methods and Modeling in Particle Technology 2

Organizer(s) - J. Doucet (Canada), Prof. F. Bertrand (Canada), Prof. J. Chaouki (Canada)

14:00 1469 *Nonintrusive and Microscopic Diagnostics of Composite Propellant Microstructure* **Hasegawa H.**, **Seike Y.**, **Kato K.**, **Miyachi H.**, **Kobayashi T.**, **Sekino N.**, **Fukunaga M.**, **Asakawa H.**, **Shimada T.**, **Tsuboi N.**, **Daimon Y.**

14:20 1470 *Visualisation and Modelling of the Dissolution from Air-Alcohol Compound Drops Dispersed in Sunflower Oil* **Duangsuwan W.**, **Tuzun U.**, **Sermon P.A.**, **Garrity D.J.**

14:40 1471 *DEM Modelling of Particle Flow in a Turbula® T2F Mixer* **Marigo M.**, **Cairns D. L.**, **Davies M.**, **Ingram A.**, **Fan X.**, **Yang Z.**, **Stitt E. H.**

15:00 1472 *Modular PEPT: Portability, Flexibility and Enhanced Data Acquisition* **Ingram A.**, **Leadbeater T.W.**, **Fan X.**, **Hausard M.N.**, **Yang Z.**, **Parker D.J.**

15:20 1473 *Application of Image Analysis in Granular Mixing* **Rodrigue D.**, **Ait Aissa A.**, **Duchesne C.**

15:40 End of Session

NIM3

513e

Non-Intrusive Methods and Modeling in Particle Technology 3

Organizer(s) - J. Doucet (Canada), Prof. F. Bertrand (Canada), Prof. J. Chaouki (Canada)

16:10 1474 *Hybrid Modeling of Structures Formation by Migration of Particles in Suspension Flows* **Ibrahim M.**, **Tuzun U.**, **Heyes D.M.**, **Skeldon A.**, **Koenders M.A.**

16:30 1475 *DEM-CFD Modelling of Voidage and Heat Transfer in Fluidized Beds* **Duursma GR.**, **Crapper M.**, **Whitelaw S.**, **Wong WS.**, **McMullan K**

16:50 1476 *Residence Time Investigation of a Multiple Hearth Kiln* **Thomas R.**, **Grose D.**, **Taylor R.**, **Rowson N.**, **Blackburn S.**

17:10 1477 *Tracer Instantaneous Axial Velocity in a Bubble Column as Inferred from RPT* Fraguio M.S., *Cassanello M.C., Cardona M.A., Hojman D., Somacal H.

17:30 1478 *Optimal Sampling Schedule for Experiments with Scarce and Irregular Measurements* Jang S.S., *Gopaluni R.B.

17:50 End of Session

Particle Technology and its Applications

PT5

524b

Particle Technology and its Applications 5

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

14:00 1479 *Effects of Moisture and Temperature on the Dielectric Properties of Pharmaceutical Powders* Magee T.R.A., Farrell G, Walker G, McMinn W.A.M.

14:20 1480 *Precipitation of Pharmaceuticals Using a Supercritical Anti-Solvent (SAS) Technique: A Preliminary Study* Imsanguan P., Yanothai T., *Pongamphai S., Douglas S., Teppaitoon W., Douglas P.

14:40 1481 *Novel Materials and Technologies for Pharmaceutical Formulations* Tan R.B.H., Ng W.K.

15:00 1482 *Food-Grade Particles Following Pharmaceutical Objectives* Betz M., Tolkach A., Kulozik U.

15:20 1483 *Food Protein Based Particles as Delivery Systems for Bioactive Substances* Heidebach T., Kulozik U.

15:40 1484 *Scale Up of the Encapsulation Process to Obtain Microcapsules Containing Phase Change Materials* Sanchez M.L., Sanchez P., Carmona M., Borreguero A.M., *Rodriguez J.F.

16:00 End of Session

PT6

524b

Particle Technology and its Applications 6

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

16:10 1485 *Flocculation Process Modelling: Correlating Model Parameters with Retention and Drainage in Papermaking* Antunes E., Garcia F.A.P., Ferreira P., *Rasteiro M.G.

16:30 1486 *Extrusion of Unsaturated Powders: Effect of Process and Material Parameters* Althaus T.O., Windhab E.J.

16:50 1487 *Large-Scale Media Mills for Finest Minerals* Stein J.

17:10 1488 *Carbon Nanotubes for the Reduction of Powder Charging* Bi X., Wu J.

17:30 1489 *Gas/Solids Mixing in Rotatin Fluidized Beds in a Static Fluidization Chamber* Staudt N., *De Wilde J.

17:50 End of Session

Polymer Engineering

PE5

514b

Polymer Engineering 5

Organizer(s) - Prof. Dr. D. Estenoz (Argentina), Prof. Dr. J.R. Leiza (Spain), Dr. J. Sosa (USA)

14:00 Keynote Lecture

14:00 1490 *The Blocbuilder® Technology: A Success Story* Bertin D., Gigmès D., Guillaneuf Y.

14:40 1491 *Nitroxide-Mediated Free-Radical Polymerization of Styrene: Experimental and Theoretical Study* Spies C., Velásquez N., Alvarado G., *Luciani C., Estenoz D., Oliva H., Meira G.

15:00 1492 *Clarifying Kinetic Aspects of Controlled Radical Polymerization using a Bayesian Design Approach* Nabifar A., McManus N.T., Vivaldo-Lima E., *Penlidis A.

15:20 1493 *Random Copolymerization of tert-Butyl Methacrylate/Styrene by Nitroxide Mediated Controlled Radical Polymerization* Lessard B., Tervo C., *Maric M.

15:40 1494 *Compartmentalization in Heterogeneous Living/Controlled Radical Polymerizations* Maehata H., Buragina C., Simms R.W., *Cunningham M.F., Keoshkerian B.

16:00 End of Session

PE6

514b

Polymer Engineering 6

Organizer(s) - Prof. Dr. D. Estenoz (Argentina), Prof. Dr. J.R. Leiza (Spain), Dr. J. Sosa (USA)

16:10 Keynote Lecture

16:10 1495 *Reducing ATRP Catalyst Concentration in Batch, Semibatch and Continuous Reactors* Hutchinson R.A.

16:50 1496 *Synthesis of Graft Polymer from Pet Film by SI-ATRP* Zhang L., Jiang Y.

17:10 1497 *Compartmentalization Effects in ATRP Miniemulsion Polymerization* Thomson M.E., Cunningham M.F.

17:50 End of Session

Process Control and Optimization

PCO2

518c

Process Control and Optimization 2

Organizer(s) - Amos Ben-Zvi (Canada) and Carl Duchesne (Canada)

14:00 1498 *Adaptive Model Based Process Control of Fruit Ripening* Toemmers S., Kuhnen F., *Winterhalter M., Hass V. C.

14:20 1499 *A DMC Control Configuration for Temperature Control of a Crystallizer* Mortazavi-Manesh S., *Svrcek W.

14:40 1500 *Characteristic-based MPC of a naphtha hydrotreating reactor with catalyst deactivation* Mohammadi L., Forbes J. F., Aksikas I.

15:00 End of Session

PCO3

518c

Process Control and Optimization 3

Organizer(s) - Amos Ben-Zvi (Canada) and Carl Duchesne (Canada)

16:10 1501 *Handling Outliers in Data-Driven Models: Application to Real-Time Final Quality Prediction in Batch Processes* Wang D., Srinivasan R.

16:30 1502 *A Soft Sensor with Bias Correction for Quality Prediction* Liu J., Srinivasan R., SelvaGuru P.N.

16:50 1503 *Property Prediction of Wood/Plastic Composites Through Spectral Imaging and Chemometrics Methods* Gosselin R., Rodrigue D., *Duchesne C.

17:10 1504 *On-Line Process Monitoring Using Multi-Scale PLS Algorithm* Lee H. W., Lee M. W., *Park J.M.

17:30 1505 *Monitoring and Control of Biomass Boilers Using Multivariate Image Analysis* Cousineau-Pelletier M., *Duchesne C., McCabe D.F.

17:50 End of Session

Process Design

PD5

513b

Process Design 5

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

14:00 1506 *Numerical Investigation of Thermal Behavior of a Gas-Phase Polyethylene Reactor by Discrete Element Method* Karimi S., Mansourpour Z., **Mostoufi N.**, Sotudeh-Gharebagh R.

14:20 1507 *Comparative Study of Maxblend and Turbines in a Semi-Batch Stirred Reactor* Khopkar A., Parmar N., Somasi M., Gonzalez C., **Atiemo-Obeng V.**

14:40 1508 *Optimal Design of Hierarchically Structured Porous Catalysts for Autothermal Reforming* Wang G., Kleijn C.R., **Coppens M.-O.**

15:00 1509 *Simulation and Pre-Feasibility Analysis of Methyl Ester Sulphonated Production Process* **Martínez D.**, Orozco G., Gil I., Rincón S.

15:20 1510 *Validation of Falling Film Reactor in Sulfonation of Methyl Esters* **Torres J. A.**, Sanchez F. J.

15:40 End of Session

PD6

513b

Process Design 6

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

16:10 1511 *Design and Control of Integrated Styrene - Aniline Production Plant* Partenie O., van der Last V., **Bildea C.S.**, Altimari P.

16:30 1512 *Prediction of Surface Temperature of Body in ED-Paint Oven with Numerical Analytical Approach* **Ardani M.**, Jiriae A., Saidi M.S., Saidi M.H., Hanafizadeh P., Sajadi B., Irani A.

16:50 1513 *Challenges in Teaching Chemical Engineering Process Design* Svrcek W.Y., **Young B.R.**, Kirkpatrick R.

17:10 1514 *Phase Equilibria for the System Diethyl Succinate - Ethanol - Water* **Orjuela A.**, Miller D. J., Lira C. T., Vu D. T., Yanez A. J.

17:30 End of Session

Separation Science and Technology

SST5

519b

Separation Science and Technology 5

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

14:00 1515 *Study of 10X Zeolites for Separation of C₂H₆, C₂H₄ and CH₄ by Dynamic Adsorption Modeling* **Fatemi S.**, Mehdipoor M., Hosseinpoor S.

14:20 1516 *PEG Grafting as Tool for Improving Membrane Performance* **Gullinkala T.**, Escobar I.

14:40 1517 *Phisico-chemical Investigation of TFC Membrane: Performance and Structure* Soroush A., **Abkar L.**, Jafarian A.

15:00 1518 *Probing Structural Variation of Interfacially Polymerized Thin Film Composite Membranes* **Soroush A.**, **Barzin J.**, Barikani M.

15:20 1519 *Extrapolation/Interpolation of Infinite Dilution Activity Coefficient Data Between Solvents* **Moller B.**, Rarey J., **Ramjugernath D.**

15:40 1520 *Control of Concentration Polarization in Membrane Separation by Active Flow Manipulation* **Olayiwola B.O.**, Walzel P.

16:00 End of Session

SST6

519b

Separation Science and Technology 6

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

16:10 1521 *Prediction of the Partitioning Coefficient in Liquid-Solid Chromatography Using Cosmo-RS* **Reithinger M.**, Arlt W.

16:30 1522 *Prediction for Selecting Solvent Systems for Countercurrent Chromatography Using Cosmo-RS* **Hopmann E.**, Minceva M., Arlt W.

16:50 1523 *Paper-Based Environment-Responsive Composite Media for Hydrophobic Interaction Membrane Chromatography* **Mah K.Z.**, Ghosh R.

17:10 1524 *Filtration of Nanoparticles in Composites of Nano- and Microsized Electret Fibers* **Przekop R.**, Gradon L.

17:30 1525 *Thermodynamic and Hydrodynamic Characterization of Polymeric Adsorbents for Process Chromatography* Ingle U., **Kale S.**, Lali A.

17:50 1526 *Solubility of Acetylsalicylic Acid in Some Organic Solvents* **Maia G.D.**, Giulietti M.

18:10 1527 *Carbon Membrane with High Surface Area Supported by Porous Silica* **Higuchi T.**, Kato A., Yano Y., Aita T.M.

18:30 End of Session

Surface Forces, Interfacial Phenomena and Colloids

SF5

513f

Surface Forces, Interfacial Phenomena and Colloids 5

Organizer(s) - Dr. S. Giasson (Canada), Prof. M. Gee (Australia), Mr. S. Fraser (Canada)

14:00 1528 *The Role of Glycan Groups in Boundary Lubrication* **Rosenberg K.J.**, Roba M., Perrino C., Crockett R., **Spencer N.D.**

14:20 1529 *Polyaromatic Thiols as Friction Modifiers in Adhesive and Non-Adhesive Contacts* **Ruths M.**, Yang Y.

14:40 1530 *Normal and Lateral Interactions Between Thermosensitive Nanoparticle Monolayers in Water* **Banquy X.**, Zhu J., **Giasson S.**

15:00 1531 *The Capillary Bridge Test a Toolbox to Characterize Anti-Adhesive Surfaces* **Restagno F.**, Cohen C., Poulard C., Léger L.

15:20 1532 *Experimental and Theoretical Analysis of a Dynamic JKR Contact* **Charrault E.**, Gauthier C., Marie P., Schirrer R.

15:40 1533 *Characterizations of Gecko "Finger-Like" Pads: Implications for Designing Smart Adhesives* **Zhao B.**, Israelachvili J.

16:00 End of Session

SF6

513f

Surface Forces, Interfacial Phenomena and Colloids 6

Organizer(s) - Dr. S. Giasson (Canada), Prof. M. Gee (Australia), Mr. S. Fraser (Canada)

16:10 Keynote Lecture

16:10 1534 *Nano Mechanics and Imprinting of Thin Polymer Films* **Pethica J.**, Cross G.L.

16:50 1535 *Using Surface Forces to Design a Localized Drug Delivery System for Cancer Treatment* **Alcantar N.A.**, Williams E.C., Toomey R.G.

17:10 1536 *Surfactant Self-Assembly in Three Dimensions* Santo K. P., Kovalenko A., **Stepanova M.**

17:30 1537 *Colloid Transport Near Planar Surfaces Covered with Spherical Asperities* **Kemps J.A.L.**, ^{*}Bhattacharjee S.

17:50 End of Session

Sustainability in Chemical Engineering

SUS5

525b

Sustainability in Chemical Engineering 5

Organizer(s) - Prof. H. de Lasa (Canada)

Syncrude Canada Innovation Award Lecture

14:00 Keynote Lecture

14:00 1538 *Why Catalysts are a Key Part of a Sustainable Future* ^{*}Hill J.

14:40 1539 *The Environmental Performance Strategy Map: LCA Based Strategic Decision Making* ^{*}De Benedetto L., Klemes J.

15:00 1540 *Development of Recycling and Reuse Processes of Waste Concrete* ^{*}Yamasaki A., Mohara G., Wu J., Iizuka A., Kumagai K., Yanagisawa Y.

15:20 1541 *Assessing Explosion Severity of Nanopowders with the 20 L Sphere* ^{*}Vignes A., Traoré M., Dufaud O., Perrin L., Bouillard J., Thomas D.

15:40 1542 *Photovoltaic Solar Electro-Oxidation Processes (PSEO): Energy Balance and LCA Approach* ^{*}Dominguez-Ramos A., Held M., Aldaco R., Fischer M., Irbien A.

16:00 End of Session

Upgrading of Heavy Oil by New Technologies

UHO1

513a

Upgrading of Heavy Oil by New Technologies 1

Organizer(s) - Dr. K. Inamura, Dr. Y. Sugimoto, Dr. R. Tanaka, R. Pugmire, C. Fairbridge, Prof. M. Gray

14:00 Keynote Lecture

14:00 1543 *Up-Grading Schemes of Heavier Crudes and Innovation Directions in their Steps* ^{*}Mochida I.

14:40 1544 *Upgrading Residues to Maximize Diesel* Haizmann R., ^{*}du Plessis D., Yokomizo G.

15:00 1545 *Upgrading of Heavy Oil with Formic Acid in Supercritical Water* ^{*}Sato T., Mori S., Itoh N.

15:20 1546 *Hydrocracking of Light Cycle Oil (LCO) over Pt-Pd/Acidic Support Catalysts* ^{*}Gutierrez A., Villanueva I., Duque I., Aguayo A.T., Arandes J.M., Bilbao J.

15:40 1547 *Slurry-phase hydrocracking of heavy oil Over Ni-Mo/Carbon Catalyst* Sugimoto Y., Horie Y.

16:00 End of Session

Water Production and Wastewater Treatment - Technologies, Advances and Issues

WWT5

516a

Water Production and Wastewater Treatment 5

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

14:00 1548 *Sorption Kinetics and Mechanism of Arsenate Ions on Chitosan* **Kwok K.C.M.**, Lee V.K.C., ^{*}Mckay G.

14:20 1549 *Removal of Mercury Ion from Aqueous Solutions using SIACs Produced from Fluid Coke* ^{*}Cai J.H., Jia C.Q.

14:40 1550 *Process Intensification Using Dynamic Trickle Bed Operation and Adsorptive Catalyst* ^{*}Stuber F., Font J., Bengoa C., Fortuny A., Fabregat A., Haure P., Ayude A.

15:00 1551 *Removal of Lead Metal Ions from Water by Bone Char* **Mendoza-Castillo D.I.**, ^{*}Bonilla-Petriciolet A., Jauregui-Rincon J., Martinez-Rosales J.M.

15:20 1552 *Effect of Sieving/Demineralization on Cadmium Adsorption by Coal Combustion Ash* **Di Natale F.**, Erto A., Lancia A., ^{*}Montagnaro F., Santoro L.

15:40 1553 *Biosorption of Cd(II) and Ni(II) from Aqueous Solutions by *Cystoseira Indica** ^{*}Montazer-Rahmati M.M., Rabbani P., Abdolali A.

16:00 End of Session

WWT6

516a

Water Production and Wastewater Treatment 6

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

16:10 1554 *Modelling Batch Adsorption of Natural Organic Matter by Powdered Activated Carbons* ^{*}Iriarte-Velasco U., Álvarez-Urriarte J.I., Chimeno-Alanís N., González-Velasco J.R.

16:30 1555 *Dyes Adsorption on Inactivated Fungal Biomass Equilibrium and Kinetics Study* **Russo M.E.**, Di Natale F., ^{*}Marzocchella A., Prigione V., Tigini V., Varese M.C.

16:50 1556 *Removal of Arsenic from Groundwater Using Dolomitic Sorbents* ^{*}Salameh Y., Ahmad M.N.M., Allen S.J., Walker G.M.

17:10 1557 *Removal of Cd(II) and Zn(II) Using Castor Seed Hull as a Low Cost Adsorbent* ^{*}Dutta B., Masita M., Maitra S., Sen T.

17:30 1558 *Adsorption of Basic Dyes by Activated Carbon from Waste Bamboo* Chan L.S., **Cheung W.H.**, Allen S.J., ^{*}McKay G.

17:50 End of Session

Topical Conference - CAMURE-7 & ISMR-6

CAM3

517a

Fundamentals

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

13:10 End of Session

14:00 Keynote Lecture

14:00 1559 *Catalytic Processes and Reactor Engineering for Biomass Conversion to Fuels and Chemicals* ^{*}Chaudhari R.V., Subramaniam B.

14:40 1560 *Catalytic Combustion of Methane and BTEX in a Counter Diffusive Reactor* Jodieri N., Wu L., Mmbaga J.P., Wanke S.E., **Hayes R.E**

15:00 1561 *Modelling of Auto-Cyclic Reactor for the Removal of Unburned Methane from Emissions of Natural Gas Engines* **Zanoletti M.**, ^{*}Kivana D., Kirchnerova J., Perrier M.

15:20 1562 *Prediction of MWD and Topological Characteristics of LDPE Produced in High-Pressure Reactors* Meimaroglou D., Pladis P., Krallis A., ^{*}Kiparissides C.

15:40 1563 *Two-Dimensional Mathematical Model of Fixed-Bed Fischer-Tropsch Synthesis Reactor* **Wu J.**, ^{*}Ying W.

16:00 Break

16:10 1564 *Demonstration of a Scaled-Down Autothermal Membrane Methane Reformer for Hydrogen Generation* **Sheintuch M.**, Simakov D.S.A

16:30 1565 *Solvent Effects in the Catalysis of Heterogeneous Multiphase Reactions* **Stitt E. H.**, Gladden L., Neurock M., Pacek A., Nienow A., Nienow J., Winterbottom M., Rooney D.

16:50 1566 *High Throughput Monitoring of Catalytic Characteristics using TAP-Approach* **Yablonsky G.**, Gleaves J., Xiaolin Zheng, Fushimi R., Mills P., Feres R., Constales D.

17:10 1567 *ZSM-5 and Zeolite-Y Catalyst Deactivation During 1-Hexene Isomerization in Supercritical Fluids* **Hassan F.**, Wang J., Wood J., Al-Duri B., Rigby S.P., Chigada P.

17:30 End of Session

CAM2

516e

Catalysis & Reaction Engineering for Environmental and Materials Processing

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

14:40 1568 *Continuous Deoxygenation of Concentrated Stearic Acid* **Lestari S.**, Mäki-Arvela P., Bernas H., Simakova O., Eränen K., Beltramini J., Max Lu G.O., **Murzin D.**

15:00 1569 *Catalytic Reactions in Surfactant Systems: Product Isolation and Catalyst Recycling* **Milano-Brusco J.S.**, Schwarze M., Nowothnick H., Schomäcker R.

15:20 1570 *Enantioselective Hydrogenation in Three-Phase Fixed Beds Transient Approach Provides Molecular Level Understanding* **Toukoniitty E.**, Wärnä J., Taskinen A., Murzin D.Y., **Salmi T.**

15:40 1571 *Acid Exchange Resins Deactivation in the Esterification of Free Fatty Acids* **Tesser R.**, Santacesaria E., Di Serio M., Casale L., Ledda M., Sannino L.

16:00 Break

16:10 1572 *Easy-Separable Nanomagnet-Supported Pd Catalysts for C-C Coupling and Hydrogenation Reactions* **Plucinski P.K.**, Urszula L., Frost C.G., Price G.J.

16:30 1573 *H₂O₂ Direct Synthesis in a Catalytic Membrane Contactor Process Optimisation* **Pashkova A.**, Dittmeyer R.

16:50 1574 *Epoxidation of Propylene in a Confined Taylor Flow (CTF) Reactor* **Shin S.B.**, Fergusson-Rees A.J., Stepanek F., Chadwick D.

17:10 1575 *Coupling of Heck and Hydrogenation Reactions in a Continuous Compact Reactor* **Plucinski P.K.**, Manchon M., Fan X., Lapkin A.

17:30 End of Session

CAM1

516d

Catalysis & Reaction Engineering for Sustainable Energy Systems

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

14:40 1576 *Autothermal Reactor Concept for Combined Oxidative Coupling and Methane Reforming* **Tiemersma T.P.**, van Sint Annaland M., Kuipers J.A.M.

15:00 1577 *Catalyst Geometry Effects for Methane Combustion in a Flow Reversal Reactor* **Litto R.**, Mmbaga J., **Hayes R.**, Sapoundjiev H.

15:20 1578 *A Direct Propane Fuel Cell with Interdigitated Flow Fields: 2D Model* **Khakdaman H.R.**, Bourgault Y., Ternan M.

15:40 1579 *Effective Diffusivity Measurement in a Coke-Deactivated Hydrotreated Catalyst* **Galiasso Tailleux R.**

16:00 Break

16:10 1580 *Kinetics of Hydrogen Uptake and Release from Heteroaromatic Compounds for Hydrogen Storage* **Sotoodeh F.**, Smith K.J.

16:30 1581 *Catalytic Effects of Metals upon Liquefaction of Low Rank Coal* **Sugano M.**, Hirano K., Mashimo K.

16:50 1582 *Catalyst Deactivation During Reforming of Sulfur-Containing Fuels* **Lakhapatri S.L.**, Abraham M.A. **PAPER WITHDRAWN**

17:10 End of Session

Topical Conference - GLS 9

GLS2A

513c

Heat and Mass Transfer

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

14:00 Keynote Lecture

14:00 1583 *Inter-phase Heat and Mass Transfer in Industrial GLS Reactors* **Al-Taweel A.**

14:40 1584 *Transient Gas-Liquid Mass Transfer Model for Liquid Films on Structured Packings* **Wenmakers P.W.A.M.**, Meeuwse M., de Croon M.H.J.M., van der Schaaf J., Schouten J.C.

15:00 1585 *Mass Transfer in Three Phase Absorption on a Plate* **Repke J.-U.**, Paschke S., Thiele R.

15:20 1586 *Mass Transfer Characteristics in Gas-Liquid and Gas-Liquid-Solid Bubble Columns Under Elevated Pressure and Temperature* **Jin H.**, Yang S., He G., Lui D., Tong Z.

15:40 1587 *Gas Flow and Gas-Liquid Mass Transfer in Pulp Fibre Suspensions* **Ishkintana L.K.**, **Bennington C.P.J.**

16:00 End of Session

GLS2B

513d

Measurement Techniques

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

14:00 1588 *Online Flow Regime Monitoring in Bubble Columns via Nuclear Gauge Densitometry* **Shaikh A.**, **Al-Dahhan M.**

14:20 1589 *ERT Measurement of Gas Hold-up Distribution in Bubble Column with Coalescence Inhibiting Solutions* **Dave C. B.**, Abdullah B., Vo D-V. N., **Nguyen T.-H.**, Cooper C. G., Adesina A. A.

14:40 Keynote Lecture

14:40 1590 *Advanced measurement techniques for GLS systems* **Mudde R.**

15:20 1591 *Numerical Simulation of Mass Transfer Across a Wavy Falling Film* **Davailles A.**, Climent E., Anglerot D., Chommeloux B.

15:40 1592 *Three-Dimensional Velocimetry in a Fluidized Bed System using Electrical Capacitance Volume Tomography* **Wang F.**, Marshdeh Q., Warsito W., **Fan L.-S.**

16:00 End of Session

16:10 1593 *Flow Characterization in a GLSCFB Riser at Different Axial Locations* **Razzak S.A.**, Barghi S., Zhu J.-X.

16:30 1594 *Study of Defluidization of Wet Particle in a Fluidized Bed Using Gaussian Spectral Analysis* **Silva C.A. M.**, **Parise M.R.**, Ramazini M.J., Taranto O.P.

16:50 1595 *Theoretical Mass Transfer in Bubble Columns Operating with Viscous Fluids* **Martin M.**, Cachaza E. M., Diaz M. E., Montes F. J., Galan M. A.

17:10 End of Session

Topical Conference - 4th EFCE Conference

EFCE4 513a

Product quality-processing relationships

Organizer(s) - Prof. L. Janssen (Netherlands), Prof. dr. A.A. Broekhuis (Netherlands)

13:10 End of Session

Topical Conference - 4th IADC2009

IADC2 524a

Drying Techniques and Technology

Organizer(s) - Dr. M. Benali (Canada), Dr. T. Kudra (Canada), Prof. R. Legros (Canada)

14:00 Keynote Lecture

14:00 1596 *Drying Process Intensification: Application to Food Processing* **Benali M.**, Kudra T.

14:40 1597 *Microwave Assisted Drying of Rape Seeds in Semi-Technical Scale* **Araszkiewicz M.**, Koziol A., Lupinska A., Lupinski M.

15:00 1598 *Effect of Air Drying Air Temperature on Structural Properties of Garlic* **Lopez Ortiz A.**, Rodriguez Ramirez J., Mendez Lagunas L.

15:20 1599 *Structure Control of Slurry Coated Film by Pressure Controlled Drying* **Komoda Y.**, Takeuchi R., Nishimura H., Hiromitsu M., Oboshi T., Usui H.

15:40 1600 *Dehydration Kinetics of Pharmaceutical Hydrate: Effect of Crystal Properties* **Khoo J.Y.**, Heng J.Y.Y., Williams D.R.

16:00 Break

16:10 1601 *Power Control Strategies in Microwave Drying* **Li Z.**, Raghavan G.S.V., Orsat V.

16:30 1602 *Transforming Poultry Manure into Valuable Organic Fertilizer Through Air Drying* **Piorkowski G.S.**, Ghaly A.E. **PAPER WITHDRAWN**

16:50 1603 *Importance of Rheological Properties when Drying Sludge in a Fixed Bed* **Léonard A.**, Blandin G., **Crine M.**

17:10 1604 *Hot Air and Frying to Reduce Oil Content in Nuggets* **Martinez-Avila M.**, Velez-Ruiz J.F., Sosa-Morales M.E.

17:30 1605 *Moisture Desorption Isotherms of Algerian Wheat and Barley* **Hemis M.**, Singh C.B., Jayas D.S., Bettahar A.

17:50 End of Session

Topical Conference - OILSANDS 2009

OS2 520e

Oil Sands and Water Treatment

Organizer(s) - Prof. Z. Xu (Canada), Prof. I. Gates (Canada) and Dr. J. Czarnecki (Canada)

14:00 1606 *Surfactant Treatment to Promote Oil Spreading onto Air-Water Interfaces* **Moran K.**

14:20 1607 *Use of Amine in Processing of Weathered/Oxidized Oil Sands Ores* **Wang L.**, Dang-Vu T., Xu Z., Masliyah J.H.

14:40 1608 *Chemical Application in the Bitumen Extraction Process* **Yang X.L.**, Doria D., Melley R.

15:00 1609 *Improving Bitumen Recovery and Froth Quality using Bitumen Extraction Aids* **Zhang L.**, Williams M., Breen P.

15:20 1610 *Oil Sands Produced Water Treatment by MEUF* **Deriszadeh A.**, Harding T.G., Husein M.M.

15:40 1611 *Modelling Settling Behaviour in Bitumen Froth Treatment* **Friesen W.I.**, Dabros T., Kan J.

16:00 Break

16:10 1612 *Investigation of Rag Layer Growth in Continuous Settling* **Andrade J.**, Yarranton H.W., Elakrami H.A.

16:30 1613 *Understanding Hydrophobicity Origin of Solids from Oil Sands* **Maham Y.**, Dang-Vu T., Xu Z., Masliyah J.H.

16:50 1614 *Comparison of Bitumens from Oil Sands with Different Recovery Profiles* **Woods J.R.**, Kung J., Kingston D.M., **McCracken T.**, Kotlyar L.S., Sparks B.D., Mercier P.H.J., Ng S., Moran K.

17:10 1615 *Application of Closely Spaced Inclined Channels in Gravity Separation* **Galvin K.P.**, Walton K., Zhou J.

17:30 End of Session

Process Safety Management

PSMF

Process Safety Management - Special international symposium on the frequency component in the assessment of major accident hazards

Organizer(s) - G. Creedy (Canada), J.P. Lacoursiere (Canada)

13:00 End of Session

14:00 Discussion - Merits of Changing the Values Currently in Use, Compared with Continuing with the Status Quo

16:30 Discussion - Implications of Changing the Values

17:00 Process for Establishing Consensus on any Revised Values. Managing the Introduction of New Values to the Risk Assessment Community

17:30 Summary and Concluding Remarks

Wednesday AM

Plenary Lectures

PLE4 517a

Plenaries 8, 9, 10

Organizer(s) - Prof. Philippe Tanguy

08:00 1616 *Plenary Lecture 8* **Shu Z-X.**

08:40 1617 *Plenary Lecture 9* **Heydenrich R.**

09:20 1618 *Plenary Lecture 10* **Kreysa G.**

10:00 End of Session

Bioenergy and Green Engineering

BGE7 520b

BioEnergy and Green Engineering 7

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

10:30 1619 *Dye Sensitized Visible Light Photocatalysis for Hydrogen Production* **Chowdhury P.**, Ray A.K.

10:50 1620 *Fischer-Tropsch Synthesis of Olefins on Sapo-Supported Cobalt Catalysts* **Foo S. Y.**, **Nguyen T-H.**, Adesina A. A.

11:10 1621 *Modeling of SOFC Electrodes Based on Random Packing of Particles* **Abbaspour A.**, Luo J., Nandakumar K., Chuang K.

11:30 1622 *Operating Conditions of Spouted Beds with a Non-Porous Draft Tube* **San Jose M.J.**, Alvarez S., Garcia L.B., Olazar M., Bilbao J.

11:50 1623 *Microalgae Production for Biodiesel in a Photobioreactor* **Sacasa Castellanos C.**, Bassi A., Ray A.

12:10 1624 *Ethanol Recovery from Carbon Dioxide Stripped Ethanol - Water Vapor Mixture using Adsorption* **Hashi M.**, Tezel F. H., Thibault J.

12:30 1625 *Modelling Photobioreactors for Mass Scale Solar Production of Microalgae* **Pruvost J.**, Le Borgne F., Legrand J. **PAPER WITHDRAWN**

12:50 End of Session

Biomaterials, Tissue Engineering and Regenerative Medicine

BMAT6 518b

Biomaterials, Tissue Engineering and Regenerative Medicine 6

Organizer(s) - Prof. M. Buschmann (Canada), Prof. Shoichet (Canada), Prof. M.S. Kallos (Canada)

10:30 Keynote Lecture

10:30 1626 *Polynucleotide Delivery with Chitosans* **Buschmann M. D.**, Thibault M., Merzouki A., Lavertu M.

11:10 1627 *Synthesis and Characterization of Linear-Dendritic Macromolecules as the New Biocompatible Nanocarriers* **Tavakoli Naëini A.**, Adeli M., Vossoughi M.

11:30 1628 *Alginate Modified Water-Soluble Chitosan Nanoparticles for Protein Delivery* **Wang C.**, Fu X., Yang L.S., He B.H., Sun S.L., **Xiao H.**

11:50 1629 *A Drug Delivery Platform for use in the Spinal Cord* **Baumann M.D.**, Kang C.E., Stanwick J.C., Wang Y., Kim H., Vucic K.S., **Shoichet M.S.**

12:10 1630 *Modeling Rerovirus-Mediated Gene Delivery into Mammalian Cells* **Tayi V. S.**, Bowen B. D., **Piret J. M.**

12:30 1631 *Microgels for the Scavenging and Delivery of Local Anesthetics* **Hoare T.R.**, Langer R., Kohane D.S.

12:50 End of Session

Bioproducts, Bioreactors and Bioprocesses

BBB7 519a

Bioproducts, Bioreactors and Bioprocesses 7

Organizer(s) - Dr. A. Margaritis (Canada)

10:30 Keynote Lecture

10:30 1632 *Pseudobioaffinity Adsorbent for Efficient and Cost Effective Immunoglobulins Purification* **Raina M.**, Naik A., **Lali A.**

11:10 1633 *Effect of Ligand Density and Hydrophobicity on Hydrophobic Charge Induction Chromatography: A Molecular Dynamics Simulation* **Zhang L.**, Zhao G., **Sun Y.**

11:30 1634 *Electrocoagulation as a Clarification in Plant-Based Bioprocess* **Robic G.**, **Miranda E.A.**

11:50 1635 *Direct Production of Active Human Renin by Baculovirus-Infected Sf-9 Insect Cell Culture* **Gotoh T.**, Awa H., Kikuchi K.-I., Takahashi S.

12:10 1636 *Statistical Screening of Supplementary Nitrogen Sources for L-Asparaginase Production from Cottonseed Oil Cake by ASPERGILLUS TERREUS MTCC-1782* **Baskar G.**, Renganathan S.

12:30 1637 *Some Respirometric Aspects of PHA Production by Mixed Culture* **Salehizadeh H.**, Hekmatian E.

12:50 End of Session

Environment - Air Pollution

AP7 522bc

Environment - Air Pollution 7

Organizer(s) - Mrs. E. Lord (Canada)

10:30 1638 *A Novel Mixed-Oxide Catalyst for the Abatement of Nitrous Oxide* **Martin T.C.**, Lam F.L., **Hu X.**

10:50 1639 *Combustion Characteristics and Emissions for IC Engines using Diesel Type Fuel* **Abu-Jrai A.**, **Al-Muhtaseb A.**, Hararah M., Tsolakis A.

11:10 1640 *Modelling and Optimizing Transient Operation of a NOx Storage/Reduction Catalyst* **Mandur J.S.**, **Budman H.**, Epling W. S.

11:30 1641 *Performance of a NOX Trap Catalyst as a Function of NOX Source* **Al-Harbi M.**, **Epling W.**

11:50 1642 *Effect of Residence Time on Methanol Biofiltration and the Specific Growth Rate* **Ramirez A.A.**, Bénéard S., Giroir-Fendler A., Jones J.P., **Heitz M.**

12:10 1643 *Comparison of Two Packing Materials During Methane Biofiltration* **Josiane Nikiema J.N.**, Matthieu Girard M.G., **Michèle Heitz M.H.**

12:30 1644 *Evaporation Behaviour of a Semi-Volatile Liquid Aerosol Collected on Fibrous Filter* **Sutter B.**, Appert-Collin J.C., Thomas D., **Bemer D.**

12:50 End of Session

Gasification, Syngas and CO2 Sequestration

GSC6 520c

Gasification, Syngas and CO2 Sequestration 6

Organizer(s) - Dr. K. Liu (USA), Prof. Dr. G. Xu (China), Dr. A. Avagliano (USA)

10:30 1645 *Capture of Carbon Dioxide at High Temperatures: Optimization of CaO-Ca₁₂Al₁₄O₃₃ Synthesis* **Martavaltzi C.S.**, **Lemonidou A.A.**

10:50 1646 *Carbon Dioxide Capture by Means of TVSA. Experiments and Simulations* **Tlili N.**, **Grevillot G.**, **Vallieres C.**

11:10 1647 *Capturing Carbon dioxide from Air: A conservative Process Design* **Keith W.D.**, **Mahmoudkhani M.**

11:30 1648 *Reducing Energy and Emission of CO₂ in Libyan Iron Making Process* **Al-Meshragi M.**, **Algaiesh O.B.**, **Elakrami H. A.**

11:50 1649 *Assessing the Hazards Associated with Release and Dispersion of Liquid Carbon Dioxide on Offshore Platforms* **Heynes O.R.**, Dixon C.M., **Hasson M.V.**

12:10 1650 *Reforming of Primary Syngas Produced by Low Severity Gasification* **Paquet A.**, Chornet E.

12:30 End of Session

Green Polymers

GP6 514a

Green Polymers 6

Organizer(s) - Prof. M-C. Heuzey (Canada), Prof. J. R. Dorgan (USA), Prof. L. Avérous (France)

10:30 1651 *100% Green Material: How to Modify Viscoelastic Properties of a Wheat Flour Thermoplastic Matrix* **Gattin R.**, Galandon A., Gopalakrishnan P., Leblanc N., Sreekumar P.A., Saiter J.M.

10:50 1652 *Injection-Molding and Extrusion of Sunflower Protein Isolate* **Rouilly A.**, Silvestre F., Rigal L.

11:10 1653 *Crystallization of Polylactide Observed by Rheological Measurements* **Yuryev Y.**, Wood-Adams P.M.

11:30 1654 *Melt Extruded Water-Soluble Starch-Based Films* **Chapleau N.**, Li H., Huneault M. A.

11:50 1655 *The Processing of Biodegradable Polymers with Supercritical Carbon Dioxide* **Westerman 1 D.**, Nalawade 2 S.P., Santos 1 R.C.D., Grover 1 L.M., Grijpma 2 D.W., **Leeke 1 G.A.**

12:10 1656 *In Vivo Crystallization of Polyhydroxybutyrate for Polymer Recovery and Purification* **Yu J.**, Porter M.

12:30 1657 *Biodegradable and Oxodegradable Plastics Degradation in Compost and Marine Environments* **Greene J.P.**

12:50 End of Session

Industrial Program

ESM

512e

Energy & Sustainable Manufacturing

Organizer(s) - Prof. G. Patience

10:30 1658 *High Yield 1,1-dimethoxymethane Production using a Single Step Methanol Air Oxidation* **Gornay J.**, Tesquet G., Capron M., Dumeignil F., Dubois J-L., **Fongarland P.**

11:00 1659 *Direct Catalytic Conversion Cellulose into Ethylene Glycol* **Zheng M.**, Wang A., Ji N., Pang J., **Zhang T.**

11:30 1660 *Brazilian CDM Projects: Putting up the Technology Against the Wall* **Andrade C.**, Nápravník-Filho L., Silva-Júnior A.

12:00 1661 *High Gravity Fermentation for Ethanol Production by Zymomonas anaerobia* **Aziz.**, Chisti Y.

12:30 End of Session

LNG

512b

LNG

Organizer(s) - J. Havens (USA), J. Cramer (AIChE), R. Andersson (CSCHE)

10:30 Introduction and Welcome

10:50 1662 *Large LNG Pool Fire Test at Montoir, France. Details of Tests, Results and Findings* **Raj P.**

11:30 Georges Melhem - Reducing Uncertainty in Fire Exposure Modeling

12:10 1663 *Revisiting the LNG VCE Hazard after Buncefield and Flixborough* **Venart J.**

12:50 End of Session

XTL

512f

XTL (X to Liquid)

Organizer(s) - R. Cenni (Denmark), K. W. Hutchenson (USA), J. Lerou (USA), H. Yagi (Japan)

10:30 1664 *Advanced Biofuels Overview: Promises, Challenges, and Sustainability Issues* **Chum H. L.**

11:00 1665 *Biomass Sourcing and Logistics: From Theory to Practice* **Röder H.**

11:30 1666 *Sc-BtL routes for Massive Biofuel Production* **Seiler JM.**, Luciani JF, Boissonnet G, **Chataing T**

12:00 1667 *Biofuels for Road and Air transport Challenges and Availability* **Montagne X.**

12:30 End of Session

PRISM

512d

Process Intensification for Sustainable Manufacturing

Organizer(s) - J.-F. Jenck (France), G. S. Patience (Canada)

10:30 1668 *Process Intensification Applications in the Edible Oil Industry* **Hodgson A.S.**, Jenck J.F.

11:00 1669 *Equipment of Solvothermal Reaction System for Organic Waste* **Ikeda H.**, **Nakanishi T.**

11:30 1670 *Advanced Formulations for Food Products using Microchannel Processing* **Silva L.J.**, Kilanowski D., Hodgson A., Arora R., Stevenson R.

12:00 1671 *Effects of Ultrasound on Ethanol Production by Kluyveromyces marxianus* **Sulaiman.**, Chisti Y., Yunus R.

12:30 End of Session

Knowledge Management in Process Engineering

KNM1

525b

Knowledge Management in Process Engineering 1

Organizer(s) - Prof. Kraslawski (Finland)

10:30 1672 *Improve, a Prestigious Research Project on Design Processes* **Nagi M.**, Marquardt W.

10:50 1673 *A Framework for Work Process Modeling in the Chemical Industries* **Theißen M.**, **Hai R.**, Marquardt W.

11:10 1674 *Organizational Simulation of Complex Process Engineering Projects in the Chemical Industry* **Tackenberg S.**, Kausch B., Schlick C. M.

11:30 1675 *Support for Modeling, Enactment and Monitoring of Engineering Design Processes* **Heer T.**, Wörzberger R.

11:50 1676 *Integrated Modeling, Simulation, and Enactment of Design Processes in Chemical Engineering* **Heer Th.**, Tackenberg S., Theißen M.

12:10 1677 *Service-Oriented Architectures and Tool Integration* **Haase T.**, **Nagi M.**

12:30 1678 *Ontology-Based Integration and Management of Distributed Design Data* **Wiesner A.**, Wiedau M., Morbach J., Marquardt W., Temmen H., Redmer J.

12:50 End of Session

Metabolic Engineering

ME1

513e

Metabolic Engineering 1

Organizer(s) - Prof. W-S. Hu (USA), Prof. Z. Gerdtzen (Chile), Prof. E.(M). Tzanakakis (USA)

10:30 Keynote Lecture

10:30 1679 *Design, Construction and Performance of Efficient Metabolic Networks* **Srienc F.**

11:10 1680 *Engineering Gene Regulation by Tweaking Transcriptional Interference* **Chatterjee A.**, Kaznessis Y.N., Dunny G.M., **Hu W-S**

11:30 1681 *Modelling and Control of Intracellular Processes: Closing the Loop* **Cloutier M.**, Chen J., Perrier M., Jolicoeur M.

11:50 1682 *Metabolic Engineering of Microbes for HA Synthesis* **Mao Z.**, Shin H., **Chen R.**

12:10 End of Session

Micro Process Technology

MPT2**512g****Micro Process Technology 2**

Organizer(s) - Dr. C. deBellefon (France), Dr. V. Hessel (Germany), Dr. J. Lerou (USA)

10:30 1683 *Design Strategy for Thermally Integrated Ceramic Microreactor Networks* **Moreno A.M.**, Honda G., Kim D., Wilhite B.

10:50 1684 *Hydrodynamics and Mass Transfer in Microstructured Channels* **Cantu-Perez A.**, Gavriilidis A.

11:10 1685 *Ethylene Production via Ethane Oxidation in Microchannel Reactors* **Mazanec T. J.**, Yuschak T., Long R.

11:30 1686 *Development of Micro Chemical Process of Direct Hydrogen Peroxide Production from Hydrogen and Oxygen* **Inoue T.**, Ohtaki K., Kikutani Y., Hamakawa S., Mawatari K., Mizukami F., Kitamori T.

11:50 1687 *Design of Micromixing Using Micro Fluid Segment and Contraction Flow* **Aoki N.**, Kudo S., Olea M., Hodgson S., Mae K.

12:10 1688 *Microstructured LPG Fuel Processor for a 250 W Fuel Cell System* **Kolb G.**, Tiemann D., Wichert M.

12:30 1689 *Numerical Investigation of the Hydrodynamic Design Effectiveness of a Split-and-Recombination Microreactor* **Méndez-Portillo L. S.**, Heniche M., Dubois C., Tanguy P. A.

12:50 End of Session

Mixing in Industrial Processes

MIX6**520f****Mixing in Industrial Processes 6 (joint with CFD6)**

Organizer(s) - Prof. S. Kresta (Canada), Prof. J. Derksen (Canada), Dr. S. Jaffer (USA)

10:30 Keynote Lecture

10:30 Sardeshpande, I., Ranad, V.V. - Multiphase Flow and Mixing in Stirred Tanks

11:10 1690 *CFD Simulations of the Mixing of Inert Polydisperse Fluidized Suspensions Using QMOM & DQMOM* Mazzei L., **Marchisio D.L.**, Lettieri P.

11:30 1691 *A New Design of a Static Mixer with the Use of Computational Fluid Dynamics and Experimental Data* Joaquim Jr C. F., Cekinski E., Secler M., **Fernandes L. A. G.**, Nunhez J. R.

11:50 1692 *Numerical Modeling of the Superblend Coaxial Mixer on Parallel Computers* **Rivera C. A.**, Heniche M., Tanguy P. A., Yatomi R., Takenaka K.

12:10 1693 *Direct Flow Simulations of Thixotropic Liquids in Agitated Tanks* **Derksen J.J.**

12:30 1694 *Lagrangian Numerical Simulation of Particle Collision and Suspension in a Stirred Vessel* **Misumi R.**, Masui Y., Nakanishi R., Nishi K., Kaminoyama M.

12:50 End of Session

Multi Scale Structures

MSS1**515b****Multi Scale Structures 1**

Organizer(s) - Prof. J. Li (China), Prof. J. R. Grace (Canada)

10:30 Keynote Lecture

10:30 1695 *Engineering Biomolecular Systems* **Middelberg APJ**

11:10 1696 *Marangoni Effect of Hexanol-Water System with and without Surfactants* Wang Z.H., Lu P., Yang C., **Mao Z.-S.**

11:30 1697 *Experiment on and Numerical Simulation of Mass Transfer and Marangoni Effect during Drop Formation* Lu P., Wang Z.H., Yang C., **Mao Z.-S.**

11:50 1698 *A Spherically-Symmetric Water Model Optimized with the Relative Entropy* **Chaimovich A.**, Shell M. S.

12:10 1699 *Determination of Flooding/Loading Transition using Acoustic Emission Method* **Ren C.**, Wang Y., Wang J., Yang Y.

12:30 1700 *Two-phase Microflow Processes for Controllable Preparation of Nanoparticles* **Luo G.**, Xu J., Li S.

12:50 End of Session

Nanotechnology

NAN7**518a****Nanotechnology 7**

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

10:30 Keynote Lecture

10:30 1701 *Polyelectrolyte and Particle Adsorption to Nanopatterned Surfaces* **Hudson S.D.**, Chastek T.T.

11:10 1702 *Microwave Sintering Characteristics of TiO₂ Nanoparticles* **Jung S.**, Kim J.H.

11:30 1703 *The Effect of Remarkable Ce and Zr Mixed Oxide Nanoparticles Support for Gas Conversion in Petrochemical* **Fahroueian Z.**, Shafiekhani A., Yousefi M., Afroukhteh Langroudi N., Karami M., Esmailzadeh P., Varmazyar H., Rajabi E., Taheri S.A.

11:50 1704 *New Insights in the Nature of Nanoporous Silica - Alumina* **Kosslick H.**, Kosslick H.

12:10 1705 *Nano-Porous Confinement of PEO-Lithium Triflate Complex* **Bishop C.B.**, Teeters D.T.

12:30 1706 *Composite Template-Free Photocatalyst Made of TiO₂ Nanoparticles: Synthesis and Characterization* **Vega A.**, Keshmiri M., Mohseni M.

12:50 End of Session

Particle Technology and its Applications

PT7A**524b****Particle Technology and its Applications 7A**

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

10:30 1707 *CFD Modelling of Polycaprolactone Nanoparticles Precipitation via Solvent-Displacement for Pharmaceutical Applications* Gavi E., **Marchisio D.L.**, Barresi A.A.

10:50 1708 *Designing Green Construction Materials Through Reaction Engineering* **Provis J.L.**, van Deventer J.S.J.

11:10 1709 *Synthesis of Novel Silicon Carbide Structures using Organic and Biological Templates* **Harris A.T.***, A., Maddocks A.R., Fellini S., Tierney C

11:30 1710 *Amine-Functionalized Mesoporous Materials for Formaldehyde Adsorption* **Sae-ung S.**, Boonamnuayvitaya V.

11:50 1711 *Impregnated Particles: Characterization and Use for Gas Separation Process* **Madariaga L.F.**, Castel C., Favre E., Choplin L.

12:10 1712 *Experimental and Computational Investigation on the Macroscopic Circulation Patterns in a Bubbling Gas-Solid Fluidized Bed* Laverman J.A., ten Bulte M.J., **van Sint Annaland M.**, Kuipers J.A.M.

12:30 1713 *Composite Particle, Smoothness Evaluation and Application for Cosmetic Powder Foundation* **Takao Y.**

12:50 End of Session

PT7B

524c

Particle Technology and its Applications 7B

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

10:30 Keynote Lecture

10:30 1714 *Particulate Research in Australia* **Yu A. B.**

11:10 1715 *Hierarchical Macroporous Structures Formed by a Facile Colloidal Templating Strategy* Wang L., Cai Z., Wan Y., Li Y., Zhao Xi., **Li Q.**

11:30 1716 *Uniformity of Particles from Laminar Jet Break-Up* **He Y.**

11:50 1717 *Influence of Premix Configuration in Continuous Powder Mixing* **Marikh K.**, Gatamel C., **Berthiaux H.**

12:10 1718 *Particle Level Flow Features in TBR: Unfolding of Hysteresis Phenomena* **Maiti R.N.**, Joshi M.K., **Nigam K.D.P**

12:30 End of Session

Polymer Engineering

PE7

514b

Polymer Engineering 7

Organizer(s) - Prof. Dr. D. Estenoz (Argentina), Prof. Dr. J.R. Leiza (Spain), Dr. J. Sosa (USA)

10:30 Keynote Lecture

10:30 1719 *Organic/inorganic Composite Latexes: A Few Examples of Past and Recent Investigations* **Bourgeat-Lami E.**, Reclusa S., Perro A., Duguet E., Ravaine S., Negrete-Herrera N., David L., Mellon V., Pardal F., McKenna T., Cenacchi-Pereira A.M., Martins Dos Santos A., Dugas P-Y., Putaux J-L.

11:10 1720 *Melt Compounding of PET and Thermally Stable Modified Clays* **Ghasemi H.**, Carreau P.J., Kamal M.R.

11:30 1721 *Preparation of Waterborne Adhesives Containing Reactive Clay* **Micusik M.**, Bonnefond A., Paulis M., Leiza J.R.

11:50 1722 *Modeling Advances and Current Challenges in Rotational Molding of Polymers* **Vlachopoulos J.**, Takacs E.

12:10 1723 *Blotching in Roll Coating* **Giacomin A.J.**, **Mix A.W.**, Chen Z.B.

12:30 1724 *Online Monitoring of Polypropylene Grafting by Maleic Anhydride During Twin-Screw Extrusion* Fang H., **Mighri F.**, Ajji A.

12:50 End of Session

Process Control and Optimization

PCO4

518c

Process Control and Optimization 4

Organizer(s) - Amos Ben-Zvi (Canada) and Carl Duchesne (Canada)

10:30 Keynote Lecture

10:30 Jay Liu - Integrating Process Databases: Methods and Applications

11:10 1725 *Optimization of Dynamic Systems: Applications for Batch Reactors* Mitsiouk A., **Negny S.**, Le Lann J.M.

11:30 1726 *Comparison of Real-Time Optimization Methods for Maximum Power Point Tracking of Microbial Fuel Cells* **Woodward L.**, Pinto R., Tartakovsky B., Perrier M., Srinivasan B.

11:50 1727 *Simultaneous Design and Control using Simulation-Based Bounds* **Ricardez Sandoval L.A.**, Budman H.M., Douglas P.L.

12:10 1728 *Distributed Linear Quadratic Control of Large-Scale Processes via Prediction-Driven Coordination* **Marcos N.I.**, Forbes J.F., Guay M.

12:30 1729 *The Viability Theory to Control Food Processes* **Sicard M.**, Perrot N., Baudrit C., Alvarez I., Martin S.

12:50 End of Session

Process Design

PD7

513b

Process Design 7

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

10:30 Keynote Lecture

10:30 1730 *The Role of Thermodynamic Modeling Consistency in Process Simulation* **Satyro M. A.**

11:10 1731 *Mass Transfer Characteristics of a Rotating Horizontal Cylinder* **Muthinti G.**, Jachuck R.

11:30 1732 **Mandin P.M.**, Wüthrich R.W., Roustan H.R., **Allgui A.**

11:50 1733 *Thermal Treatment of Different Grades and Types of Polyethylene (PE) Wasted Articles* **Al-Salem S.M.**, Lettieri P., Baeyens J.

12:10 1734 *Mass Transfer from Bubbles Confined in a 2D Channel* Roudet M., **Billet A.M.**, Roig V., Risso F.

12:30 1735 *Experiences with Pervaporation on Industrial Scale* **Maus E.M.**, **Roza M.**

12:50 End of Session

Rheology in Chemical Processing & Chemical Product Design

RHE1

513f

Rheology in Chemical Processing & Chemical Product Design 1

Organizer(s) - Prof. C. Gallegos (Spain), Dr. A. Ajji (Canada)

R.S. Jane Memorial Award Lecture

10:30 Keynote Lecture

10:30 1736 *Rheological Behavior of Polymer Nanocomposites* **Carreau P.**

11:10 1737 *Extensional Rheology of Shear Thickening Nano Particle Suspensions* Chellamuthu M., **Rothstein J.P.**

11:30 1738 *On-Line Measurement of the Apparent Viscosity of a Crystal Slurry: Experimental and Numerical Studies* **Herman C.**, Debaste F., Halloin V., Haut B., Leyssens T., Line A.

11:50 1739 *Effect of Flow History on the Rheology of MWNT-Epoxy Suspensions* **Khalkhal F.**, Carreau P.J.

12:10 1740 *The Dynamic Vulcanization and Morphology Evolution of TPV Nanocomposites along the Screw axis in Reactive Extrusion* **Mirzadeh A.**, Lafleur P.G., Dubois C., Kamal M.R.

12:30 End of Session

Scale-down and High Throughput Systems

SDHS1**514c**

Scale-down and High Throughput Systems 1

Organizer(s) - Prof. M. Jolicoeur (Canada), Dr. R. Kiss (USA)

10:30 Keynote Lecture

10:30 1741 *A Review of Bench-Scale Studies for Understanding Large-Scale Stirred Bioreactors* **Nienow A. W.**

11:10 1742 *Micro Enzyme Membrane Reactor: Continuous Enzymatic Synthesis on Minimum Scale* **Greiner L., Müller D.H., Müller P., Na'amnieh S., Hempelmann W.**

11:30 1743 *Scale Down of Hollow-Fiber Based Reactor for Prediction of Drug Hepatotoxicity in Human* **Sha R., Ru J., Lu Y., Meng Q.**

11:50 1744 *A Small-Scale Perfusion Bioreactor for the Monitoring of MDSCS' Energetic States* **Hammami I., Chen J., Bronte V., De Crescenzo G., Jolicoeur M.**

12:10 End of Session

Scale-up: The Key Success to Process Development

SCU1**512h**

Scale-Up : The Key success to Process Development 1

Organizer(s) - Dr. J. Worstell (USA), Dr. J. Powell (USA)

10:30 Keynote Lecture

10:30 1745 *Process Development: Is Scale-Up Really About Scale?* **Powell J.B.**

11:10 1746 *Process Economic Evaluations: Scale-Up Assessments* **Berg S.S.**

11:30 1747 *Evaluation of Scale-Up Procedures for Gas-Liquid Contacting in Mechanically Agitated Vessels* **Jafari R., Tanguy P.A., Chaouki J.**

11:50 1748 *Novel Approach to Solids Processes Analysis and Design* **Sheikhzainoddin T., Sharratt P.**

12:10 1749 *Preventing Batch Failures via Scale Down Simulation of Exothermic Reactions in the Lab* **Schellekens L.**

12:30 End of Session

Separation Science and Technology

SST7**519b**

Separation Science and Technology 7

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

10:30 Keynote Lecture

10:30 P. Wasserscheid - *Ionic Liquids - Relevant Aspects for Separation Technologies*

11:10 1750 *Characterization of a High Capacity Structured Packing for CO₂ Capture.* **Alix A., Raynal R.**

11:30 1751 *New Structured Packing in Carbon/Carbon Composite for G-L Separation* **Bessou V., Meyer M., Prévost M., Rouzineau D., Abbé F.**

11:50 1752 *DEM-Simulation of the Magnetic Field Enhanced Cake Filtration* **Eichholz C., Chen F., Hatton T.A., Nirschl H.**

12:10 1753 *Modeling of Reactive Absorption in a Coaxial Impinging Streams Absorber* **Harandi A.H., Rahimi A., Ehsani M.R.**

12:30 1754 *Wet Electrostatic Scrubbing for High Efficiency Submicronic Particle Capture* **Di Natale F., Carotenuto C., Lancia A.**

12:50 End of Session

Teaching Green Engineering

TGE1**512a**

Teaching Green Engineering 1

Organizer(s) - Prof. G. Yablonsky (USA), Prof. A. Azapagic (UK)

10:30 Keynote Lecture

10:30 1755 *Introducing Simple Sustainability Principles to Chemical Engineering Students* **Evans G.M.**

11:10 1756 *Embedding Sustainability in the Curriculum: Enabling Engineering Take Centre Stage* **Byrne E.P.**

11:30 1757 *Contemporary PBL Projects in Green Engineering* **Harris A.T., Briscoe-Andrews S.**

11:50 1758 *Green Process Engineering: A New Undergraduate Program at University of Western Ontario* **Ray A.K., Mequanint K.**

12:10 1759 *Patenting of Green Technologies: Trends, Issues, and Strategies* **Sajewycz M.W., Pivnicki J.**

12:30 1760 *Peer Assessment and Sustainable Graduate Attributes* **Gomes V.G., Spandagou I.**

12:50 End of Session

Upgrading of Heavy Oil by New Technologies

UHO2**513a**

Upgrading of Heavy Oil by New Technologies 2

Organizer(s) - Dr. K. Inamura, Dr. Y. Sugimoto, Dr. R. Tanaka, R. Pugmire, C. Fairbridge, Prof. M. Gray

10:30 Keynote Lecture

10:30 1761 *Conversion Chain of Residue to Distillates with New Catalyst Series* **Sakashita K., Yoshino M., Hayakawa Y., Nishimura I., Asaoka S.**

11:10 1762 *Challenge to Developing Zeolite Hydrocracking Catalyst for Resid Hydrodesulfurization Unit* **Inamura K., Iino A.**

11:30 1763 *Catalytic Cracking of Heavy Oil with Steam over Iron-Based Catalyst* **Fumoto E., Matsumura A., Sato S., Takanohashi T.**

11:50 1764 *Improving VGO Hydrotreating Operation via Lumped Parameter Dynamic Simulation Model* **Remesat D.**

12:10 1765 *EXAFS Spectroscopic Studies on NiMo Catalysts under High-pressure Hydrotreating Conditions* **Koizumi N., Hamabe Y., Jung S.B., Suzuki Y., Yamada M.**

12:30 1766 *Estimation of Kinetic Constants for In Situ Ultra-Dispersed Catalytic Upgrading of Bitumen in a Batch Reactor* **Hassanzadeh H., Galarraga C.E., Abedi J., Scott C.E., Chen Z., Pereira-Almao P.**

12:50 End of Session

Water Production and Wastewater Treatment - Technologies, Advances and Issues

WWT7**516a**

Water Production and Wastewater Treatment 7

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

10:30 Keynote Lecture

11:10 1767 *Sustainable Technologies for Reclaimed Water Production: Electrooxidation Treatment of the Reverse Osmosis Concentrate* Perez D., Ortiz I., **Urutiaga A.M.**, Gomez P.

11:30 1768 *Bench-Scale Trials of Electrokinetic Treatment on Anaerobically Digested Biosolids: Microbial Inactivation* **Safaei Takhtehfouladi E.S.**, Maria Electorowicz M.E.

11:50 1769 *Industrial Wastewater Treatment using Hydrodynamic Cavitation and Heterogeneous Advance Fenton Processing* **Chakinala A.G.**, Gogate P.R., Bremner D.H.

12:10 1770 *Electrochemical Degradation for the Treatment of Antibiotics Waste* **Viger M-E**, Berk D., Omanovic S.

12:30 1771 *Synthesis, Characterization and Properties of Carbon Nanofiber-Based Pt, Pd, Ru Monometallic Catalysts in Water Treatment Processes* Diaz Taboada C., Batista J., **Pintar A.**, Levec J.

12:50 End of Session

Topical Conference - CAMURE-7 & ISMR-6

CAM3 517a

Fundamentals

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

10:30 Keynote Lecture

10:30 1772 *Design Options for Multiphase Catalytic Reactions in Meso-Scale Structured Reactors* **Stitt E. H.**, Pollington S. D., Enache D. I., Hutchings G. J., Winterbottom J. M.

11:10 1773 *Wetting Efficiency and Hydrodynamic Multiplicity in a High Pressure Trickle Bed Reactor* **van Houwelingen A.J.**, Nicol W.

11:30 1774 *Feed Temperature Modulation in Trickle Bed Reactor: Experiments and Modelling* Habbye N., **Stüber F.**, Font J., Bengoa C., Fortuny A., Fabregat A., Haure P., Ayude A.

11:50 1775 *CFD Hydrodynamic Simulation of Pulsing Flow regime in High-pressure Trickle-bed Reactors* **Lopes R.J.G.**, Quinta-Ferreira R.M.

12:10 1776 *Characterization of Gas/Liquid Alternating Cyclic Operations Using Electrical Capacitance Tomography* **Hamidipour M.**, Larachi F.

12:30 End of Session

CAM2 516e

Catalysis & Reaction Engineering for Environmental and Materials Processing

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

11:10 1777 *Regeneration of Activated Carbon by (Photo)-Fenton Oxidation* Muranaka C., Julcour-Lebigue C., **Delmas H.**, Nascimento C.A.O., Wilhelm A.M.

11:30 1778 *Kinetic Modelling of Peroxycarboxylic Acids Synthesis Using Heterogeneous Catalysts* **Leveueur S.**, Salmi T., Estel L., Wärnå J., Murzin D.

11:50 1779 *Thiophene Conversion Under Mild Conditions over a ZSM-5 Catalyst* **Jaimes L.**, Ferreira M.L., de Lasa H.

12:10 1780 *Effect of Cs to Pt-Sn-K/Al₂O₃ in the Propane Dehydrogenation* **Tahriri Zangeneh F.**, Sahebdelfar S.

12:30 End of Session

CAM1 516d

Catalysis & Reaction Engineering for Sustainable Energy Systems

Organizer(s) - Prof. F. Larachi (Canada), Dr. J. Kirchnerova (Canada), Dr. Zbigniew RING (USA)

11:10 1781 *Accounting for Vapor-Liquid Equilibrium in Modeling Hydrodesulfurization Kinetics* **Chen J.**, Wang N., Ring Z.

11:30 1782 *Hydrotreating Reaction Performance in Catalyzed Monolith Reaction Channel* **Liu W.**

11:50 1783 *Hydrocracking of Aromatics into Light Paraffins on Bifunctional Pd/ZSM5 Catalysts* **Galarraga C. E.**, Ali-Marcano V., Hill J., Oballa M., Traa Y., Weitkamp J., Pereira-Almao P.

12:10 1784 *New Technology for Producing Petrochemical Feedstock from Heavy Aromatic Oil Fractions* **Simanzhenkov V.**, Oballa M.C., Kim G.Y.

12:30 End of Session

Topical Conference - GLS 9

GLS3A 513c

Non-Conventional Reactor Configurations

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

10:30 Keynote Lecture

10:30 1785 *Non-Conventional Reactors for Process Intensification* **Lange R.**

11:10 1786 *A Simple Gas-Liquid Mass Transfer Jet System* **Poncin S.**, Botton R., Cosserat D., Wild G.

11:30 1787 *A Novel Three-Phase Airlift Reactor Without Solid Circulation* **Olivieri G.**, Marzocchella A., Salatino P.

11:50 1788 *Experimental Study on Surface Aerators Stirred by Multiple Impellers* Li X Y, Yang C, Yu G Z, **Mao Z-S**

12:10 1789 *Grey Water Reuse: Treatment Options and Viability of a Photocatalytic Process* Sanchez M., Rivero M.J., **Ortiz I.**

12:30 1790 *Article Hamoudi et al GLS9* **Saad R.**, Belkacemi K., Hamoudi S.

12:50 End of Session

GLS3B 513d

Bioprocesses

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

10:30 1791 *A Net Draft Tube Slurry Airlift Bioreactor for 2,4-D Pesticide Biodegradation* **Znad H.**, Ohata H., Fukuda R., Kawase Y.

10:50 1792 *Modelling of an Industrial Enzyme Fermentation by Mass Transfer Estimation* **Albaek M.O.**, Gernaey K.V., Stocks S.M.

11:10 Keynote Lecture

11:10 1793 *From Fluid Particles to Stirred Tanks: Some New Features* **Mao Z-S.**

11:50 1794 *Intensification of Ultrasonic Atomization Process for Ethanol Separation and Recovery* **Tsuchiya K.**, Tanaka Y., Mori Y., Matsuura K.

12:10 1795 *Preferential Adhesion of Micro-Particles onto a Filtration Membrane under Turbulent Flow Conditions* Maniero R., **Climent E.**, Bacchin P.

12:30 1796 *New Method for Characterization of Critical Impeller Speed for Solid Suspension in Mechanically Agitated Vessels at High Solid Concentration* **Jafari R.**, Tanguy P.A., Chaouki J.

12:50 End of Session

**Topical Conference - 4th
IADC2009**

IADC3 524a
**Industrial Processes and
Equipment**

Organizer(s) - Dr. M. Benali (Canada), Dr. T. Kudra (Canada), Prof. R. Legros (Canada)

10:30 1797 *Drying of Magnesium Sulfate in a Pulsed Fluid Bed Dryer* **Nitz M.**, Souza L. F. G., Moraes S. R., Taranto O. P.

10:50 1798 *Development of Antifungal Spray Dried Extract from Lippia Sidoides (Verbenaceae)* **Fernandes L.P.**, Souza J.P.B., Bastos J.K., Candido R.C., **Oliveira W.P.**
11:10 1799 *Solvent and Hydrocarbon Drying by Desiccant Particles* **Augier F.**, Vassieu M.

11:30 1800 *Monitoring a Lab-Scale Fluidized Bed Dryer: Comparison of Different Sensors* **Vervloet D.**, Nijenhuis J., van Ommen J.R.

11:50 1801 *The Superheated Steam Drying of Distiller's Spent Grains on Inert Material* **Zielinska M.**, Markowski M., Cenkowski S.

12:10 Stawczyk, J., Collell, Munoz, I., Comaposada, J. - Control System for Sausage Drying Based on On-Line NIR aw Determination

12:30 Chen, G., Wang, W. - Freeze-Drying of Initially Porously Frozen Material From Aqueous Solution

12:50 End of Session

**Topical Conference - OILSANDS
2009**

OS3 520e
**Nanotechnology in Oil Sands
Processing**

Organizer(s) - Prof. Z. Xu (Canada), Prof. I. Gates (Canada) and Dr. J. Czarniecki (Canada)

10:30 1802 *Application of Carbon Nanotube Catalyst Supports for Gas Oil Hydrotreatment* **Sigurdson S.**, Dalai A.K., Adjaye J.

10:50 1803 *Colloidal Clay Gelation Relevance to Current Oil Sands Operations* **Mercier P.H.J.**, Ng S., Moran K., Sparks B.D., Kingston D.M., Kotlyar L.S., Kung J., Woods J.R., Patarachao B., McCracken T.

11:10 1804 *Nano-Micro Structure of Bitumen and Heavy Oil Using Viscoelastic Properties* **Hasan M. A.**, Fulem M., Shaw J. M.

11:30 1805 *Bubble Size Distribution in Oil Sand Hydrotransport Pipelines* Kelakudithi E., Sharmin F., Afacan A., **Sanders R.S.**, Spence J., Nandakumar K., Masliyah J.H.

11:50 1806 *Flow Dynamics Around Oil-Coated Particles Defining Strategies for Oil-Water-Particle Separation* **Quraishi S.**, Acosta E.

12:10 End of Session

Process Safety Management

PSMG 512c
**Process Safety Management -
General process safety
symposium**

Organizer(s) - G. Creedy (Canada), J.P. Lacoursiere (Canada)

10:30 1807 *OECD Workshop on Training of Engineers In Risk Management* **Lacoursiere J.P.**
11:00 1808 *Engaging Academia in Teaching of Process Safety via the Summer Institute* **Norval G.**
11:30 1809 *History of the AIChE Safety and Chemical Engineering Education (SACHE) Program* **Crowl D.A.**, Louvar J.F.

12:00 1810 *Safety and Chemical Engineering Education Program (SACHE) on the Web* **Spicer T.**, Louvar J., Aplebaum L., Moore R.

12:30 1811 *Bringing Chemical Process Safety into the Classroom: SACHE Chemical Engineering Faculty Workshops* **Willey R.J.**

Wednesday PM

**Bioenergy and Green
Engineering**
BGE8 520b
**BioEnergy and Green
Engineering 8**

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

Danckwert's Award Lecture
14:00 Keynote Lecture

14:00 1812 *Synthetic Biology for Chemistry: From Bugs to Drugs and Fuels* **Keasling J.**
14:40 1813 *Enhance Hydrogen Production from Biomass Using Nano-Structured CO₂ Sorbents* **Widyawati M.**, Harris A.T., Florin N.H.

15:00 1814 *A Study of Torrefaction Process for Agriculture Residue* **Dutta A.**, Pimchuai A.

15:20 1815 *Multiscale Modelling of Pretreatment* **Hosseini S.AI**, Shah N.

15:40 1816 *Analysis of Structure and Cross-Linking Behaviour During Cellulose Pyrolysis* **Chaiwat W.**, Hasegawa I., Tani T., Sunagawa K., Mae K.

16:00 End of Session

BGE9 520b
**BioEnergy and Green
Engineering 9**

Organizer(s) - Dr. A. Bassi (Canada), Prof. A. Dalai (Canada), Prof. G. D. Yadav (India)

16:10 1817 *Gasification of Rice Husk in Supercritical Water* **Basu P.**, Vichuda M., Leon M.A.

16:30 1818 *Highly Efficient Liquefaction of Woody Biomass with Hot-Compressed Alcohol-Water Cosolvent* **Cheng S.**, Leitch M., Xu C.

16:50 1819 *Continuous Catalytic Hydrothermal Gasification of Glycerol to Synthetic Natural Gas* **Schubert M.**, Müller J., Vogel F. **PAPER WITHDRAWN**
17:10 1820 *Hydrothermal Pretreatment of Lignocellulosic Biomass* Yan W., **Coronella C.J.**, Vasquez V.R.

17:30 End of Session

**Biomaterials, Tissue
Engineering and Regenerative
Medicine**

BMAT7 518b
**Biomaterials, Tissue
Engineering and Regenerative
Medicine 7**

Organizer(s) - Prof. M. Buschmann (Canada), Prof. Shoichet (Canada), Prof. M.S. Kallos (Canada)

14:00 1821 *Nanosized Mesoporous Silicas for Drug Delivery* **Wang S.**, Li K., Ma Q., Zhu Z.

14:20 1822 *Computational Model of Drug Release in the Nasal Cavity* Alexopoulos A.H., Karakosta P., Kiparissides C.

14:40 1823 *A Chitosan Nanoparticle Delivery System for Controlled Release of bFGF* Butko A., Paulson A.P., Ghanem A.

15:00 1824 *γ -Polyglutamic Acid As a Carrier for the Delivery of Anticancer agent Doxorubicin* Manocha B., Margaritis A.

15:20 End of Session

Bioproducts, Bioreactors and Bioprocesses

BBB8 **519a**

Bioproducts, Bioreactors and Bioprocesses 8

Organizer(s) - Dr. A. Margaritis (Canada)

14:00 Keynote Lecture

14:00 1825 *Study on the Regeneration of Immobilized Metal Ion Affinity Membrane* Chen C-L. PAPER WITHDRAWN

14:40 1826 *Reverse Phase Chromatographic Purification of Semisynthetic Peptide Intermediate* Mishra Y., Lali A.

15:00 1827 *Two-Stage Cascade Ultrafiltration for Purification of Lysozyme from Egg White* Mayani M., Filipe C., Ghosh R.

15:20 1828 *Comparison Between Chilling and Crossflow Membrane Filtration in Beer Clarification* IYUKE S.E., Mahlabegoane M., Thulo M.D., Erasmus A.

15:40 1829 *Controlled Release of Recombinant Human Erythropoietin Encapsulated in Chitosan Nanoparticles* Bokharaei M., Margaritis A., Xenocostas A., Freeman D

16:00 End of Session

BBB9 **519a**

Bioproducts, Bioreactors and Bioprocesses 9

Organizer(s) - Dr. A. Margaritis (Canada)

16:10 1830 *An Investigation on Relation Between Sporulation and Biosurfactant Production by Bacillus Subtilis* Abi A., Sarrafzadeh M.H., Mehrnia M.R. PAPER WITHDRAWN

16:30 1831 *Medium Optimization for Biosurfactant Production from Bacillus Subtilis in Ventilation Flask* Keshtkar M.J., Amoabediny G., Amani H., Kafi I., Sarrafzadeh M.H., Rashedi H.

16:50 1832 *Physico-Chemical Characterization of a Biosurfactant Produced by Pseudomonas Fluorescens* Abouseoud M., Yataghene A., Amrane A., Maachi R.

17:10 1833 *Evaluation of Process Parameters for the Scale-Up of Plant Cyclotides Production* Dörnenburg H., Seydel P.

17:30 End of Session

Emulsion and Emulsification

EE1 **516e**

Emulsion and Emulsification 1

Organizer(s) - Prof. L. Choplin (France), Prof. J-L. Salager (Venezuela), Dr. M-E. Saint-Victor (USA)

14:00 Keynote Lecture

14:00 1834 *Nanoemulsions by Design: Tailoring Dispersions of Nanoscale Droplets* Mason T.G.

14:40 1835 *Innovative Green Emulsifiers from Renewable Resources Using Environmentally Friendly Processes*

Benvegnu T.B., Ranoux A.R., Goursaud F.G., Roussel M.R., Plusquellec D.P., Lemiegre L.L.

15:00 1836 *Effects of Mixed Stabilizers (Nanoparticles and Surfactant) on Phase Inversion* Pal R., Malhotra V.

15:20 1837 *Transformation of Transitional Phase Inversion to Catastrophic One* Jahanzad F., Sajjadi S.

15:40 1838 *Phase Behaviour of Microemulsions Containing Silicone Oil and Acrylic Monomers* Castellino V.S., Cheng Y.L., Acosta E.J.

16:00 End of Session

EE2 **516e**

Emulsion and Emulsification 2

Organizer(s) - Prof. L. Choplin (France), Prof. J-L. Salager (Venezuela), Dr. M-E. Saint-Victor (USA)

16:10 1839 *Emulsification with Microstructures* Van Dijke K.C., Schroën K., Boom R.M.

16:30 1840 *Influence of Process Variables on Mechanism of Emulsification by Inversion* Rodriguez M. P., Xuereb C., Bertrand J., Salager J. L.

16:50 1841 *Pseudo-Ternary Phase Diagrams of a Drug Delivery System* Pal R., Wang Z.

17:10 1842 *Melt Emulsification: Is There a Chance to Produce Particles Without Additives?* Köhler K., Hensel A., Kraut M., Schuchmann H. P.

17:30 1843 *Switch Emulstions* Doerr M.

17:50 End of Session

Gasification, Syngas and CO2 Sequestration

GSC7 **520c**

Gasification, Syngas and CO2 Sequestration 7

Organizer(s) - Dr. K. Liu (USA), Prof. Dr. G. Xu (China), Dr. A. Avagliano (USA)

14:00 1844 *Emission and Unitization of Carbon Dioxide* Ma X., Ma C., Xu L., Zhang X., Cao B., Fan J. PAPER WITHDRAWN

14:20 1845 *Thermodynamic and Transport Characteristics of Carbon Dioxide in Ionic Liquids* Baltus R.E., Moganty S.S., Close J.J.

14:40 1846 *Aquistore Project: Point Source Capture of CO2 and Injection into a Deep-Saline Aquifer in Saskatchewan, Canada* Whittaker S., Worth K., Preston C.

15:00 1847 *Methanol Decomposition and C₂ Formation Over Alkali Promoted Cu-MgO* Goodarznia S., Smith K.J.

15:20 1848 *Modelling of Fischer Tropsch Waxes Hydrocracking by Population Balance* Contreras S., Dandeu A., Tayakout-Fayolle M.

15:40 1849 *Life-Cycle Environomic Optimisation of NGCC Plant with CO2 Capture* Bernier E., Girardin L., Marechal F., Samson R.

16:00 End of Session

GSC8 **520c**

Gasification, Syngas and CO2 Sequestration 8

Organizer(s) - Dr. K. Liu (USA), Prof. Dr. G. Xu (China), Dr. A. Avagliano (USA)

16:10 Keynote Lecture

16:10 1850 *Decoupling Thermochemical Conversion of Solid Fuels: The Approach Technologies and Development Status* Xu G. W., Dong L., Liu X. H., Wang Y., Wang B. Q., Gao S. Q.

16:50 1851 *CO₂ Stabilization's Enormity and the Scale of a Nuclear Answer* Miller A.I.

17:10 1852 *Design and Development of Novel Catalysts for Multi-Feedstock Hydrogen Production* **Khan A.**, Ibrahim H., Kumar P., Idem R.

17:30 1853 *The Role of Zn Compound on the Synthesis of Propylene Carbonate from Propylene Glycol and CO₂-majun* Ma J., Huang S.Y., Zhao N., Xiao F.K., Wei W., Sun Y.H.

17:50 1854 *Water-Gas Shift Reaction by Au/Ferric Oxide Catalyst* **Shinji Kudo S.K.**, Taisuke Maki T.M., Takashi Fukuda T.F., Kazuhiro Mae K.M.

18:10 End of Session

Industrial Program

ESM

512e

Energy & Sustainable Manufacturing

Organizer(s) - Prof. G. Patience

14:00 Fatahi - Polysilicon Technology, Markets and Solar Industry

14:30 1855 *Designing Core/Shell Pd/TiO₂ catalyst for Selective Hydrogenation of Long-chain Alkadienes* Lu H., **Xu B.**, Fan Y., Wang K., Liu D., Lin Z., Wang Y., Xu Y.

15:00 1856 *Synthesis of Phosphorus-Doped Mesoporous Carbon and its Application in Supercapacitor* Zhao X., Wang A., **Zhang T.**

15:30 End of Session

16:00 1857 *Prediction of Surface Temperature of Body in ED-Paint Oven with Numerical-Analytical Approach* **Ardani M.**, Jireae A., Saidi M.S., Saidi M.H., Hanafizadeh P., Sajadi B., Irani R. A.

16:30 1858 *A Study of Thermal Properties of Nepheline Syenite in Comparison with Indian Potassic Feldspar* **Ghahremani D.**, Sarpoolaky H., Arzani K.

17:00 1859 *Integrated Tool for IGCC Power Plants, Emissions and Cost Predictions* **Perez-Fortes M.**, Bojarski A.D., Velo E., Nougues J.M., Puigjaner L.

LNG

512b

LNG

Organizer(s) - J. Havens (USA), J. Cramer (AIChE), R. Andersson (CSCHE)

14:00 Sam Mannan - Inconsistencies/Insufficiencies/Uncertainties in Current Hazard Models - I

14:40 1860

Inconsistencies/Insufficiencies/Uncertainties in Current Hazard Models - II **Luketa A.**

15:20 White Paper Workshop and Assignments

16:30 End of Session

XTL

512f

XTL (X to Liquid)

Organizer(s) - R. Cenni (Denmark), K. W. Hutchenson (USA), J. Lerou (USA), H. Yagi (Japan)

14:00 1861 *BTL as Renewable Fuel - Technical-Economic Assessment of Plant Concepts* **Müller-Langer F.**, Thrän D., Kaltschmitt M.

14:30 1862 *WASTE PLASTIC CONVERTING INTO HYDROCARBON FUEL MATERIALS* **Sarker M.**

15:00 1863 *Biomass Gasification CHP Plant Güssing (Austria):Research Centre for 2nd Generation Biofuels* **Aichernig Ch.**, Hofbauer H., Rauch R., Koch R

15:30 1864 *Conversion of Pulp Mills to Efficient Biorefineries* **Lindblom M.**

16:00 1865 *Converting Non-homogeneous Biomass Residues into Alcohols* **Chornet E.**

16:30 1866 *A Mobile Pyrolysis Technology for the Conversion of Biomass into Bio-Oil* **Berruti F.**, Briens C., Ferrante L.

17:00 1867 *Co-Firing Coal and Biomass for Power Production* **Shadle L. J.**, Klara J., Matuszewski M.

17:30 End of Session

PRISM

512d

Process Intensification for Sustainable Manufacturing

Organizer(s) - J.-F. Jenck (France), G. S. Patience (Canada)

14:00 1868 *Continuous Manufacturing of Multi-Products using a Continuous Oscillatory Baffled Reactor* Caldeira R., **Ni X.**

14:30 1869 *The Alfa Laval Milli- Scale Plate Reactor* **Reynolds I.E.**, Johnson B.J.

15:00 1870 *Scale-up of Membrane Emulsification Process for Production of Mesoporous Carbon Adsorbents* **Yamamoto T.**, Chaichanawong J., Ohmori T.

15:30 1871 *Performance Analysis of a Microstructured and Highly Integrated Steam Methane Reformer* **Moreno C.A.**, Haynes B.S., Johnston A.M.

16:00 1872 *Synthesis of Photochromic Diarylethenes Using Pilot Plant Systems* **Ushioji Y.**, Hase T., Iinuma Y., Takata A., Yoshida J.

16:30 1873 *Characterization Studies on Highly Integrated Centrifugal Contactor Separators* **Schuur B.**, Kraai G.N., Winkelman J.G.M., Heeres H.J.

17:00 1874 *A Study of Micromixing Characteristics in the Spinning Disc Reactor* **Al-hengari S.**, Boodhoo K.

17:30 1875 *Conceptual Design of Reactive Distillation Processes Heated with Microwaves* **Altman E.**, Van Gerven T., Stankiewicz A.

18:00 End of Session

Knowledge Management in Process Engineering

KNM2

525b

Knowledge Management in Process Engineering 2

Organizer(s) - Prof. Kraslawski (Finland)

14:00 1876 *Tools for Consistency Management Between Process Design Products* **Körtgen A.-T.**

14:20 1877 *Identification of Suitable Management Policies for Public Goods by using Game Theory* Tarifa E., Argañaraz J., Martinez J., **Erdmann E.**

14:40 1878 *Knowledge Management in Production Innovation in the Chemical Industry* **Nishitani H.**

15:00 1879 *Reuse-Atlas for Know-How and Quality-Assurance in Modular Plant Design* **Hady L.**, Wozny G.

15:20 1880 *Knowledge Visualization in a Given Field of Research* Botar-Jid C., Nnaji E., Avramenko Y., **Kraslawski A.**

15:40 End of Session

KNM3

525b

Knowledge Management in Process Engineering 3

Organizer(s) - Prof. Kraslawski (Finland)

16:10 1881 *Biofuel Patent Trends in Canada* **Lawson J.PAPER WITHDRAWN**

16:30 1882 *Integrated Decision Support System for Developing Pharmaceutical Products and Processes* **Manipura A.**, Sharratt P. N., Martin E. B., Montague G., Fernandes K., Tsang E.

16:50 1883 *Principal Component Analysis (PCA) Application for Early Detection of Faults in Aluminium Processing* Abd Majid N., **Young B.**, Taylor M., Chen J.

17:10 End of Session

Metabolic Engineering

ME2

513e

Metabolic Engineering 2

Organizer(s) - Prof. W-S. Hu (USA), Prof. Z. Gerdtsen (Chile), Prof. E.(M). Tzanakakis (USA)

14:00 1884 *Unravelling the Primary Metabolism of HEK-293 Cells in Culture: A Key Approach to Rational Process Development* Henry O., **Kamen A.**

14:20 1885 *Comparative Metabolic Analysis of Lactate for CHO Cells in Glucose and Galactose* Wilkens C.A., Altamirano C., **Gerdtsen Z.P.**

14:40 1886 *Differential Hepatobiliary Transportation Between 2-D and 3-D Cultured Rat Hepatocytes* **Jian Y.**, Guoliang Z., Yanhua L., **Qin M.**

15:00 1887 *Genome-Scale Metabolic Networks: Reconstruction, Applications and Perspective* Han B-B., Wang H., Hao T., Ma H-W., **Zhao X-M.**

15:20 1888 *Prediction of High-Confidence Protein-Protein Interactions using Multiple Approaches* **Mahdavi M.A.**

15:40 End of Session

ME3

513e

Metabolic Engineering 3

Organizer(s) - Prof. W-S. Hu (USA), Prof. Z. Gerdtsen (Chile), Prof. E.(M). Tzanakakis (USA)

16:10 1889 *A Systematic Method for Searching Feasible Enzyme Activity Patterns* **Guillén-Gosálbez G.**, Pozo C., Jiménez-Esteller L., Sorribas A.

16:30 1890 *In-Vitro Cell Proliferation Modelling and Prediction with Estrogen* **Ibrahim F.**, **Huang B.**

16:50 1891 *Non-Newtonian Visco-Elastic Time-Dependent Rheological Properties of California Mastitis Test Gel* **Walmsley M.R.** W, Verbeek J., Sen Xia S.

17:10 End of Session

Micro Process Technology

MPT3

512g

Micro Process Technology 3

Organizer(s) - Dr. C. deBellefon (France), Dr. V. Hessel (Germany), Dr. J. Lerou (USA)

14:00 1892 *Impact of Reaction on Liquid-Liquid Mass Transfer in Microchannel* **Di Miceli Raimondi N.**, **Prat L.**

14:20 1893 *Micro-Sealed Heat Transfer Process in Liquid/Liquid Micro-Dispersed System* **Wang K.**, Lu Y., Shao H., **Luo G.**

14:40 1894 *Comparison of a Semi-Batch and a Continuous Microencapsulation Process using a Micromixer* **Rabeau S.**, **Falk L.**

15:00 1895 *Residence Time Distributions of Laminar Flow in Plastic Multi-Capillary Microreactors* **Hornung C.H.**, Hallmark B., Mackley M.R.

15:20 1896 *Gas-Liquid Micro-Structured Contactors: Design and Characterization Through Experimental and CFD Methods* **Leclerc A.**, Schweich D., Pouteau P., Delattre C., **de Bellefon C.**

15:40 End of Session

MPT4

512g

Micro Process Technology 4

Organizer(s) - Dr. C. deBellefon (France), Dr. V. Hessel (Germany), Dr. J. Lerou (USA)

16:10 1897 *Crossing and Impinging-Flow Study for Micro-Processes Applications: Hydrodynamics Analysis using an Electrochemical Method* **Huchet F.**, Legentilhomme P., Legrand J., Montillet A., Comiti J.

16:30 1898 *Process Intensification for Continuous Lubricant Synthesis* **Mueller D.H.**, Ariaans C., Pontzen F., Liauw M.A., **Greiner L.**

16:50 1899 *Generic Aspects of Scale-Up Approaches in Chemical Micro Process Engineering* **Löb P.**, Hessel V., Krtschil U., Werner B.

17:10 1900 *Numerical Simulation of Immiscible Liquid-Liquid Flow in T-shape Micro-Channel using the Lattice Boltzmann Method* **Yong Y.M.**, **Yang C.**, Mao Z.S., Jiang Y., Shi Y.C., Yin X.L.

17:30 End of Session

Mixing in Industrial Processes

MIX7

520f

Mixing in Industrial Processes 7 (joint with CFD7)

Organizer(s) - Prof. S. Kresta (Canada), Prof. J. Derksen (Canada), Dr. S. Jaffer (USA)

14:00 1901 *Comparison of Discrete Element Method Simulation with Experimental Data of Radioactive Particle Tracking in a Tumbling Cylinder* **Alizadeh E.**, Legros R., Bertrand F., **Chaouki J.**

14:20 1902 *Numerical Flow Simulation of a Co-Kneader using 3D Finite Element Method* **Brito-Bazan M.**, Heniche M., Fradette L., **Tanguy P.A.**

14:40 1903 *Mixing Propeller Optimized for Focused Flow with Parabolic Camber and Circular Rake* **Higbee R.**, Wu B., Wyczalkowski W.

15:00 1904 *CFD Simulation of Free Liquid Surface Motion in Stirred Tank* **Jahoda M.**, Mostek M., Fort I., Crinelli F., Hasal P.

15:20 1905 *Simulation of Free-Surface Flow in an Unbaffled Stirred Tank Reactor* **Mahmud T.**, Haque J.N., Roberts K., Liang K., White G., Wilkinson D., Rhodes D.

15:40 1906 *Validation of Liquid-Solid CFD Model using a Digital Imaging Method* **Visuri O E.**, Liiri M, Alopaeus V

16:00 End of Session

Multi Scale Structures

MSS2

515b

Multi Scale Structures 2

Organizer(s) - Prof. J. Li (China), Prof. J. R. Grace (Canada)

14:00 Keynote Lecture

14:00 1907 *Toward a Multiscale Understanding of the Structures of Nanoparticle-Polymer Nanocomposites* **Yu A.B.**

14:40 1908 *Large Eddy Simulation of Turbulent Bubble-Particle Collision Efficiency* **Liu T. Y.**, Schwarz M. P.

15:00 1909 *Multiscale Simulation of Droplet Impact on a Porous Substrate* **Fan L.-S.**, Yu Z.

15:20 1910 *Searching for a Mesh-independent Sub-grid Model for CFD Simulation of Gas-solid Riser Flows* Lu B., **Wang W.**, Li J.

15:40 1911 *A Transferrable Interatomic Potential for Caesium Phosphomolybdate* **Hammond R.B.**, **Khan A.W.**, Scott A.J., Steele H.

16:00 End of Session

MSS3

515b

Multi Scale Structures 3

Organizer(s) - Prof. J. Li (China), Prof. J. R. Grace (Canada)

16:10 Ge, W. - Characterizing Meso-Scale Structures in Multi-Phase Systems - The Analytical Multi-Scale Approach

16:30 1912 *Interfacial Elasticity Affects Droplet Formation in Microfluidic Channels* **Zhao C.**, Miller E., Cooper-White J., Dexter A., Middelberg A.

16:50 1913 *The Effect of Concentration on the X-Ray Intensity and the Specific Heat Values of Carbonaceous Mesophase Mixtures* **Golmohammadi M.**, Rey A.D.

17:10 1914 *Boundary Condition Effects in CFD Cyclone Simulations* **Dias D.B.**, Mori M., Martignoni W.P.

17:30 1915 *Intensification of Gas-Liquid Mass Transfer by Suspended Nanoparticles* **Suresh A. K.**, Komati S.

17:50 1916 *Multi-Scale Structure Resolution of AE Signals in Multiphase Flow System* **He Y-J.**, Wang J-D., Yang Y.

18:10 End of Session

Nanotechnology

NAN8

518a

Nanotechnology 8

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

14:00 1917 *Optimization Possibilities in Producing Nano-Particles with Stirred Media Mills* **Breitung-Faes S.**, Kwade A.

14:20 1918 *Parametric Study on the Hydrothermal Synthesis of Titanium Dioxide Nanostructures* Vali1 2, A., Babaluo2 3,4, A. A., **Soltan Mohammadzadeh1 2,5, J.**

14:40 1919 *A Facile Method to Synthesize Silica Nanoparticles with Bimodal Porosity* **Zhao J.Q.**, Wang Y.J., Zhu S.L., Diao X.

15:00 1920 *Crystal Engineering of Boron Subphthalocyanine* **Morse G.E.**, Lough A., Bender T.

15:20 1921 *Valence Change of Functionalized-Cobalt Oxide Nanostructures*

Mousavand T., Hashemi S.J., Adschiri T., Naka T.

15:40 1922 *Continuous Generation and Transformation of Monosized Nonspherical Droplets using Novel Microchannel Arrays* Kobayashi I., Uemura K., **Nakajima M.**

16:00 End of Session

NAN9

518a

Nanotechnology 9

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

16:10 1923 *Nano Flow Technology - Application of a Novel In-Situ Measurement Technique* **Palmer C.A.**, Hellgardt K.

16:30 1924 *The Thermal Conductivity of Non-Newtonian Nanofluids* Hojjat M., **Etemad S.Gh.**, Bagheri R., Thibault Jules

16:50 1925 *Exploring New Miscible Conditions for Supercritical Antisolvent Precipitation of Amoxicillin* **Montes A.**, Tenorio A., Gordillo M.D., Pereyra C., Martínez de la Ossa E.

17:10 1926 *Dynamic Speciation Analysis of Organics in Nanoparticle Dispersions by SPME* **Benhabib K.**, VanLeeuwen H.P

17:30 1927 *Factorial Design for Nanosized Polyisoprene Synthesis via Differential Microemulsion Polymerization* **Suppaibulsuk B.**, Prasassarakich P., Rempel G.

17:50 End of Session

Particle Technology and its Applications

PT8A

524b

Particle Technology and its Applications 8A

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

14:00 1928 *MWCNT Nano-Fluids Enhancement of Copper Corrosion* **Baghalha M.**, Kamal-Ahmadi M.

14:20 1929 *Mechanochemical Process for Recovering Indium from Indium-oxide at Ambient Temperature* **Kano J.**, Kobayashi E., Tongamp W., Saito F.

14:40 1930 *Solvent Extraction/Evaporation Process for Biodegradable Microparticle Fabrication* **Katou H.**, Meinel A.J., Gander B.

15:00 1931 *Pulverized Oil Shale Fluidized Bed Pilot Plant Retorting* **Wang W.D.**, Zhou C.Y.

15:20 1932 *Influence of Particle Size Distribution on Fluidized Beds - A Modelling Approach* Brouéris van Nidek V., Beetstra R., Nijenhuis J., van Wachem B.G.M., **van Ommen J.R.**

15:40 1933 *Gas-Solid Fluidized Bed Dynamics: Interaction with Air-Supply System* **Bonniol F.**, Sierra C., Occelli R., Tadrist L.

16:00 End of Session

PT8B

524c

Particle Technology and its Applications 8B

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

14:00 1934 *Vibrated Granular Bed on a Bumpy Surface* **Lim E.W.C.**

14:20 1935 *Analysis of Transfer Chute Performance Focussing on Reduced Dust Emissions* **Donohue T.J.**, Roberts A.W., Wheeler C.A., McBride W.

14:40 1936 *Electric Field Controlled Electrospray Deposition for Precise Micropattern Formation* Xie J., Rezvanpour A., Lim W.C., **Wang C.H.**, Hua J.S.

15:00 1937 *CFD Validation of Scaling Laws for Gas Solid Riser Flows* Naren P.R., **Ranade V.V.**

15:20 1938 *Coating - Drying Mechanisms and Quantitative Analysis for Process - Paper Property Relations* Dixit M., Hashemi S.J., **Douglas W.J. Murr**

15:40 1939 *DEM Simulation of the Mixing Process in Downer Reactor* **Cui1 L.**, Zhang2 J., Feng3 Y., Lin2 W., Ge2 W.

16:00 End of Session

PT9A

524b

Particle Technology and its Applications 9A

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

16:10 1940 *The Effect of Al(OH)₃ on the UO₂Gd₂O₃ Sintering Kinetics* **Pagano Jr. L.**, **Valença G. P.**

16:30 1941 *Utilization of Cement Kiln Dust in Production of Cement Concrete Bricks* **Al-Meshragi M.**, Ali Algoon F., Elbasir A.

16:50 1942 *Mass Dispersion as an Important Phenomenon in Inhomogeneous Fibrous Filters* **Jackiewicz A.**, Podgórski A.

17:10 1943 *Onset of Colloidal Aggregate Restructuring in Shear Environments* **Becker V.**, Briesen H.

17:30 End of Session

PT9B

524c

Particle Technology and its Applications 9B

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

16:10 1944 *Transport Velocities of Dispersed and Aggregated Colloidal Suspensions* **Harbottle D.**, Fairweather M., Biggs S.

16:30 1945 *Advanced Milling and Containment Technologies for Superfine API's* **Stein J.**

16:50 1946 *Beads-Motion in Stirred Milling Simulated by DEM and Its Optimization* **Soda R.**, Sato A., Kano J., Saito F.

17:10 1947 *Dense-Phase Pneumatic Conveying of Pulverized Coal for Feeding of Gasifier* **Guo X. L.**, Gong X., Xu J. L., Wang C.H., Zhao J. C., Huang W. J.

17:30 End of Session

Pharmaceutical Engineering in the 21st Century

PHRM1

517a

Pharmaceutical Engineering in the 21st Century 1

Organizer(s) - Prof. V. Venkatasubramanian (USA), Prof. P. York (UK), Dr. H. Havel (USA)

14:00 1948 *Pharmaceutical Engineering Challenges and Opportunities Towards Continuous Manufacturing* **Muzzio F.**

14:20 1949 *Modeling Challenges in Pharmaceutical Manufacturing* **Reklaitis G.V.R.**

14:40 1950 *A Systematic Computer Aided Framework for Design and Analysis of PAT Systems* **Gani R.**

15:00 1951 *Synchronizing New Product Development Projects and Supply Chain Retrofitting for Financial Sustainability in the Pharmaceutical Industry* **Lainez J. M.**, Reklaitis G. V., Puigjaner L.

15:20 1952 *Process Understanding - Key to Quality by Design* **Davison S.**

15:40 1953 *Modelling and Informatics Challenges in Pharmaceutical Engineering* **Venkatasubramanian V.**

16:00 End of Session

Plasma Processing

PLP1

522bc

Plasma Processing 1

Organizer(s) - Prof. S. Coulombe (Canada)

14:00 1954 *Extraction and Identification of Volatile Compounds from Carbon Black Produced by Thermal Plasma* **Pristavita R.**, Meunier J.L., Berk D.

14:20 1955 *Innovative Industrial Plasma Torch Operating with Syngas* **Hacala A.**, Michon U.

14:40 1956 *Thermal Plasma Purification and Hydrogenation of Metallurgical Grade Silicon. Role of the Different Process Parameters.* **Benmansour M.**, Rousseau S., Morvan D.

15:00 1957 *Synthesis of Al Doped ZnO Nanopowder by Thermal Plasma* **Kim S-J.**, **Seon H-S.**, Park D-W.

15:20 1958 *New Morphology YSZ Layers Elaborated in a Plasma Spray Reactor* **Rousseau F.**, Fourmond C., Morvan D., Mevrel R.

15:40 1959 *Waste Plastic Remediation and Syngas Generation through Plasma Arc Gasification* **Ruj B.**, Chatterjee P. K., Goel A. K., Saha D., Mandal J., Hasan S.

16:00 End of Session

PLP2

522bc

Plasma Processing 2

Organizer(s) - Prof. S. Coulombe (Canada)

16:10 1960 *The Treatment of Asbestos-Alike Ceramic Fiber by using Atmospheric Microwave Air Plasma* **Averroes A.**, Sekiguchi H., Sakamoto K.

16:30 1961 *Non-Catalytic Low-Temperature Plasma-Enhanced CVD of Carbon Nanofibers* **Mori S.**, Suzuki M.

16:50 1962 *Corrosion Behaviour and Fibrinogen Adsorption on SS316L Surfaces Coated with Functionalized Ti Nanoparticles* **Tavares J.**, Shahryari A., Harvey J., Coulombe S., Omanovic S.

17:10 1963 *Plasma-Assisted Cell Transfection Using the APGD-t* **Leduc M.**, Guay D., Leask R., Coulombe S.

17:30 1964 *Effect of Reactor Design and Mass Feed Rate on Alumina Nanoparticle Synthesis* **Marion F.**, Munz R.J., Dolbec R., Xue S., Boulos M.

17:50 1965 *Plasma and Vacuum-Ultraviolet (VUV) Photo Polymerisation of "Mono-Functional" Thin Films* **Ruiz J.-C.**, Girard-Lauriault P.-L., Poulin S., Truica-Marasescu F., Wertheimer M.R.

18:10 End of Session

Polymer Engineering

PE8

514b

Polymer Engineering 8

Organizer(s) - Prof. Dr. D. Estenoz (Argentina), Prof. Dr. J.R. Leiza (Spain), Dr. J. Sosa (USA)

14:00 1966 *Continuous Rubber Devulcanization using Supercritical CO₂: Recycling Tire Rubber Crumb* **Meysami M.**, Zhu S., Tzoganakis C.

14:20 1967 *Electrical Conductivity of PEM Fuel Cell Bipolar Plate Thermoplastic Blend* **Yeetsorn R.**, Fowler M., Tzoganakis C.

14:40 1968 *3D Simulations of Polymer Reactive Extrusion* **Ortiz Rodriguez E.**, Tzoganakis C.

15:00 1969 *CO₂-Induced Crystallization of Isotactic Polypropylene near Its Melting Temperature* **Liu T.**, Zhao L., Zhu X.

15:20 1970 *Constitutive Equations of Entangled Linear Polymers* **Shindo M.**, Koga J., Homma S.

15:40 End of Session

Polymer Microstructural Characterization and Fractionation

OT6

514a

Polymer Microstructural Characterization and Fractionation

Organizer(s) - Prof. J. Soares (Canada)

14:00 1971 *Preparation and Characterization of a Lamotrigine Imprinted Polymer and its Application for Drug Assay in Human Serum* **Mohajeri SA.**, Ebrahimi SA

14:20 1972 *Geometric Parameters Responsible for Hindrance to Diffusion in Porous Media* **Kamaludeen M.**, Doan H., Matchett A.

14:40 1973 *Effects of High Salinity and Temperature on Dilute Solution Viscosity of High Molecular Weight, Partially Hydrolyzed Polyacrylamide* **Ramazani S.A. A.**, **Nourania M.**, Emadi M.A

15:00 1974 *Modelling of a Counter-Current Gas-Solid Moving Bed Reactor for Reduction of Ilmenite Ore* **Sai P.S. T.**, Choudhary Y.K.

15:20 End of Session

Process Control and Optimization

PCO5 **518c**

Process Control and Optimization 5

Organizer(s) - Amos Ben-Zvi (Canada) and Carl Duchesne (Canada)

14:00 1975 *Constrained Bayesian State Estimation Based on Particle Filter Approach* **Shao X.G.**, **Huang B.**, Lee J.M.

14:20 1976 *Robust Identification of Piecewise Autoregressive eXogenous Systems Using EM Algorithm* **Jin X.**, **Huang B.**

14:40 1977 *Parameter Estimability and Model Re-Parameterization for a Bio-Reactor System* **Surisetty K.**, De la Hoz Siegler H., **Ben-Zvi A.**

15:00 1978 *Ranking Parameter Estimability using Mean Squared Error* **McAuley K.B.**, Wu S., Harris T.J.

15:20 1979 *Investigation of Steady and Unsteady Thermal Regimes to Monitor Fouling in Industrial Processes* **Crattelet J.**, Auret L., Debreyne P., Esteve D., **Filladeau L.**

15:40 1980 *Oscillatory Control Loops: The Lost Economic Benefits. Can Anything be Done?* Karra S., **Karim M.N.**

16:00 End of Session

PCO6 **518c**

Process Control and Optimization 6

Organizer(s) - Amos Ben-Zvi (Canada) and Carl Duchesne (Canada)

16:10 1981 *Modeling and Optimization of a Multi-Stage Steam Turbine* **Marshman D.**, Gopaluni R.B., Chmelyk T., Sidhu M., Dumont G.A.

16:30 1982 *Real-time Global Optimization of constrained Nonlinear Systems using Multiple Unit Optimization Scheme* **Esmailzadeh Azar F.**, Perrier M., Srinivasan B.

16:50 1983 *Optimization of Auto-Production Using Industrial Unit* **Agha M.H.**, **Thery R.**, **Hetreux G.**, **Le Lann J.M.**, **Hait A.**

17:10 1984 *Shaping Probability Density Functions Using a Switching Controller* **Pigeon B.**, Srinivasan B., Perrier M.

17:30 End of Session

Process Design

PD8 **513b**

Process Design 8

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

14:00 1985 *Modeling of the Supported Ionic Liquid Phase (SILP) Catalysis* **Buchele A.**, Haumann M., Wasserscheid P., Arlt W.

14:20 1986 *Effect of Baffle Geometry on Residence Time Distribution of Mesoscale Oscillatory Baffled Reactors* **Phan A.N.**, **Harvey A.P.**

14:40 1987 *Control Study of an Extractive Distillation Column* **Gil I.D.**, **Rodríguez G.**

15:00 1988 *Applying a Systematic Retrofit Method to Optimize Chemical Batch Processes* **Bumann A.A.**, Papadokonstantakis S., Fischer U., Hungerbühler K.

15:20 1989 *The Fractal Nature of Crude Oil Price Variation* **Gerogiorgis D.I.**

15:40 1990 *Strategic Planning of Hydrogen Supply Chains under Uncertainty* **Sabio N.**, **Gadalla M.**, **Jiménez L.**, **Guillén-Gosálbez G.**

16:00 End of Session

Rheology in Chemical Processing & Chemical Product Design

RHE2 **513f**

Rheology in Chemical Processing & Chemical Product Design 2

Organizer(s) - Prof. C. Gallegos (Spain), Dr. A. Ajji (Canada)

14:00 Keynote Lecture

14:00 1991 *Understanding Deformation, Break-up and Coalescence of Droplets in Bulk Flow and Confined Flow* **Cardinaels R.**, **Chen D.**, **Vanarooye A.**, **Van Puyvelde P.**, **Moldenaers P.**

14:40 1992 *Complexation and Rheology of Lipid and Polymer* **Chieng Y.Y.**, **Chen S.B.**

15:00 1993 *Morphology Evolution in Thermoplastic Olefin Blends under Shear Flow* **Maani A.**, Heuzey M.C., Carreau P.J.

15:20 1994 *Elongational Properties of Blends of Linear and Long Chain Branched Polypropylene* **Tabatabaei S.H.**, Carreau P.J., Ajji A.

15:40 End of Session

RHE3 **513f**

Rheology in Chemical Processing & Chemical Product Design 3

Organizer(s) - Prof. C. Gallegos (Spain), Dr. A. Ajji (Canada)

16:10 1995 *Rheological Properties of Novel Oil Displacing Agents* **Wu S.**, **Shao Z.**, **Han P.**, **Li C.**, **Yang L.** **PAPER WITHDRAWN**

16:30 1996 *Rheology of Semi-Flexible Fiber Suspensions under Large Amplitude Oscillatory Shearing* **Keshtkar M.**, **Heuzey M-C.**, **Carreau P.J.**

16:50 1997 *Development of New Bituminous Binders Modified with MDI-Functionalized Reactive Polymers* **Carrera V.**, **García-Morales M.**, **Partal P.**, **Navarro F.J.**, **Gallegos C.**

17:10 1998 *Rheological Properties of Chitosan Blend Solutions: Evaluating their Electropinnability* **Pakravan Lonbani M.**, **Ajji A.**, **Heuzey M-C.**

17:30 1999 *New Detection of Mechanical Instabilities in the Extrusion of Polymer Melts* **Naue I. F. C.**, **Filipe S.**, **Wilhelm M.**

17:50 End of Session

Scale-down and High Throughput Systems

SDHS2 **514c**

Scale-down and High Throughput Systems 2

Organizer(s) - Prof. M. Jolicoeur (Canada), Dr. R. Kiss (USA)

14:00 2000 *High Throughput Systems for Cell Culture* **Harms P.**

14:20 2001 *Application of High-throughput Assay Platforms for Measuring Recombinant Protein Concentration During Cell Line Selection and Process Development* **Kshirsagar R.**, **McElearney K.**, **Hu W.**, **Lucero M.**, **Yusuf-Makagiansar H.**, **Chen P.**

14:40 2002 *Perfusion Culture Microchamber Array for High Throughput Cell Assay* **Sugiura S.**, **Hattori K.**, **Kanamori T.**

15:00 2003 *High Throughput Screening Techniques for Rapid Enhanced Selective Separation* **Titchener-Hooker N.J.**, Knevelman C., Davies J.

15:20 2004 *High Throughput Formulation Screening Using Rapid Stress Methods* **Lee A.S.**, Hsiung J., Chou J.H.

15:40 2005 *Photo-Responsive Culture Surface Enables Spatiotemporal Control of Co-Culture Fabrication* **Kikuchi K.**, Sumaru K., Edahiro J., Sugiura S., Takagi T., Kanamori T.

16:00 End of Session

Scale-up: The Key Success to Process Development

SCU2 512h

Scale-Up : The Key success to Process Development 2

Organizer(s) - Dr. J. Worstell (USA), Dr. J. Powell (USA)

14:00 2006 *Scaleup Challenges of Batch and Semi-Batch Emulsion Polymerization Processes* **Ng H.**, Lai J., Cheng C.M., Liebermann G.

14:20 2007 *Piloting of Anionic Polymerization Process in Tetrahydrofuran* **Saban M.**, Matzke G., Liebermann G.

14:40 2008 *Technical Scientific Profile - ZRV Glazes and Ceramic Pigments of Bolivia* **Rejsov Z.R.V.**

15:00 2009 *Special Design Considerations for Pressure Hydrometallurgy Pilot Plants* **Martin P.**

15:20 2010 *Adsorption Modeling as a Troubleshooting, Optimization, and Scouting Tool* **Aldrett S.**

15:40 End of Session

SCU3 512h

Scale-Up : The Key success to Process Development 3

Organizer(s) - Dr. J. Worstell (USA), Dr. J. Powell (USA)

16:10 2011 *A Scalable Process for Lentiviral Vector Production by Transient Transfection* **Ansorge S.**, Durocher Y., Henry O., Kamen A.

16:30 2012 *Simulation of SCWO Process in Transitory State* **Roldan-Calbo D.**, Portela J.R., Martinez de la Ossa E., Jimenez-Espadafor FE.

16:50 2013 *Anomalous Power Draw of In-Line Silversons at Low Flow Rates* **Cooke M.**, **Kowalski A.J.**

17:10 2014 *A Method of Scaling Asphaltene Deposition in a Pipeline* **Eskin D.**, Ratulowski J., Akbarzadeh K., Lindvig T.

17:30 2015 *Using Mass Transfer Coefficients for Scaling-up Semi-batch Reactors* **Worstell J.H.**

17:50 End of Session

Separation Science and Technology

SST8 519b

Separation Science and Technology 8

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

14:00 2016 *Computation of Mass Transfer for Rotating Spiral Microchannel Distillation* **Ortiz-Osorio J.**, MacInnes J.M., Jordan P.J., Priestman G.H., Allen R.W. K

14:20 2017 *Decreasing the Surface Tension of the Liquid Phase in a Partially Aerated Bubble Column: Hold Up and Volumetric Mass Transfer Coefficient Variation* **Cachaza E. M.**, Diaz M. E., **Montes F. J.**, Galán M. A.

14:40 2018 *Determination of Intraparticle Diffusivity and Fluid-to-Solid Mass Transfer Coefficient* **Fujiki J.**, Furuya E.

15:00 2019 *Individual Residence Time Distribution Curve of Traditional Oil-Water Separator: Effect of Water Level* **Behin J.**, Akhavan Malayeri N.

15:20 2020 *Mechanisms of Re-entrainment in Liquid-Liquid Gravity Settler* **Muller S.**

15:40 2021 *Thermodynamics of Volatile Organic Compounds in PDMS by Simple Modified Headspace Method* **Muzenda E.**, Belaid M., Arrowsmith A.

16:00 End of Session

SST9 519b

Separation Science and Technology 9

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

16:10 2022 *ANN Modelling of C3H8 Separation from CH4 & H2 using PDMS Membrane* **Shokrian M.**

16:30 2023 *Process Optimization in Tubular Bowl Centrifuges* **Spelter L. E.**, Nirschl Prof. Dr.

16:50 2024 *On-Line Monitoring and Controlling Supersaturation Using ATR-FTIR Spectroscopy in an Industrial Crystalliser* **Mahmud T.**, Khan S., Penchev R.Y., Roberts K.J., Morris J., Ozkan L., Grieve B., Hall A., Gibson N., Donnelly A., White G., Price C.J.

17:10 2025 *Selective Zinc Separation from Passivating Baths using Membrane Contactors* **Mediavilla R.**, Ortiz I., **Urriaga A.M.**

17:30 2026 *On-line Monitor of Seeded Nucleation Using FBRM* **Sun Y.**, Song X.

17:50 End of Session

Teaching Green Engineering

TGE2 512a

Teaching Green Engineering 2

Organizer(s) - Prof. G. Yablonsky (USA), Prof. A. Azapagic (UK)

14:00 Keynote Lecture

14:00 2027 *Integrating Sustainable Development into Chemical Engineering Curriculum: Enquiry-Based Learning* **Azapagic A.**

14:40 2028 *The Design of Green Catalytic Processes - Expanding the Educational Toolbox Using Ionic Liquid Technology* **Goodrich P.**, **Hardacre C.**, Paun C., Pârvulescu VI

15:00 2029 *A Bioethanol Production Experiment for Undergraduate Students* **Henriques A.B.**, McCarthy R., **Al-Dahhan M.**, Karim K.

15:20 2030 *Changing Roles of Operators* **Nimmo I**

15:40 2031 *A Microbial Fuel Cell Laboratory for Freshmen Undergraduate Students* **Rosenbaum M.**, **Angenent L.T.**

16:00 End of Session

Upgrading of Heavy Oil by New Technologies

UHO3 513a

Upgrading of Heavy Oil by New Technologies 3

Organizer(s) - Dr. K. Inamura, Dr. Y. Sugimoto, Dr. R. Tanaka, R. Pugmire, C. Fairbridge, Prof. M. Gray

14:00 Keynote Lecture

14:00 2032 *Upgrading of Heavy Crude Oils: The Mexican Experience* **Ancheyta J.**, Cano J.L.

14:40 2033 *Hydrocracking of Athabasca Bitumen-Derived Heavy Gas Oils* **Yui S.**, Dodge T.

15:00 2034 *Asphaltene Aggregation and its Impact on Coking Reactivities* **Tanaka R.**

15:20 2035 *Investigation on the Fouling Mechanisms of Cracked Gas* **Fan Z.**, Rahimi P., Alem T., Eisenhower A.

15:40 2036 *Reactivity Study of SARA Fractions under Deep Hydroconversion Conditions* **Danial-Fortain P.**, Gauthier T., Merdrignac I., Budzinski H.

16:00 End of Session

Water Production and Wastewater Treatment - Technologies, Advances and Issues

WWT8**516a**

Water Production and Wastewater Treatment 8

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

14:00 2037 *Kinetics of Ozonation of MTBE in the Presence of Perfluorooctyl Alumina Catalyst* **Ebadi A.**, Soltan J., Shafiei S.

14:20 2038 *Photocatalytic Reactor Efficiency Factors for the Complete Span of Reaction Times* **Moreira del Rio J.**, Ortiz-Gomez A., **Serrano Rosales B.**, de Lasa H.

14:40 2039 *Mechanism and Kinetics of the CWHPO of Phenol at Soft Conditions* **Castro I.U.**, Stüber F., Font J., Fabregat A., Fortuny A., Bengoa C.

15:00 2040 *Catalytic Wet Oxidation of Phenolic Pollutants Present in Industrial Wastewaters* **Laca A.**, Quero D., Collado S., **Diaz M.**

15:20 2041 *Statistical Model for Photocatalysis of p-Cresol with Titanium Dioxide Nano-particles* **Ray S.**, Lalman J. A., Biswas N.

15:40 2042 *Detoxification of Phenolic Solutions with a Novel Cu-Chitosan/Al₂O₃ Catalyst* **Inchaurredo N.**, Cechini J., Font J., **Haure P.**

16:00 End of Session

WWT9**516a**

Water Production and Wastewater Treatment 9

Organizer(s) - Prof. R. Sheikholeslami, Dr. B. Antizar-Ladislao

16:10 2043 *Using Green Processing to Remove Arsenic from Drinking Water* **Fox D.I.**, Pichler T., Yeh D.H., Alcantar N.A.

16:30 2044 *Characteristics of Equilibrium Study for Adsorption of Nitrates by a Resin* **Chabani M.**, **Amrane A.**, Bensmaili A.

16:50 2045 *Microbial Community Analysis During Phenol Shock Loadings by PCR-DGGE* **Pinhati F.R.**, del Aguila E.M., Torres A.P. R., Viero A.F., Santiago V.M. J., Silva J.T., **Paschoalin V.M. F**

17:10 2046 *Anaerobic Treatment of an Aqueous Wastewater from the Process of Enhanced Oil Recovery* **Mahmood M.A.**, Catherine C.M.

17:30 2047 *The Adsorption of Dyes on Waste Tyre Derived Activated Carbon* **Chan O.S.**, Wong C.Y., McKay G

17:50 End of Session

Topical Conference - GLS 9

GLS3A**513c**

Non-Conventional Reactor Configurations

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

14:00 2048 *Absorption of Carbon Dioxide into Piperazine Activated Aqueous N-Methyl-diethanolamine* **Samanta A.**, **Bandyopadhyay S. S.PAPER WITHDRAWN**

14:20 2049 *Environmentally Friendly Catalytic Starch Oxidation by Hydrogen Peroxide* **Tolvanen P.**, Mäki-Arvela P., Sorokin A. B., Salmi T., Murzin D. Yu.

14:40 2050 *Advances in Membrane Slurry Reactors for Heterogeneous Catalytic Reactions* **Sanchez E.**, Klaassen R., Verdoes D., Goetheer E.L.V.

15:00 2051 *Influence of Doping Ta and Nb Metals on the Solar Photocatalytic Activity of S-Doped TiO₂* **Znad H.**, Sakiyama Y., Fukuda R., Kawase Y.

15:20 2052 *Investigation on Asphaltene Deposition onto Different Surfaces of Ultradispersed Catalysts* **Nassar N.N.**, Al-Jabari M.E., Husein M. M.

15:40 2053 *Effect of Process Parameters and Si/Al Ratio of HZSM-5 Zeolite on Propene Oligomerization* **Shirazi L.**, Ghasemi M., Jamshidi E.

16:00 Break

16:10 2054 *Tailored Synthesis of Precipitated Magnesium Carbonates as Carbon-Neutral Filler Materials* **Park A.-H. A.**, Zhao H., Dadap N., Lee D. H.

16:30 2055 *Performance Test of Pilot Scale Supercritical Fluid Extractor: Extracting Gallic Acid from *Jatropha Curcus* Linn. Leaves* **Manpong P.**, Douglas S., Douglas P.L., Pongamphai S., Teppaitoon W.

16:50 End of Session

GLS3B**513d**

Bioprocesses

Organizer(s) - Prof. M. Al-Dahhan (USA), Dr. S. Kumar (USA), F. Luck (France)

14:00 2056 *Experimental Study of New 3-Phase System, The Immobilized Solids Bioreactor* **Karamanev D.**, Marin R., Margaritis A.

14:20 2057 *Influence of Medium Composition on Oxygen Transfer in Cell Culture* **Toye D.**, Galifi A., Salmon T., Marchot P., Verdin E., Crine M.

14:40 2058 *Integrated Process for Hydrophobic VOC Treatment* **Darracq G.**, Couvert A., Couriol C., **Amrane A.**, Le Cloirec P.

15:00 2059 *Gas-Liquid Remediation of POS-Biological Treated Milk Whey Wastewater by Ozone* **Martins R.C.**, Quinta-Ferreira R.M.

15:20 2060 *Experimental Study of Oxygen Diffusion Coefficient in Multi-Compound Liquid Solution* **Jamnongwong M.**, Hebrard G.

15:40 2061 *VOC Removal Using Compact Scrubbing and Regeneration by Advanced Oxidation* **Biard P.-F.**, Couvert A., Renner C., Levasseur J.-P.

16:00 Break

16:10 2062 *On Gas-Liquid Reactor Design for Accurate Ozonation Rate Constants Determination* **Navarro-Laboulais J.**, Cardona S.C., Abad A., López F.

16:30 End of Session

Topical Conference - 4th IADC2009

IADC3**524a**

Industrial Processes and Equipment

Organizer(s) - Dr. M. Benali (Canada), Dr. T. Kudra (Canada), Prof. R. Legros (Canada)

14:00 2063 *Practical Low-Cost Measures to Reduce Dryer Energy Consumption* **Baker C.G.J.**

14:20 2064 *Mass Transfer and Texture Variation During Osmotic Dehydration of Pears* Ferrari C.C., Arballo J.R., **Mascheroni R.H.**

14:40 2065 *Modeling and Experimental Verification of a Novel Biodrying Process for Drying Pulp and Paper Sludge* **Navae-Ardeh S.**, Bertrand F., **Stuart P.R.**

15:00 2066 *Fish Protein Atmospheric Freeze and Evaporation Drying* **Alves-Filho O.**, Eikevik M., Goncharova-Alves S.

15:20 2067 *Seed Drying in Fluidised and Spouted Bed Dryers* **Szrednicki G.**, Jittanit W., Driscoll R.

15:40 2068 *Improvements of Compact and Split High-Temperature Drying Heat Pumps* **Minea V.**

16:00 End of Session

16:10 2069 *Three-Dimensional Imaging for Density and Porosity Evaluation* **Martynenko A.**

16:30 2070 *Soybean Drying Characteristics in a Microwave Rotary Dryer with Forced Convection* Wang R.F., **Li Z.Y.**, Li Y.H., Ye J.S. **PAPER WITHDRAWN**

16:50 2071 *Paperboard Core Drying: Mechanisms, Modeling and Simulation Results* **Hashemi S.J.**, Gomes V.G., Bond J.F., **Douglas W.J. Murra**

17:10 2072 *Thin-Layer Drying of Spent Solution from Beet-Derived Yeast Plant on Carriers* **Ye J.S.**, Luo Q.J., **Li Z.Y.**, Song J.T. **PAPER WITHDRAWN**

17:30 End of Session

Topical Conference - OILSANDS 2009

OS3

520e

Nanotechnology in Oil Sands Processing

Organizer(s) - Prof. Z. Xu (Canada), Prof. I. Gates (Canada) and Dr. J. Czarniecki (Canada)

14:00 2073 *Scale Up Study of Diesel Oil Biodegradation in a Baffled Roller Bioreactor* **Nikakhtari H.**, Kumar P., Nemati M., Hill G.A.

14:20 2074 *Flocculation Kinetics and Aggregate Structure of Oil Sands Fine Tailings* **Vaezi G F.**, Sanders R.S., Masliyah J.

14:40 2075 *Study of Aromatic Liquid/Inorganic Interfaces by Molecular Simulation* **Choi P.Y.K.**, **Ni X.**

15:00 2076 *A Biodegradable Polymer for Demulsification of Water-in-Bitumen Emulsions* **Feng X.**, Mussone P., Gao S., Wang S., Masliyah J., **Xu Z**

15:20 2077 *Aggregation of Asphaltenes in Toluene-Water Mixtures Molecular Dynamics Simulations* **Bhattacharjee S.**, Kuznicki T., Masliyah J.

15:40 2078 *Interfacial Behavior of Bitumen, Asphaltene and Maltene Monolayers at the Air-Water Interface: Variation of the Volume of Spreading Solution* Alvarez L., **Diaz M. E.**, Montes F. J., Galan M. A.

16:00 Break

16:10 2079 *EH2A Cogeneration with Nuclear Power Plant to Sustain Fuel Production from Oil Sands Bitumen* **Wang H.**, Chuang K.T.

16:30 2080 *Small Scale SO₃-Sulfonation of Methyl Esters* **Torres J. A.**, Sanchez F. J.

16:50 End of Session

Process Safety Management

PSMG

512c

Process Safety Management - General process safety symposium

Organizer(s) - G. Creedy (Canada), J.P. Lacoursiere (Canada)

13:00 End of Session

14:00 2081 *Investigation of Real Cases as a Way to Teach Risk Analysis* **Casal J.**, Darbra R.M., Vilchez J.A.

14:30 2082 *The AICHE ChemE Car Safety Program* **Crowl D.A.**

15:00 Panel Discussion: Initiatives to stimulate and share the development of material to teach process safety.

15:30 2083 *Control of Major Accident Hazards in Canada* O'Neill S., DeJong K., Ang R., Green N., Holland A., **Mody D.**

16:00 2084 *Managing Equipment Deterioration in Operating of Aged Assets* **Henry N.S.**

16:30 2085 *Integrated Safety and Control for Process Safety Management* **Ramirez E.C.**

17:00 2086 *Safety and Security Aspects of LNG Storage Facilities* **Bernatik A.**, Senovsky M., Senovsky P.

17:30 End of Session

Thursday AM

Plenary Lectures

PLE5

Plenaries 11, 12, 13

Organizer(s) - Prof. Philippe Tanguy

08:00 2087 *Plenary Lecture 11* **Ying J.Y.**

08:40 2088 *Plenary Lecture 12* **Saltzman M.**

09:20 2089 *Plenary Lecture 13* **Fogler H. S.**

10:00 End of Session

Bioproducts, Bioreactors and Bioprocesses

BBB10

519a

Bioproducts, Bioreactors and Bioprocesses 10

Organizer(s) - Dr. A. Margaritis (Canada)

10:30 Keynote Lecture

10:30 2090 *Bioprospection Approach for Bioremediation in Colombia: Evaluation of a Cr (VI) Biosorption Process Using a Native Bacillus Sphaericus Strain* **Florez N.A.**, Dussan J., **Gonzalez Barrios A.F.**

11:10 2091 *Methane Production Potential from Snacks Manufacturing Industry Wastewater* **Moreno-Andrade I.**, **Buitron G.**, Moreno G.

11:30 2092 *Effect of Soluble Metabolites on Fermentative Hydrogen Production using a Mixed Culture* **Baghchehsaraee B.**, Nakhla G., Karamanev D., **Margaritis A.**

11:50 2093 *Biologically Enhanced Adsorption for Treating Dye Containing Effluents* Ip A.W. M., **Barford J.P.**, McKay G.

12:10 2094 *Continuous Enzymatic Ring Opening Polymerization of Lactones*
 Faucher S., Wosnick J.

12:30 End of Session

Chemical Engineering & Society

PAPM 512a

Promoting academic and professional mobility - International recognition of chemical engineering qualifications

Organizer(s) - Sebastiao Feyo de Azevedo (Portugal)

10:30 Keynote Lecture

10:30 2095 *The Bologna Process Reforms and Recognition of Chemical Engineering Qualifications* Feyo de Azevedo S.

11:10 2096 *The Bologna Process and its Impact on Chemical Engineering Education* Hamersma P.J.

11:30 2097 *Chemical Engineering Qualifications and Student Mobility - The Asia-Pacific View* Shallcross D.C.

11:50 2098 *Engineering Qualification Development and Accreditation: The South African Experience* Ramsuroop S.

12:10 2099 *Meeting Future Needs in Chemical Engineering - Industrial View Point* Feise H.J., Strohrmann M.

12:30 2100 *Chemical Engineering Mobility Tools* Gagneur S

12:50 End of Session

Emulsion and Emulsification

EE3 516e

Emulsion and Emulsification 3

Organizer(s) - Prof. L. Choplin (France), Prof. J-L. Salager (Venezuela), Dr. M-E. Saint-Victor (USA)

10:30 2101 *Effect of Physicochemical Formulation and Composition on Gel Emulsions Rheological Behaviour* Paruta E., Sadtler V., Marchal P., Choplin L., Marfisi S., Salager J.L.

10:50 2102 *The Influence of Interfacial Viscoelasticity on Droplet Deformation in Microchannels* Zhao 1 C., Rondeau 2 E., Miller 2 E., Cooper-White 2 J., Dexter 1 A., Middelberg 1 A.

11:10 2103 *Interfacial Rheology and its Relation to Foam and Emulsion Stability* Langevin D., Georgieva D., Cagna A., Schmitt V., Leal-Calderon F.

11:30 2104 *Development of Thermodynamic Correlations to Predict Microemulsion Morphology and Viscosity* Kiran S.K., Acosta E.J.

11:50 2105 *Novel Microchannel Emulsification Technology for Monodisperse Emulsions* Nakajima M., Neves M. A., Kobayashi I.

12:10 End of Session

Fuel Cells and Hydrogen Production

FCHP1 518b

Fuel Cells and Hydrogen Production 1

Organizer(s) - Prof. Z. Chen (Canada), Prof. O. Savadogo (Canada)

10:30 2106 *Composite Membranes for Direct Methanol Fuel Cell Application* Mokrani T., Linkov V.

10:50 2107 *Novel Non-Precious Metal Methanol-Resistant Cathode Catalyst for Methanol Fuel Cells* Chen Z., Yan Y.

11:10 2108 *Biofuel Cell Electrode with Polyaniline/Carboxylated Dextran-Gold Hybrid Nanomaterials* Lee S., Choi B., Tsutsumi A.

11:30 2109 *Molecular Simulation Studies of Materials for Solar Energy Applications* English N.J.

11:50 2110 *Multi-Scale Models for Sulfur Poisoning in SOFC Anodes* Monder D., Karan K.

12:10 2111 *Characterization of Ni/MH Positive Electrode for Fuel Cell/Battery System* Choi B., Lee S., Fushimi C., Tsutsumi A.

12:30 End of Session

Industrial Program

ESM 512g

Energy & Sustainable Manufacturing

Organizer(s) - Prof. G. Patience

10:30 2112 *Mathematical Modeling of Gas Phase Olefin Polymerization : A Review* Shamiri A.

11:00 2113 *Berri Gas Plant Mercury Removal Unit (MRU) Bed Replacement and Operation Experience* Baageel O.M.

11:30 End of Session

Micro Process Technology

MPT5 512g

Micro Process Technology 5

Organizer(s) - Dr. C. deBellefon (France), Dr. V. Hessel (Germany), Dr. J. Lerou (USA)

10:30 2114 *Liquid Film Evaporation in Capillary Tubes Containing Inert Gas* Debaste F., Colinet P.

10:50 2115 *The Characterisation of Micro Dynamical Mixing Through Liquid Multiphase Reaction* Ogura T., Ohta T., Takahashi Y., Mae K.

11:10 2116 *Capillary-Based Microsystems for the Production of Size and Morphology Controlled Polymer Particles* Serra C., Hébraud A., Chang Z., Bouqey M., Prat L., Hadziioannou G.

11:30 2117 *Microchannel Reactor for the Production of Vinyl Acetate Monomer* Jarosch K., Fitzgerald S.P., LaPlante T., Tonkovich A.L., Mazanec T.

11:50 End of Session

Mixing in Industrial Processes

MIX8 520f

Mixing in Industrial Processes 8

Organizer(s) - Prof. S. Kresta (Canada), Prof. J. Derksen (Canada), Dr. S. Jaffer (USA)

10:30 Keynote Lecture

10:30 2118 *Solid-Liquid Suspensions in Unbaffled Tanks* Brucato A., Cipollina A., Grisafi F., Micale G., Scargiali F., Tamburini A.

11:10 2119 *Agitator Design for Hindered Settling Slurries* Kehn R.O.

11:30 2120 *Mixed Slurry Behaviour in Stirred Tanks with High Solid Loadings* Ayranci I., Derksen J., Kresta S.M.

11:50 2121 *Energy Efficient High Solids Loading Agitation for the Mineral Industry* Wu J.

12:10 2122 *Solid Suspension Performance with Maxblend Impeller* Takenaka K., Horiguchi H., Morinaga S., Yatomi R., Tanguy P.

12:30 2123 *Carbopol as a Model Fluid for Studying Pulp Suspension Mixing* **Gomez C.**, Derakhshandeh B., Hatzikiriakos S.G., Bennington C.P.J.

12:50 End of Session

Multi Scale Structures

MSS4

515b

Multi Scale Structures 4

Organizer(s) - Prof. J. Li (China), Prof. J. R. Grace (Canada)

10:30 Keynote Lecture

10:30 2124 *Among the Trends for a Modern Chemical Engineering: The Time and Length Multiscale Approach as an Efficient Tool for Process Intensification and Product Design and Engineering* **Charpentier J.-C.**, Falk L.

11:10 2125 *Multi-scale Structured Fixed Bed Catalytic Reactor for Gas to Liquid Conversion* **Liu W.**

11:30 2126 *Gas-Liquid Flow in a Multi-Channel Microreactor with Multi-Scale Constructal Distributors* **Yue J.**, Chen G., Yuan Q., Luo L., Gonthier Y. **PAPER WITHDRAWN**

11:50 2127 *Constructal Optimization of Arborescent Structures with Flow Singularities* **Tondeur D.**, Fan Y., **Luo L.**

12:10 2128 *A Micromechanical Interpretation of the Compaction of Binary Powder Mixtures* **Adams M.J.**, Yap S-F., Seville J.P.K., **Zhang Z.**

12:30 2129 *Multi-Scale Correlations in Mechanical Properties of Solid Catalysts* **Li Y.**, Wu D.

12:50 End of Session

Nanotechnology

NAN10

518a

Nanotechnology 10

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

10:30 Keynote Lecture

10:30 2130 *Design on Nanostructured Polymers with Sub-1-nm Pores for Molecular Size Separations and Ion Transport* **Gin D. L.**, Hatakeyama E. S., Zhou M., Lu X., Kerr R. L., Noble R. D., Elliott B. J.

11:10 2131 *Synthesis and Characterization of Nanostructured Membranes $Ce_{(x)}Pr_{(1-x)}O_2$ - AND $Ce_{(x)}Nd_{(1-x)}O_2$* **Souza C.P.**, Lopes F.W.B., Silva G.C., Macedo H.P., Sousa J.F.

11:30 2132 *Mechanisms and Experimental Results of Pervaporation using Nanopore Hydroxysodalite Zeolite Membranes* **Kazemimoghadam**

11:50 2133 *Chloroform Removal from Water Using Carbonized Electro-Spun Nano-Fiber Membranes* **Singh G.**, **Rana D.**, **Matsuura T.**, Narbaiz R.M., Tabe S.

12:10 2134 *Coiled Carbon Nanotube Synthesis Using pH-Controlled Co/Al₂O₃ Catalysts* **Liu J.**, **Hanus M.J.**, **Harris A.T.**

12:30 2135 *Applying Cobalt Nanoparticles Hosted in Zeolited Fly Ash as a Catalyst of the Fischer-Tropsch Synthesis* **Fotovat F.**, Kazemini M., Kazemian H.

12:50 End of Session

Particle Technology and its Applications

PT10

524b

Particle Technology and its Applications 10

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

10:30 Keynote Lecture

10:30 2136 *Crystallization Research in the Chemical and Pharmaceutical Industries* **Rohani S.**

11:10 2137 *Evaluation of Sieving for Seed Production for Crystallisation Recipe Design* **Simon L.L.**, Elias Y., Nagy Z.K., Hungerbuehler K.

11:30 2138 *Wall Temperature Effect and Scale-Up on Cooling Crystallization* **Al-Marri M.**, Mahmud T., Roberts K J

11:50 2139 *A Novel High temperature Synthesis of SAPO-34 Molecular Sieves* **Dargahi M.**, Soltanieh M., Kazemian H., Hosseinpour M.

12:10 2140 *Synthesis of Calcium Phosphate Hydrogel from Fly-Ash and Bone-Powder* **Fukui K.**, Arimitsu N., Jikihara K., Yamamoto T., Yoshida H.

12:30 2141 *Laser Optical Analysis of Particle Formation in the Supercritical Antisolvent Process* **Dowy S.**, Reinhold-Lopez K., Braeuer A., Leipertz A.

12:50 End of Session

Pharmaceutical Engineering in the 21st Century

PHRM2

517a

Pharmaceutical Engineering in the 21st Century 2

Organizer(s) - Prof. V. Venkatasubramanian (USA), Prof. P. York (UK), Dr. H. Havel (USA)

10:30 2142 *PAT-QbD Implementation Roadmap* **Conde C.**

10:50 2143 *Process Analytical Technologies for Process Understanding, QbD and Real-Time Release* **Morris A.J.**, **Chen Z.P.**

11:10 2144 *PAT and the Quest to Real Time Release* **Kourti T.**

11:30 2145 *Clinically Relevant Manufacturing Processes* **Anderson C.A.**

11:50 2146 *Developing the Link Between Sensors and Material Properties* **Ropero J.**, Jerez Roza J.I., Romanach R.J., Beach L., Dave R.N.

12:10 2147 *Pharmaceutical Process Analysis Technologies: Residence Time Distribution of Flowing Powder Mixtures* **Abatzoglou N.**

12:30 Panel Discussion

12:50 End of Session

Process Control and Optimization

PCO7

518c

Process Control and Optimization 7

Organizer(s) - Amos Ben-Zvi (Canada) and Carl Duchesne (Canada)

10:30 2148 *Simulations Based on Sparse Data Sets by Means of Automated Parameters Optimization* **Nathan J.**, Wurgler S., **Fradette L.**, **Paris J.**

10:50 2149 *A Computer-Aided Unified Approach for CO₂ Mitigation with Case Studies* **Ba-Shammakh M.S.**, Elkamel A.

11:10 2150 *Process Simulator Based Control Design for a Fluid Catalytic Cracking Unit* **Alsabei R.**, Nagy Z., Nassehi V.

11:30 2151 *Cost Effective Strategies for SO₂ Reduction in Cement Industry* **Ba-Shammakh M.S.**

11:50 2152 MONTE CARLO SIMULATION FOR FLUIDISED BED GRANULATION ^{*}Catak M., Bas N., Medina D., Pathare P. B., Cronin K., Byrne E.P., Fitzpatrick J.J.

12:10 2153 Preventing Batch Failures via Scale Down Simulation of Exothermic Reactions in the Lab **Schellekens L.**

12:30 End of Session

Process Design

PD9

513b

Process Design 9

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

10:30 2154 Compartmental Modelling of an Industrial Bubble Column ^{*}Wylock C., Larcy A., Cartage T., Haut B.

10:50 2155 Taylor Vortices and Optimal UV Doses in Disinfection System **Mahmoud H.**, ^{*}Ray A.K.

11:10 2156 Supported Ionic Liquid Phase (SILP) Catalysts Advanced Materials for Process Intensification and Improved Screening in Homogeneous Catalysis ^{*}Hauermann M., Jakuttis M., Werner S., Wasserscheid P.

11:30 2157 High Purity Lactide for PLA **Petryschuk A.N.**, ^{*}Stepanski M.

11:50 2158 Step A Simulation Tool for Enzymatic Reaction Processes **Leipold M.**, Fieg G.

12:10 2159 Mathematical Modeling of Lidocaine Release from Nanosized PLGA Biodegradable Spheres **Loney N.W.**, Susarla R.

12:30 End of Session

Rheology in Chemical Processing & Chemical Product Design

RHE4

513f

Rheology in Chemical Processing & Chemical Product Design 4

Organizer(s) - Prof. C. Gallegos (Spain), Dr. A. Ajji (Canada)

10:30 Keynote Lecture

10:30 2160 Rheology in Chemical Processing and Chemical Product Design **Windhab E. J.**

11:10 2161 Structure and Product Performance of Tubular and AutoClave LDPE ^{*}Vittorias I., Ahirwal D., Mannebach G., Lilge D.

11:30 2162 Comparison of Sensory Qualities of Ice Cream from Rheological Characterization ^{*}Ikh-Omoregbe D.

11:50 2163 Effect of Hydrodynamics on Silica Aggregation Process ^{*}Frances C., Tourbin M., Rey Rouch C., Anne-Archard D.

12:10 2164 A Representative Viscosity of Casson Fluids in a Stirred Vessel ^{*}Kaminoyama M., Nishi K., Misumi R., Otani F.

12:30 2165 In-situ Investigation of the Foamability of Polyolefin Elastomer and PP within a Rheometer **Zhang Y.Z.**, ^{*}Kontopoulou M.K., Park C.B. P, Ye X.Y.

12:50 End of Session

Separation Science and Technology

SST10

519b

Separation Science and Technology 10

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

10:30 Keynote Lecture

10:30 M. Goto - Discharge and Laser Induced Plasma in Supercritical Fluid

11:10 2166 Improving Phase Behaviour Predictions for Applications in Marine Transport of Compressed Natural Gas ^{*}Beronich E. L., Hawboldt K., Abdi M.A.

11:30 2167 Removal of Nanoparticles from Chemical Mechanical Planarization Wastewater Using Coagulation **Carrera E.**

11:50 2168 Magnetic Polymer Composite Particles for Bioseparation Purposes **Hickstein B.**, ^{*}Peuker U.A., Posten C.

12:10 2169 Recovery of Surfactants from Oil in Water Emulsions by Electroflotation ^{*}Biria D., Maghsoudi E., Roostaazad R., Dadafarin H., Mansouri M.

12:30 2170 Aphron Flotation as a Promising Technique for Efficient Purification of Glucoamylase Enzyme **Moshkelani M.**, ^{*}Amiri M.C., Pakravan Lonbani M.

12:50 End of Session

Upgrading of Heavy Oil by New Technologies

UHO4

513a

Upgrading of Heavy Oil by New Technologies 4

Organizer(s) - Dr. K. Inamura, Dr. Y. Sugimoto, Dr. R. Tanaka, R. Pugmire, C. Fairbridge, Prof. M. Gray

10:30 2171 Characterization of VGO by EI and CEI FT-ICR MS ^{*}Miyabayashi K., Tanaka R., Sato E., **Miyake M.**

10:50 2172 Novel Mass Spectrometric Methods for Characterization of Petroleum ^{*}Kentamaa H.I., Duan P., Habicht S., Qian K.

11:10 2173 Solubility of Model Porphyrins and a Model Asphaltene **Dechaine G.P.**, Maham Y., Tan X., ^{*}Gray M.R.

11:30 2174 Addition Reactions and Coke Formation in Asphaltene Model Compounds **Alshareef A.H.**, ^{*}Gray M.R.

11:50 2175 Study of Vapor-Liquid Equilibrium during Hydrotreating of Bitumen Derived Heavy Gas Oils ^{*}Chen J., Munteanu M., Wang N., Farooqi H., Pieczykolan P.

12:10 2176 Thermal Conductivity of Agglomerate Material for Non-Evaporating and Evaporating Conditions **Weber S.C.**, ^{*}Briens C., Berruti F., Gray M.R.

12:30 2177 Flocculation of Silica Particles from a Model Oil Solution ^{*}Zahabi A., Gray M., Dabros T.

12:50 End of Session

Topical Conference - 4th IADC2009

IADC4

524a

Special Drying Technologies

Organizer(s) - Dr. M. Benali (Canada), Dr. T. Kudra (Canada), Prof. R. Legros (Canada)

10:30 2178 The Effect of Heat Treatment on Some Physical Properties of Hornbeam Wood **Gunduz G.**, ^{*}Aydemir D.

10:50 2179 High Temperature Thermal Treatment of Wood Based on Thermowood Technology ^{*}Younsi R., Kocaefe D., Poncsak S., Kocaefe Y.

11:10 2180 An Experimental Study on Drying Times in a Contact Drying of Veneer ^{*}Holmberg H., Lahti P., Paajanen O., Ahtila P.

11:30 2181 Simulation of High Temperature Drying of Wood **Nabhani M.**, Laghdar A., ^{*}Fortin Y.

11:50 2182 *Coffee Husk Drying for Wood Plastic Composite Manufacture* **Pinzón E.**, **Porras G.O.**, **Medina J.**, **Acuña J.**

12:10 2183 *Impact of Thermal Treatment Parameters on the Quality of Jack Pine using Thermowood Process* **Poncsak S.**, **Kocaefer D.**, **Younsi R.**

12:30 2184 *Ultra-Efficient Integrated Drying and Heat Recovery Process* **Shivvers S.**, **Lerew L.**

12:50 End of Session

Process Safety Management

PSMG **512c**

Process Safety Management - General process safety symposium

Organizer(s) - G. Creedy (Canada), J.P. Lacoursiere (Canada)

10:30 Process Safety Management Award Lecture

10:30 2185 *Reflections on Process Safety Management - A Regulator's Perspective* **Shrives J. S.**

11:00 End of Session

11:30 2186 *Improving Process Safety through Consideration of Human Factors During Design* **Widiputri D. I.**, **Löwe K.**, **Löher H.-J.**

12:00 2187 *Human Behavior in Emergency Musters* **Deacon T.**, **Amyotte P.R.**, **Khan F.I.**

12:30 2188 *Process Safety Incident Reduction Through Operator Training Simulators* **Mason J.**, **Alamo J**

Thursday PM

Bioproducts, Bioreactors and Bioprocesses

BBB11 **519a**

Bioproducts, Bioreactors and Bioprocesses 11

Organizer(s) - Dr. A. Margaritis (Canada)

13:40 2189 *Preparation of Indirubin by Biotransformation with Engineered Cytochrome P450 BM-3* **Hu S.**, **Mei L.**, **Yu Q.**, **Fan E.**, **Huang J**

14:00 2190 *Continuous Enzymatic Synthesis in Water/Supercritical Fluids Biphasic Media* **Greiner L.**, **Roosen C.**, **Karmee S.K.**, **Kohlmann C.**, **Leitner W.**, **Ansorge-Schumacher M.B.**, **Mang T.**

14:20 2191 *Biotransformation by Heterogeneous Enzyme Models of Peroxidase/Mesoporous Materials* **Nazari K.**, **Najar-Safari A.**, **Mahmoudi A.**, **Adhami F.**

14:40 2192 *Kinetic Modelling of Decyl Acetate Synthesis by Supercritical Biocatalysts* **Oliveira M.V.**, **Rebocho S.F.**, **Ribeiro A.S.**, **Macedo E.A.**, **Loureiro J.M.**

15:00 2193 *Oxygen Effect in γ -Decalactone Production Through Biotransformation of Ricinoleic Acid* **Gomes N.**, **Teixeira J. A.**, **Belo I.**

15:20 2194 *Peptides Distribution in Neutralized Acid Hydrolysis of Residual Blood Porcin Hemoglobin* **Alvarez C.**, **Rendueles M.**, **Diaz M.**

15:40 End of Session

Chemical Engineering & Society

PAPM **512a**

Promoting academic and professional mobility - International recognition of chemical engineering qualifications

Organizer(s) - Sebastiao Feye de Azevedo (Portugal)

13:40 2195 *Mirror Project, Comparison and Recognition of Chemical Engineering of Chemical Engineering Programmes in Europe and Latin America* **Portugal I.**, **Cruz Pinto J.J.**

14:00 2196 *Chemical Engineering Curriculum Development and International Recognition in Kazakhstan and Russia* **Simons S.J.R.**, **Mikhailovsky S.**, **Kuvshinov G.**, **Yeligbayeva G.**

14:20 2197 *Restructuring of Chemical Engineering Education Program Designed for IT-ET Fusion Technology Workforce Development* **Park C.**, **Lee T.**, **Han D.**

14:40 2198 *Evolution of Chemical Engineering Discipline: Some Different Thoughts* **Pan Q.**, **Zhu X.**, **Rempel G.L.**

15:00 2199 *The Changing Role of the Chemical Engineer in Risk Management* **Carpentier J.**, **Dubeau Y.**

15:20 2200 *Security Risk Assessment Techniques for Process Industries: Current Perspective* **Bajpai S.**, **Gupta J.P.**, **Uddin M.**

15:40 2201 *Chemical Engineering and Sustainability* **Hasna A.M.**

16:00 2202 *Bringing Chemical Engineering Education and Practice Up to Date* **Churchill S. W.**

16:20 End of Session

Emulsion and Emulsification

EE4 **516e**

Emulsion and Emulsification 4

Organizer(s) - Prof. L. Choplin (France), Prof. J-L. Salager (Venezuela), Dr. M-E. Saint-Victor (USA)

13:40 2203 *Mass Transfer in Extraction by Elm with Immobilized Emulsion Phase* **Saha D.**, **Mondal D.**, **Bhowal A.**, **Datta S.**

14:00 2204 *Droplet Generation in Microfluidics to Real Scale Dispersing Operations* **Duxenneuner M.R.**, **Fischer P.**, **Cooper-White J.J.**, **Windhab E.J.**

14:20 2205 *Numerical Investigations of the Flowfield and the Mechanisms of Droplet Deformation and Break-Up in a High Pressure Homogenizer* **Kissling K.**, **Schütz S.**, **Piesche M.**

14:40 2206 *Integrated Process to Transport Heavy Crude Oils as an O/W Emulsion: Recent Advances* **Salager J.L.**

15:00 2207 *Silica Precipitation in Homogeneous Media and in Microemulsion* **Schaer E.**, **Wolf N.**, **Sadtler V.**, **Choplin L.**

15:20 End of Session

Fuel Cells and Hydrogen Production

FCHP2 **518b**

Fuel Cells and Hydrogen Production 2

Organizer(s) - Prof. Z. Chen (Canada), Prof. O. Savadogo (Canada)

13:40 2208 *A New Solvent for the Bunsen Reaction* **Le Person A.**, **Wang H.**, **Chuang K.T.**

14:00 2209 *Techno-Economic Study of Hydrogen Production by High Temperature Electrolysis* **Rivera-Tinoco R.**, **Bouallou C.**

14:20 2210 *Anode Electrode Materials for use in the Cu-Cl Thermochemical Cycle for the Production of Hydrogen* **Ranganathan S.**, **Easton B.**

14:40 2211 *Different Copper-Chlorine Thermochemical Cycles or Hydrogen Production* **Wang Z.L.**, Naterer G., Gabriel K.S., Gravelsins R., Daggupati V.

15:00 2212 *Adsorption of Cyclic Aliphatic and Aromatic Hydrocarbon on Activated Carbon in Hydrogen Flow and its Application for Hydrogen Storage Medium in Fuel Cell* **Tsuji T.**, Nakazato T., Hiaki T., Itoh N.

15:20 2213 *First-Principles Calculations to Unravel the Chemistry of Palladium Doped Pitch-Based Activated Carbon Fibers* **Mushrif S.H.**, Rey A.D., Peshherbe G.H.

15:40 End of Session

Multi Scale Structures

MSS5

515b

Multi Scale Structures 5

Organizer(s) - Prof. J. Li (China), Prof. J. R. Grace (Canada)

13:40 2214 *Multiscale Characterization of Integrated Product and Process Systems* Xiao J., **Huang Y.L.**

14:00 2215 *A Multi-scale Model for Preparation of Porous Super Carbon from Coal/Potassium Hydroxide Reaction* **Liu W.**

14:20 2216 *Spinodal Decomposition in Temperature-Induced Phase Separation of Incompressible Polymer Solutions* **Ghiass M.**, Rey A. D.

14:40 2217 *Phase Separation of Compressible Polymer Solutions* **Ghiass M.**, Rasouli G., Rey A.

15:20 2218 *Titanium Dioxide Nanostructures: Controlled Synthesis and their Applications in Dye-sensitized Solar Cells* **Gu**, Shao, Li

15:40 2219 *Synthesis of Polypyrrole/titanate Core-shell Nanorods and their Electrorheological Behavior* Cheng Q., **Li C.**, He Y., Pavlinek V.

16:00 2220 *Recognition of Solvent Mediated Polymorphism in 2,6-Dihydroxybenzoic Acid from Toluene and Chloroform Supersaturated Solutions* Adam F., Hammond R.B., Roberts K.J., **Pencheva K.**

16:20 2221 *Synthesis of Mesoporous Silica Xerogel with Different Surface Area and its Responses on Osteoblast* **Zhou H.**, Wu X., Liu C., Zhao Q.

16:40 End of Session

Nanotechnology

NAN11

518a

Nanotechnology 11

Organizer(s) - Prof. N. Abbott (USA), Prof. M. Tam (Canada)

13:40 2222 *Morphological Properties of LDPE/LLDPE/CLAY Nanocomposite with a PE-G-MA Compatibilizer* Amini Ranjbara H., **Aroujalian A.**, Ramezani R. **PAPER WITHDRAWN**

14:00 2223 *Solution Preparation and Properties Investigation of EVA/Polyolefin/Clay Nanocomposites Films* **RAMAZANI S.A.**, Dadfar R.

14:20 2224 *Optically Transparent Nanocomposite Reinforced with Modified Cellulose Nanofibers* **Dahman Y.**, Sani A.

14:40 2225 *Novel PE/Palygorskite Nanocomposites: An NMR Study* **LI W.**, Adams A., Wang J.D., Blümich B., Yang Y.R.

15:00 2226 *Polyurthane-Urea Nanocomposites: Synthesis and Characterization* **Cuéllar-Burgos A.**, Mesa-Rueda F.A., Vargas-Hernández C., Perilla-Perilla J.E.

15:20 2227 *Cure and Thermal Stability of Epoxy Nanocomposites* Carrasco F., **Pagès P.**, MasPOCH M.L., Lacorte T.

15:40 2228 *Three Dimensionally Ordered Arrays of Nanozeolites with Uniform Orientation* Xia F., **Ngoghai Y.**, Brugger J., O’Neill B., Chen G., Pring A.

16:00 End of Session

Particle Technology and its Applications

PT11

524b

Particle Technology and its Applications 11

Organizer(s) - Prof. J. Zhu (Canada), Prof. A. Kvade (Germany), Dr. Jian-Xin Li (USA)

13:40 2229 *Alumina Supported Mo₂C Catalysts Prepared Via Propane Carburization* Vo D-V. N., Cooper C. G., **Nguyen T-H.**, Adesina A. A.

14:00 2230 *Flame Aerosol Process for the Synthesis of Nanomaterials* Hu Y., **Li C.**, Liu J.

14:20 2231 *Influence of Process Conditions on L-Glutamic Acid Reactive Crystallisation* **Al-Marri M.**, Mahmud T., Roberts K.J.

14:40 2232 *Experimental Investigation and Modeling of Particle Growth in Propylene Polymerization* Ramazani S.A. A., **Dashti A.**

15:00 2233 *Study of Rice Powder Granulation in Fluidized Bed* **Mohan R.**, Vengateson U.

15:20 2234 *Imaging the Pneumatic Conveying Particulate Flow of a Flyash Powder* **Williams K.C.**, Aichun M., Jones M.G., Olszewski T

15:40 2235 *Characteristic of Nano-Particle Agglomerates in Vibro-fluidized Bed* Zhou T., **Yang J.**, Wang H., Zhang F.g

16:00 End of Session

Pharmaceutical Engineering in the 21st Century

PHRM3

517a

Pharmaceutical Engineering in the 21st Century 3

Organizer(s) - Prof. V. Venkatasubramanian (USA), Prof. P. York (UK), Dr. H. Havel (USA)

13:40 2236 *QbD Applied to Colloidal Systems - The Need for a Holistic Approach to Product Design* **Elliott R.**, Scott G.

14:00 2237 *Integrating QbD Concepts into the Pharmaceutical Development Process - Abbott's Experience on Oral Solid Dosage Forms* **Ju T.R.**, Laurenz S.

14:20 2238 *Process Design and Development Issues for Pharmaceutical Processes* Gernaey K.V., **Woodley J.M.**

14:40 2239 *Quality by Design for a "Small Molecule" Freeze Dried Parenteral: Formulation and Process Design* **Mockus L.**, Basu P., Nail S., Pikal M., Harper N., Khan M.

15:00 2240 *A Bayesian Approach to Quality by Design in the Pharmaceutical Industry* **Blau G.**

15:20 2241 *FDA - Industry Co-evolution of Pharmaceutical Quality-by-Design* **Weber K.**

15:40 Panel Discussion

16:20 End of Session

Process Control and Optimization

PCO8

518c

Process Control and Optimization 8

Organizer(s) - Amos Ben-Zvi (Canada) and Carl Duchesne (Canada)

13:40 Keynote Lecture

13:40 Stevan Dubljevic - Distributed & Boundary Model Predictive Control for Reaction-Diffusion Systems

14:20 2242 *Bringing the Theoretical Gains of Minimum Entropy Production into Practice* van der Ham L.V., Gross J., Verkooijen A.H.M., Kjelstrup S.

14:40 2243 *Safe-Parking of Distributed Parameter Process Systems* Mahmood M., Prashant P.

15:00 2244 *Modelling and Optimization of Fed-Batch Emulsion Copolymerization of Styrene and Butyl Acrylate in the Presence of a Chain Transfer Agent* Benyahia B., Latifi M.A., Fouteix C., Pla F.

15:20 2245 *Design of GMC-ASE Control Scheme for Nonlinear Continuous Stirred Tank Reactor* Patle S. D., Angira R.

15:40 End of Session

Process Design

PD10

513b

Process Design 10

Organizer(s) - Dr. Mostoufi (Iran), Dr. Sotudeh (Iran), Prof. Loney (USA)

13:40 2246 *Analysis on a Counter-Current Flow Hemodialyzer* Loney N.W.

14:00 2247 *The Production of Polyhydroxyalkanoates using an Oscillatory Baffled Bioreactor* Tröger C.N., Harvey A.P.

14:20 2248 *Enzymatic Hydrolysis of Fatty Acid Methyl Esters in a Packed Bed Reactor* Krause P.K., Fieg G.F.

14:40 2249 *Crossflow Separation Process of Colloidal Suspensions: In-situ Characterization of Deposited Layers at Pertinent Length Scales* Abyan M., Pignon F., David C., Magnin A., Sztucki M.

15:00 2250 *Experiment on and Numerical Simulation of Mass Transfer and Marangoni Effect during Drop Formation* Lu P., Wang Z H., Yang C., Mao Z-S

15:20 2251 *Flow Characteristics in an Airlift Membrane Bioreactor* Khalili-Garakani A., Mehriani M. R., Mostoufi N., Sarrafzadeh M. H., Vali M., Sadeghi F.

15:40 End of Session

Rheology in Chemical Processing & Chemical Product Design

RHE5

513f

Rheology in Chemical Processing & Chemical Product Design 5

Organizer(s) - Prof. C. Gallegos (Spain), Dr. A. Ajji (Canada)

13:40 Keynote Lecture

13:40 2252 *Microfluidic Multilayer Stacking and Mixing of Polymer Melts* Moon D., Phelan F.R., Migler K.B.

14:20 2253 *Interfacial Rheology in Complex Flow* Martin J.D., Hudson S.D.

14:40 2254 *On -Line Rheology of Cell Cultures in a Bioreactor* Manon Y., Anne-Archard D., Filladeau L., Uribelarrea J.L., Molina-Jouve C.

15:00 2255 *Processing and Rheology of Controlled-Release Protein-Based Bioplastics* Gomez-Martinez D., Patal P., Martinez I., Gallegos C.

15:20 End of Session

Separation Science and Technology

SST11

519b

Separation Science and Technology 11

Organizer(s) - Prof. Arlt (Germany), Prof. K. Yoo (Korea)

13:40 Keynote Lecture

13:40 K. Yoo - Supercritical Fluid Extraction and Purification of Natural Products: From Laboratory to Commercial-Scale

14:20 2256 *Concentration Polarization and Scale Formation in a Laboratory RO Cell* Lyster E., Giralt F., Cohen Y.

14:40 2257 *Hollow Fibers by Electrospinning in Supercritical CO₂* Lee B.H., Freitag D., Arlt W., McHugh M.

15:00 2258 Ghader S., Mansouri S.S., Sheikh Nejad Y.

15:20 2259 *Supercritical Extraction of Safflower Oil and Optimization of Extraction Conditions* Azcan N., Yilmaz O.

15:40 2260 *Design Considerations for Multi-Component High-Pressure Phase Equilibria Measurements* Fourie F.C.v.N., Schwarz C.E., Knoetze J.H.

16:00 2261 *Phase Equilibria of Squalene, Oleic Acid and Palm Olein in Supercritical Carbon Dioxide* Aldarmaki N. I., Lu T., Al-Duri B., Santos R.C.D., Bhaggan K., Favre T.L.F., Harris J. B.

16:20 2262 *High-Pressure Flash Simulation in Low-Density Polyethylene Separators* Costa G.M.N., Kislansky S., Guerrieri Y., Embirucu M., Pessoa F.L.P., Vieira de Melo S.A.B.

16:40 2263 *Absorption of Volatile Organic Compounds in Silicon Oil - Determination of Infinite Dilution Activity Coefficients by Dynamic Gas Liquid Chromatographic Technique* Muzenda E., Belaid M., Ntuli F., Ashton N.

17:00 End of Session

Upgrading of Heavy Oil by New Technologies

UHO5

513a

Upgrading of Heavy Oil by New Technologies 5

Organizer(s) - Dr. K. Inamura, Dr. Y. Sugimoto, Dr. R. Tanaka, R. Pugmire, C. Fairbridge, Prof. M. Gray

13:40 2264 *Refractory Nitrogen Compounds in Hydrocracking Pretreatment - Identification and Characterization* Hidalgo-Vivas A., Wiwel P., Hinnemann B., Zeuthen P., Petersen B.O., Duus J.Ø.

14:00 2265 *Measurement and Modeling Methodology for Heavy Oil Vapor Pressure* Castellanos-Diaz O., Yarranton H., Svrcek W., Satyro M. A.

14:20 2266 *Jet-Bed Interaction and Distribution of Liquid Injected into a Large Scale Gas-Solid Fluidized Bed* Farkhondehkhavaki M., Briens C., Berruti F.

14:40 2267 *Single- and Double-ring Cycloparaffin Catalytic Cracking Under Industrial FCC Operating Conditions* Al-Sabawi M., de Lasa H.

15:00 2268 *Water Soluble/Insoluble Fractions of Bitumen at Hydrothermal Conditions Inferred by Direct Observation Using Visible-Type Autoclave* Watanabe N., Takeuchi Y., Kayouda T., Kishita A.

15:20 2269 *Development of N+1 Lump Scheme for Modelling of Hydrocracking Unit* Sinha S., Kansal P.

15:40 End of Session

Process Safety Management

PSMG **512c****Process Safety Management -
General process safety
symposium**Organizer(s) - G. Creedy (Canada), J.P.
Lacoursiere (Canada)**13:00** End of Session**14:00** 2270 *Why QRA for Emergency
Planning?* **Nourai F.****14:30** 2271 *The Risks Related to the
Interaction Between Natural Hazards and
Technologies* **Salzano E.**, Basco A.,
Cozzani V., Renzi E., Rota R.**15:00** 2272 *Evaluating the Risks Induced
by Earthquakes in the Chemical Process
Industry* **Salzano E.**, Basco A., Di
Carluccio A., Fabbrocino G.**15:30** 2273 *Quantitative Risk Assessment
for a Natural Gas Pipeline Project* **Clement
E.**, Alp E.**16:00** Break**16:10** 2274 *Safety Analysis for Liquid
Pipeline Design Support using Oil Spill
Modelling* **Tallone F.**, Farinelli P.**16:40** 2275 *Offshore Oil and Gas
Process Accident Model* **Kujath M.F.**,
Amyotte P.R., Khan F.I.**17:10** Closing Comments**17:15** End of Session