

Monday AM

Plenary

PLEN Sherbrooke B

Plenary

Organizer(s) - Gervais Soucy  
Chair(s) - Gervais Soucy

**R. S. Jane Memorial Award Lecture presented by John L. Brash**

Introduction of John L. Brash by Paul Stuart, President, Canadian Society for Chemical Engineering

**08:30 0001 Biomaterials: protein-surface interactions and biocompatibility Brash J.L.**

**09:30** End of Session

**09:30 Coffee Break**

Bioprocessing/Biotechnology

BIO1 L Memphr

Bioinformatics

Organizer(s) - Christine Moresoli  
Chair(s) - Alain Garnier

**10:00 0002 Fluorescence-based chemometric model for probing protein-protein interactions in protein solutions at different pH values and ionic strengths Elshereef R., Budman H., Moresoli C., Legge R.L.**

**10:20 0003 Protein profiling in culture and conditioned medium by multivariate analysis of LCMS signals Michaud F.T., Garnier A., Lemieux L., Duchesne C. PAPER WITHDRAWN**

**10:40 0004 Whole-cell protein identification using unique peptides Lin Y.-H., Zhao Y.**

**11:00 0005 Modified reactive SMB for production of high concentrated fructose syrup by isomerization of glucose to fructose Ray A.K., Zhang Y., Hidajat K.**

**11:20 0006 Cultivations of recombinant chlamydomonas reinhardtii for the production of human interleukin-4 Tang S., Zhang Z.**

**11:40** End of Session

Transfer Time

**11:45 All-Conference Event - Awards Luncheon**

BIO2 L Brome

Biosystems

Organizer(s) - Christine Moresoli  
Chair(s) - Grant Allen

**10:00 0007 A molecular investigation into the microbial community structure of biofilters treating dimethyl sulphide in the presence and absence of methanol Hayes A.C., Liss S.N., Allen D.G.**

**10:20 0008 A low-head biofilter for recirculating aquaculture systems Conroy J.M., Couturier M., Ma Z., Zheng Y., Desbarats A.**

**10:40 0009 Biodesulfurization of diesel by R. rhodochrous IGTSS using ionic liquids Soleimani M., Bassi A.S., Margaritis A.M.**

**11:00 0010 Response and stability analyses of a recycle bioreactor with reference to removal of SO<sub>2</sub> from a simulated gas mixture Dutta S., Chowdhury R., Bhattacharya P.**

**11:20 0011 Effects of process variables on biooxidation of ferrous iron by an indigenous Acidithiobacillus ferrooxidans in a packed-bed bioreactor Mousavi S.M., Jafari A.**

**11:40** End of Session

Transfer Time

**11:45 All-Conference Event - Awards Luncheon**

Environment

ENV1 L Fraser

Carbon Dioxide Sequestration

Organizer(s) - J. Peter Jones and Michèle Heitz  
Chair(s) - Handan Tezel

**10:00 0012 A novel stochastic model for predicting the long-term stability of wellbores used for underground storage of carbon dioxide Condor J., Asghari K.**

**10:20 0013 Mass transfer and sequestration of carbon dioxide in an algal photobioreactor Powell E.E., Hill G.A.**

**10:40 0014 Dry reforming of ethanol for CO<sub>2</sub> sequestration as MWNT: mechanistic aspects of the reaction over an activated carbon steel catalyst Blanchard J., Hassani-Oudghiri H., Jankhah S., Gitzhofer F., Abatzoglou N.**

**11:00 0015 Adsorption separation of carbon dioxide and nitrogen on silicalite Tezel F.H., Li P.**

**11:20 0016 Co-conversion of gaseous carbon dioxide and a high strength aqueous organic contaminant (phenol) to methane via a UASB reactor Avila Molto A., Mulligan C.N.**

**11:40** End of Session

Transfer Time

**11:45 All-Conference Event - Awards Luncheon**

Polymers

POLY1 L Brmptn

Polymer Processing

Organizer(s) - Basil Favis  
Chair(s) - Denis Rodrigue

**10:00 0017 Modelling an internal batch mixer for polymer processing Bai Y., Sundararaj U., Nandakumar K.**

**10:20 0018 Phase separation kinetics of polymer solutions Tajparast M., Rey A.D.**

**10:40 0019 An analysis of the crystalline structure of the precursor films used for the production of polypropylene microporous membranes by stretching Sadeghi F., Ajji A., Carreau P.J.**

**11:00 0020 Relationships between environmental stress cracking resistance and tensile strength of high density polyethylene for pipe applications Cheng J.J., Polak M.A., Penlidis A.**

**11:20** End of Session

Transfer Time

**11:45 All-Conference Event - Awards Luncheon**

POLY2 R Magog

Specialized Polymers

Organizer(s) - Basil Favis  
Chair(s) - Prashant Bhadane

**10:00 0021 Adhesion between glass and a new copolymer measured with the atomic force microscope Bai J., Williams M.C.**

**10:20 0022 Novel focused ion beam preparation and atomic force microscopy approach for characterization of EPDM/PP blends and their thermoplastic vulcanizates Bhadane P., Virgilio N., Huneault M.A., Favis B.D.**

**10:40 0023 Fabrication of anisotropic porous polymeric materials Jiang B.T., Chan P.K., Lee K.-W.D.**

**11:00 0024 Thermally-induced phase separation in thermotropic liquid crystalline polymer/polycarbonate blends Lee K.-W.D., Kamal M.R., Chan P.K.**

**11:20 0025 Polyethylene nanocomposites based on high thermal stability organoclays Stoeffler K., Lafleur P.G., Denault J.**

**11:40** End of Session

Transfer Time

**11:45 All-Conference Event - Awards Luncheon**

Process Dynamics

PROC1 L Stukely

Model Predictive Control

Organizer(s) - Biao Huang  
Chair(s) - Biao Huang and Prashant Mhaskar

**10:00 0026 Nonlinear model predictive control Bequette B.W.**

10:40 0027 *Robust model predictive control of nonlinear systems with state, control and rate constraints* **Mhaskar P.**, Kennedy A.

11:00 0028 *A robust MPC with input saturation* **Li X.**, Marlin T.

11:20 0029 *An adaptive approach to model predictive control of uncertain nonlinear systems* **DeHaan D.**, **Guay M.**

11:40 End of Session

Transfer Time

11:45 All-Conference Event - Awards Luncheon

### Process Safety and Loss Management

**PSLM1** **R Coati**

#### Case Study and Lessons Learned

Organizer(s) - Luc Piché  
Chair(s) - Ertugrul Alp

10:00 0030 *La gestion du transport routier des matières dangereuses sur le territoire de l'agglomération de Montréal* **Morin I.**, Forest M.

10:30 0031 *Shifting gears: the changing nature of emergency preparedness and business continuity planning in the perspective of some recent large-scale emergencies* **Creedy G.D.**

11:00 0032 *Prevention of major industrial accidents linked with external contractor operations* **Clément E.**, Jones J.P., Lacoursière J.-P., Sinclair-Desgagnés B.

11:30 End of Session

Transfer Time

11:45 All-Conference Event - Awards Luncheon

### Reaction Engineering

**REAC1** **R St-Fran**

#### Catalysis

Organizer(s) - Committee  
Chair(s) - Gregory-S. Patience

10:00 0033 *Dynamic behaviour of a nonlinear catalytic reactor* **Machac A.M.**, **Henda R.**

10:20 0034 *Distinguishing kinetic and transport-limited regions for photocatalytic reactions* **Ray A.K.**

10:40 0035 *A simulation model for heavy oil down-hole upgrading* **Moini B.**, Kantzas A., Pereira P. PAPER WITHDRAWN

11:00 0036 *The impact of asphaltene aggregate size on coke deposition on commercial hydrotreating catalysts* **Zhao B.**, Chodakowski M., Shaw J.M.

11:20 0037 *Thermogravimetric analysis of VPO calcination* **Shekari A.**, Hansen K.M.S., Fankem C., Tzakova T., Patience G.S.

11:40 End of Session

Transfer Time

11:45 All-Conference Event - Awards Luncheon

### Separation Processes

**SEPN1** **L d Nations**

#### Separation Processes

Organizer(s) - Committee  
Chair(s) - Corey Lederc

10:00 0038 *Successful interaction with internal vendors for distillation tower revamp* **Zeidan A.**

10:20 0039 *Avoid obstacles when revamping refinery vacuum units* **Zeidan A.**

10:40 0040 *Low-grade oil sands processing using novel polymer aids* **Masliyah J.H.**, Li H., Long J., Xu Z.

11:00 0041 *A mechanism for Na<sub>2</sub>CO<sub>3</sub>-enhanced sulphur capture by limestone sorbent in fluidized bed combustion* **Wang J.**, Wu Y., **Anthony E.J.PAPER WITHDRAWN**

11:20 0042 *Adsorption of trace impurities with activated alumina composites and other adsorbents* **Tezel F.H.**, **Mulgundmath V.P.**, Kunkel M., Golden T.C., Mogan J., Morin B.

11:40 End of Session

Transfer Time

11:45 All-Conference Event - Awards Luncheon

### Thermodynamics

**THER1** **L d'Argent**

#### Thermodynamics

Organizer(s) - Denis Gravelle  
Chair(s) - Juan Vera and Sasha Omanovic

10:00 0043 *Solubility and viscosity modeling and measurements for Athabasca bitumen-propane and propane-CO<sub>2</sub>-Athabasca bitumen systems* **Badaamchi Zadeh A.**, Maini B., Yarranton H.W.

10:20 0044 *Morphology of methane and carbon dioxide hydrates formed from water droplets in the presence of kinetic inhibitors* **Breton A.**, Servio P.

10:40 0045 *A thermodynamic analysis of the gas former solubility dependency on temperature in the hydrate-liquid water system* **Bergeron S.**, Servio P.

11:00 0046 *Direct solubility measurements of methane in water in the hydrate formation region* **Gaudette J.**, Servio P.

11:20 End of Session

Transfer Time

11:45 All-Conference Event - Awards Luncheon

### Monday PM

### Environment

**ENV2** **L Fraser**

#### Environment and Biotechnologies

Organizer(s) - Michèle Heitz, Josiane Nikiema, Marie-Claude Dion St-Pierre and J. Peter Jones  
Chair(s) - Yves Andres and Christian Kennes

13:40 0047 *Bioprocesses for VOC and odorous compound removal for air treatment: microbial aspects and engineering* **Andres Y.**, Le Cloirec P.

14:20 0048 *Determination of the kinetics of methane biofiltration in an inorganic bed* **Nikiema J.**, Delhoménie M.-C., Heitz M.

14:40 0049 *Traitement d'un effluent gazeux industriel fortement chargé en ammoniac par biofiltration sur support organique - étude de cas: Norsk Hydro Canada Inc.* **Turgeon N.**, Ouellet B., Buelna G., LeBihan Y., Grenon N., Bélanger D.

15:00 Coffee Break

15:20 0050 *Control of ethanol vapour emissions by biotrickling filtration* **Avalos Ramirez A.**, Jones J.P., Heitz M.

15:40 0051 *Treatment of air pollution in a gas-solid fluidized bioreactor* **Clarke K.L.**, Hill G.A., Pugsley T.

16:00 0052 *Capture and bioremediation of toluene from contaminated air in a novel packed bed ELAB* **Nikakhtari H.**, Hill G.A.

16:20 0053 *Effects of temperature, inlet concentration, gas humidity and water content on  $\alpha$ -pinene removal in a fungal biofilter* **Jin Y.**, Veiga M.C., **Kennes C.**

17:00 End of Session

### Fuel Cells and Innovative Energy Technology

**FUEL1** **L d Nations**

#### Solid Oxide Fuel Cells (SOFC)

Organizer(s) - François Gitzhofer, Viola Birss and Gessie Brisard  
Chair(s) - Brant Peppley

13:40 0054 *3-D Thermal modeling of a direct internal reforming SOFC* **Nikooeyeh K.**, Jeje A., Hill J.M.

14:00 0055 *Understanding single-chamber solid-oxide fuel cells* **Roberge R.**, Savoie S., Nappom T.W., Morel B., Meunier M.

14:20 0056 *Development of a characterization tool for triple phase boundary measurement using a tomographic approach* **Rivard T.**, Gitzhofer F., Abatzoglou N.

14:40 0057 *Engineering of microstructure and design of a planar composite SOFC cathode: a numerical analysis* **Kenney B.**, Karan K.

### 15:00 Coffee Break

15:20 0058 *Direct hydrocarbon use in SOFCs* **Hill J.M.**, Alzate Restrepo V., Cimenti M., Nikooyeh K., He H., Clemmer R.

15:40 0059 *Thin-layer electrolyte fabrication for intermediate temperature solid oxide fuel cells by electrophoretic deposition* **Lankin M.**, Karan K.

16:00 0060 *Stabilization of ferritic stainless steel SOFC interconnects using thin, electronically conductive metal oxide coatings* **Paulson S.**, Bateni R., Wei P., Petric A., Birss V.

16:20 0061 *Optimization of solid oxide fuel cell systems using heat integration techniques* **Srisiriwat A.**

16:40 End of Session

## Green Chemical Engineering

**GRCE1 R Magog**

### Green Engineering

Organizer(s) - Esteban Chornet  
Chair(s) - Esteban Chornet

15:20 0062 *Synthesis of new phosphate materials under ambient conditions* **Assaouadi H.**, Ennaciri A., Harcharras M., Butler I.S., Kozinski J.A.

15:40 0063 *Oxygen transport and BTEX degradation in a solid-liquid two phase partitioning bioreactor* **Littlephns J.V.**, Daugulis A.J.

16:00 0064 *Mercury adsorption on sulphur-containing activated carbon from petroleum coke* **Bylina I.**, Tong S., Jia C.Q.

16:20 0065 *Simulation of an amine based CO<sub>2</sub> recovery plant* **Pourjazaieri S.**

16:40 End of Session

## New Technologies

**NTEC1 L Memphr**

### Nanotechnology

Organizer(s) - Gervais Soucy  
Chair(s) - Keun Su Kim

15:20 0066 *Microreactors in Industrial R&D* **Moore E.L.**, Lee F.P., D'Amato M.J.

15:40 0067 *Rapid microfabrication of digital microfluidics chips from copper substrates* **Abdelgawad M.**, Wheeler A.R.

16:00 0068 *Micro-contact printing-based fabrication of digital microfluidic devices* **Watson M.W.L.**, Abdelgawad M., Ye G., Trotter J., Yonson N., Wheeler A.R.

16:20 End of Session

## Polymers

**POLY3 R Magog**

### Specialized Polymers

Organizer(s) - Basil Favis  
Chair(s) - Marie-Claude Heuzey

13:40 0069 *Role of carbon black on electrical conductivity and rheology of cyclic olefin copolymer carbon fiber composites* **Hashemi-Motlagh G.**, Thompson M.R., Hrymak A.N.

14:00 0070 *Effect of recycling on polymer foaming* **Twite E.**, Rodrigue D.

14:20 0071 *Rheological study of hydrophobically modified polyelectrolytes* **Guillaud S.**, Carreau P.J., Heuzey M.C., Polverari M.

14:40 0072 *Model systems for the rheological investigation of polymer/clay nanocomposites: effect of flow history on build-up and breakdown of nanoclay structures* **Mobuchon C.**, Carreau P.J., Heuzey M.C.

15:00 End of Session

## Process Dynamics

**PROC2 L Brmptn**

### Model Predictive Control and Control Applications

Organizer(s) - Biao Huang  
Chair(s) - Christopher L.E. Swartz and Yash P. Gupta

13:40 0073 *A smaller linear programming formulation for one-norm minimization problems in model predictive control* **Gupta Y.P.**

14:00 0074 *Model predictive control based on neural network for hydrochloric acid recovery process* **Daosud W.**, Kittisupakorn P., Hussain M.A.

14:20 0075 *Fault-tolerant control of process systems using model predictive control* **Mhaskar P.**

14:40 0076 *A data-driven predictive control design for solid oxide fuel cells* **Wang X.**, Huang B., Chen T.

15:00 Coffee Break

15:20 0077 *Stability and performance of LP-MPC cascade control systems* **Nikandrov A.**, Swartz C.L.E.

15:40 0078 *Stochastic hybrid model of flexible manufacturing systems* **Egbunonu P.C.**, Guay M., Graton G.

16:00 0079 *Online slurry characterization during settling of polydisperse suspensions using ultrasonic techniques* **Shukla A.**, Prakash A., Rohani S.

16:20 End of Session

**PROC3 L Stukely**

### Optimal Control and Optimization

Organizer(s) - Biao Huang  
Chair(s) - Fraser Forbes and Martin Guay

13:40 0080 *Limitations of perturbation-based extremum seeking for the steady-state optimization of nonlinear dynamic systems* **Chioua M.**, Srinivasan B., Guay M., Perrier M.

14:00 0081 *New non-model based extremum seeking control approach: extremum tracking using process input-output cross correlation* **Sheikhzadeh M.**, Jutan A., Rohani S.

14:20 0082 *Optimal grade transition policies for an EVA polymerization plant* **Alleyne I.R.**, Shah S.L., Sundararaj U., West B.

### 14:40 Coffee Break

15:20 0083 *Geometric constructions of optimal periodic control trajectories* **Hoeffner K.**, Hudon N., Guay M.

15:40 0084 *A modeling language for dynamic optimization (MLDO)* **Chong Z.**, Swartz C.L.E.

16:00 0085 *An optimization model for the design of a hybrid network for the treatment of industrial waste water* **Saif Y.**, Elkamel A., Pritzker M.

16:20 0086 *Stochastic optimization via Hammersley sampling for rigorous design of chemical processes* **Dominguez-Palomeque L.F.**, McLean D.D.

16:40 End of Session

## Process Safety and Loss Management

**PSLM2 R Coati**

### Regulatory Climate

Organizer(s) - Luc Piché  
Chair(s) - Robert Gauvin

13:45 0087 *La Sécurité Civile au Québec* **Doré M.**

14:45 0088 *Le climat réglementaire* **Lauzon H.**

**15:15 Coffee Break**

**15:45 0089** *Proposed amendments for environmental emergency regulations under Section 200 of CEPA 1999* **Hradecky K.**, Reiss R., Shriver J., Ketcheson K.

**16:15 0090** *Analyse comparée des réglementations touchant le stockage et le transport de matières dangereuses au Québec* De Marcellis-Warin N., **Peignier I.**

**16:45 0091** *The control of major accident hazards: what can Canada learn from the leaders?* Creedy G.D., **Smeding R.S.**

**17:15 0092** *Influence de la réglementation sur la gestion des risques industriels et les accidents : comparaison entre l'Europe et le Canada* **Maréchal D.**

**17:45** End of Session

**Reaction Engineering**

**REAC2 R St-Fran**

**Reactors**

Organizer(s) - Committee  
Chair(s) - Corey Leclerc

**13:40 0093** *Experimental investigation of Taylor vortex photocatalytic reactor for water purification* **Ray A.K.**

**14:00 0094** *CFD modeling and model verification of UV photoreactors* **Elyasi S.**, Taghipour F.

**14:20 0095** *Modelling of corrosion in the primary coolant circuits of CANDU reactors* **Silpsriuk O.**, Lister D., Steward F.

**14:40 0096** *Intensifying inter-phase mass transfer in multiphase reactors* **Al Taweel A.M.**

**15:00 Coffee Break**

**15:20 0097** *Flow pattern shifts in trickle beds under filtration conditions* **Hamidipour M.**, Larachi F., Ring Z.

**15:40 0098** *Drawdown of floating solids in stirrer tanks: mechanisms and effect of baffle design* **Khazam O.**, Kresta S.M.

**16:00 0099** *Reactivity and stability of Co-Ni/Al<sub>2</sub>O<sub>3</sub> oxygen carrier in multicycle fluidized bed chemical-looping combustion (CLC)* **Hossain M.M.**, de Lasa H.I.

**16:20 0100** *Physicochemical characterization of NiO/Al<sub>2</sub>O<sub>3</sub> oxygen carrier for fluidized bed chemical-looping combustion (CLC)* **Sedor K.E.**, Hossain M.M., de Lasa H.I.

**16:40** End of Session

**Thermodynamics**

**THER2 L Brome**

**Thermodynamics**

Organizer(s) - Denis Gravelle  
Chair(s) - Juan Vera and Pak Yuet

**13:40 0101** *Precipitation of asphaltene and resins from solutions of toluene and n-alkanes* **Fox W.A.**, Svrcek W.Y., Yarranton H.W.

**14:00 0102** *A study of adsorption-desorption characteristics of asphaltene on metal surfaces* **Rudrake A.**, Karan K.

**14:20 0103** *Modeling asphaltene precipitation in heavy oils/bitumens blended with incompatible oils or diluted with multicomponent solvents* **Tharanivasan A.K.**, Svrcek W.Y., Yarranton H.W., Hong E., Watkinson P., Rahimi P.

**14:40 0104** *Predicting coalescence of hydrocarbon/water emulsions from surface pressure isotherms of asphaltene films* **Urrutia P.I.**, Sztukowski D.M., Yarranton H.W.

**15:00** End of Session

**Transport Phenomena and Computational Fluid Dynamics**

**TRAN1 L d'Argent**

**Heat and Mass Transfer**

Organizer(s) - Committee  
Chair(s) - Suzanne Kresta

**13:40 0105** *Drop dissolution: ten times slower than blending, ten times faster than liquid-liquid break-up* Ibemere S., **Kresta S.M.**

**14:00 0106** *Heat and mass transfer modeling of a novel biodrying process: lumped system approach and preliminary results* **Navae-Ardeh S.**, Bertrand F., Stuart P.

**14:20 0107** *Measurements of heat and mass transfer coefficients from a cylinder in cross flow using LCDT* Saaed S., **Slaiman Q.**

**14:40 0108** *Investigations of hydrodynamics, heat and mass transfer in multiphase reactors of new configurations* **Jhawar A.**, Prakash A.

**15:00 Coffee Break**

**15:20 0109** *CFD modelling of membrane filtration hollow fiber system* **Marcos B.**, Moresoli C., Skorepova J.

**15:40 0110** *Numerical simulation of the effects of g-jitters on thermal diffusion process in binary and ternary mixtures* **Adimoolam A.**, Mehvar M., Saghir Z.

**16:00 0111** *Nonlinear simulation of thermo-viscous fingering in non-isothermal miscible displacements in porous media* **Islam M.N.**, Azaiez J.

**16:20 0112** *Experimental determination of solvent gas dispersion in Vapex* **El-Haj R.E.**, Lohi A., Upreti S.R.

**16:40** End of Session

**General**

**GEN1 L Memphr**

**General**

Organizer(s) - Committee  
Chair(s) - Marc Dubé

**13:40 0113** *Performance and scale-up of the maxblend technology* Thome G., Fradette L., Tanguy P.A., **Takenaka K.**

**14:00 0114** *Experimental characterization of the coaxial mixer hydrodynamics with non-Newtonian fluids* **Bonnot S.**, Fradette L., Tanguy P.A.

**14:20 0115** *Initial drop size distribution and its effect on prediction of final distribution in dispersed immiscible liquids* **Abbasi S.**, Sharif F.

**14:40 0116** *Exploration of a three-phase breathing semi-fluidized bed as an alternative to mitigating plugging with fines in trickle bed reactors* **Dehkissia S.**, Baçaoui A., Larachi F.

**15:00** End of Session

**GEN2 L Brome**

**General**

Organizer(s) - Committee  
Chair(s) - Marc Dubé

**15:20 0117** *The effect of total pressure on oxidation of oil-based drilling fluids* **Shahbazi K.**, Mehta S.A., Moore R.G., Ursenbach M.G.

**15:40 0118** *Continuous time domain characterization of mixing in agitated pulp chests* **Patel H.**, Ein-Mozaffari F., Upreti S.R.

**16:00 0119** *Mass transfer for different rotors in distillation* **Li X.**, Liu Y., Yu H.

**16:40** End of Session

**Posters**

**GSPC Sherbrooke B,C**

**Graduate Student Poster Competition**

Organizer(s) - Josiane Nikiema  
Chair(s) - Josiane Nikiema

From **16:40** until **18:40**

**0120** *Flow-induced metastable liquid crystalline ordering in flexible polymer melts* **Abukhdeir N.M.**, Rey A.D.

**0121** *The use of artificial neural network (ANN) in order to determine surface tension and viscosity of liquids by the aid of the capillary rise procedure* **Ahadian S.**, Moradian S., Sharif F., Amani Tehran M., Mohseni M.

- 0122 *Alcoholic fermentation kinetic of lager and ale beers* **Avalos Ramirez A.**, Deschamps J., Mayrand P., Toussaint A., Lévesque A., Bouillon F.
- 0123 *Optimal CO<sub>2</sub> control strategies with application to the power generation sector* **Ba-Shammakh M.S.**, Elkamel A., Douglas P.L., Croiset E.
- 0124 *Near infrared spectroscopy for flowing powder API monitoring - a PAT application for "Quality by Design"* **Benedetti C.**, Simard J.-S., Abatzoglou N.
- 0125 *Preosteoblasts differentiation using a delivery system with BMPs and bioactive glass microspheres in type I collagen gel* **Bergeron E.**, Marquis M., Chrétien I., Fauchoux N.
- 0126 *Solvating effect of water on triflic acid : a density functional theory study* **Bery G.**, Capehart W., Soldera A.
- 0127 *Validation of CFD modeling of alkali removal in a molten aluminum treatment reactor* **Bolduc I.**, Bannari A., Proulx P., Dupuis C.
- 0128 *Elimination of endocrine disrupting chemicals nonylphenol, bisphenol A and triclosan using crossed-linked laccase aggregates from the white-rot fungus *Coriolopsis polyzona** **Cabana H.**, Jones J.P., Agathos S.N.
- 0129 *Influence of position and composition on adhesion to injection-molded plates as model automotive parts* **Deng K.**, Felorzabih N., Jiang Z., Winnik M.A., Ryntz R.A.
- 0130 *New dyes for energy transfer in polymers* **Felorzabih N.**, Haley J.C., Rezanejad G., Winnik M.A.
- 0131 *A model for the production of the carbon black by pyrolysis of methane in a supersonic ICP* **El Morsli M.**, Proulx P.
- 0132 *Interannual changes in aerosol long-range transport for Alert, Nunavut* **Huang L.**, Jia C.Q., Gong S.L.
- 0133 *Dry reforming of ethanol for CO<sub>2</sub> sequestration as MWNT using carbon steel as the catalyst* **Jankhah S.**, Abatzoglou N., Blanchard J., Gitzhofer F., Hassani-Oudghiri H.
- 0134 *Hydrogenation/isomerization of vegetable oils over bimetallic supported catalysts on mesostructured silica supports* **Kemache N.**, Hamoudi S., Arul J., Belkacemi K.
- 0135 *From atomistic simulation to mesoscopic simulation on Nafion membrane* **Lafamme P.**, Capehart W., Soldera A.
- 0136 *In-line blend homogeneity determination of a multicomponent dry pharmaceutical formulation using near-infrared spectroscopy in a V-blender process* **Lapointe-Garant P.P.**, Simard J.-S., Abatzoglou N.
- 0137 *Influence of RGD and DGEA peptides on human osteoblast responses to BMP 9* **Marquis M.**, Fauchoux N.
- 0138 *Mixing and heat transfer characterization of a microreactor for the polymerization of high-impact polystyrene* **Méndez L.**, Dubois C., Tanguy P.A. **PAPER WITHDRAWN**
- 0139 *Utilization of olive solid waste (Jift) in removing chromium from synthetic wastewater* **Nassar N.N.**, Mardawi Z., El-Hamouz A., Hilal H.
- 0140 *One dimensional heat and mass transfer modeling of a novel continuous biodrying process: physical modeling and preliminary results* **Navae-Ardeh S.**, Bertrand F., Stuart P.
- 0141 *The chemical engineering integrated learning project at the Université de Sherbrooke* **Nikiema J.**, Heitz M. **PAPER WITHDRAWN**
- 0142 *Reforming of methane with CO<sub>2</sub> by an atmospheric pressure glow discharge* **Nsungui A.J.**, Abatzoglou N., Gitzhofer F., Gravelle D.
- 0143 *Methane emission control in bioreactor landfills* **Perdikea K.**, Mehrotra A.K., Hettiaratchi J.P.A.
- 0144 *Effect of microstructure on erosion rates of copper electrodes in an atmospheric pressure plasma reactor* **Rao L.**, Munz R.J.
- 0145 *Carbon nanotubes as filters for nanoparticles* **Reddy N.K.**, Rao L., Qin C., Coulombe S., Meunier J.-L., Munz R.J.
- 0146 *Matrix treatment of images for obtaining experimental data* **Rivard T.**, Nsungui A.J.
- 0147 *Population balance modelling using the quadrature method of moments* **Selma B.**, Proulx P.
- 0148 *Thermogravimetric studies on VPO catalyst during calcination* **Shekari A.**, Hansen K.M.S., Fankem C., Tzakova T., Patience G.S.
- 0149 *Separation of para-xylene from a xylene mixture via crystallization* **Mohameed H.**, Abu Jadayil B., **Takroui K.**
- 0150 *Catalyst loading on microreactor monoliths for low-temperature water gas shift reaction* **Thomas E.**, Gates G.
- 0151 *Liquid-liquid extraction system for optimal separation of glycerol and biodiesel* **Tizvar R.**, McLean D.D., Kates M., Dubé M.A.
- 0152 *Extraction and characteristics of *Sea Buckthorn* (*Hippophaë rhamnoides* L. ssp. *Indian summer*) seed and pulp oils* **Gutiérrez L.F.**, Ratti C., **Belkacemi K.**
- 0153 *Bioactive lactobionic acid production using a novel nanostructured bimetallic catalyst: optimization of the process parameters* **Cristea Vlad M.**, Hamoudi S., Arul J., **Belkacemi K.**
- 0154 *Monitoring fluidized bed drying of pharmaceutical granules* **Bojarra M.**, Briens L.
- 0155 *Spectroscopic investigation of asphaltene formation in bitumen-solvent mixtures* **Butler E.N.**, Miadonye A.
- 0156 *Surface display of yellow fluorescent protein on *Escherichia coli** **Narayanan N.**, **Chou C.P.**
- 0157 *Condensation assisted by supercritical carbon dioxide* **Chunyue J.**
- 0158 *Online HPLC monitoring of biocatalyzed transesterification of benzyl bromide metabolite in non-standard solvents: application of immobilized cellulose tris-(3,5-dimethylphenylcarbamate) chiral stationary phase (Chiralpak IB)* **Ghanem A.**
- 0159 *Towards the synthesis of anti-cancer drugs: chiral dirhodium(II) catalyzed asymmetric cyclopropanation of olefins using a new in situ generated phenyliodonium ylides: one pot synthesis and chiral analysis* **Ghanem A.**
- 0160 *New surface-modification technique for the improvement of corrosion resistance of biomedical-grade 316LVM stainless steel* **Shahryari A.**, Omanovic S., Szpunar J.A.
- 0161 *Thermodynamic analysis of the interaction between DNA and chitosan and stability of DNA/chitosan complexes for gene transfer* **Ma P.L.**, Buschmann M.D., Winnik F.M.
- 0162 *Studies on the mechanism of thermal gelation of chitosan-glycerol phosphate solutions* **Lavertu M.**, Filion D., Schmid A., Zayani M., Buschmann M.D.
- 0163 *Chondrocyte aggregation in suspension culture is mediated by integrins for freshly isolated chondrocytes and by integrins and N-cadherins for passaged chondrocytes* **Gigout A.**, **Jolicœur M.**, Buschmann M.D.
- 0164 *Chondrocytes cultured in stirred suspension bioreactors with Pluronic F68 maintain viability with limited cell aggregation and internalise Pluronic F68* **Gigout A.**, Buschmann M.D., **Jolicœur M.**
- 0165 *Predicting dynamic permeate flux decline in milk ultrafiltration using neuro-fuzzy methodology* **Babazadeh Y.**, **Mousavi S.M.**, Akbarzadeh M.-R.
- 0166 *Optimum microbial adaptation route for the biodegradation of high concentration of phenol by *Pseudomonas fluorescens* KNU417* **Kwon K.H.**, Kwon H.M., Lee K.Y., Song I.K., **Yeom S.H.**
- 0167 *Phosphate removal using immobilized scallop shells* **Kwon H.M.**, Kwon K.H., Jung K.Y., Lee K.Y., Song I.K., **Yeom S.H.**

**POS1 Sherbrooke B,C**

**Posters**

Organizer(s) - Committee

From 16:40 until 18:40

0152 *Extraction and characteristics of *Sea Buckthorn* (*Hippophaë rhamnoides* L. ssp. *Indian summer*) seed and pulp oils* **Gutiérrez L.F.**, Ratti C., **Belkacemi K.**

0168 *Extraction of polyphenols in hop bract part discharged from beer breweries and their evaluation by solubility parameter* **Yamamoto H.**, Daisei K., Nagano C., Takeuchi F., Shibata J., Tagashira M., Ohtake Y.

0169 *Mitigation of chemical oxygen demand of green liquor sludge emerging from the chemical recovery plant* **Ikram M.**, Babar A., Shahid-UI-Haq

0170 *Determination of chemical changes in the straw based black liquor during its storage at high temperatures* **Ikram M.**, Babar A., Kashmiri A.

0171 *Product powder contamination with fines from the inert bodies in spout-fluid bed drying with submerged draft tube* **Osorio-Revilla G.**, Alonso-Segura D., Gallardo-Velázquez T.

0172 *Thermal degradation and product powder characteristics in spouted bed drying of liquid feedstocks* **Osorio-Revilla G.**, Gallardo-Velázquez T.

0173 *Self cleaning hydrophobic polymer surfaces* **Hyder M.N.**, Chen P., Huang R.Y.M. **PAPER WITHDRAWN**

0174 *Studying properties of polypyrrole composites using different solutions and additives* **Eisazadeh H.**

0175 *Modeling of circulating fluidized bed reactor for ethylene polymerization* **Aghili A.**, Tafi N., Mirzaei A.

0176 *Optimization of kinetic parameters of polymerization processes using genetic algorithm* **Sadi M.**, Dabir B.

0177 *Breakthrough behaviour of H<sub>2</sub>S adsorption under elevated pressures* **Wang D.M.**, Guo H.X., Miao M.Q., Wang H., Chuang K.T.

0178 *Mathematical modeling of a non-ideal trickle bed reactor used for biodesulfurization of deeply hydrodesulfurized diesel to produce NZSD (Near Zero Sulfur Diesel)* **Mondal S.**, Chowdhury R.

0179 *Adsorption of cadmium on activated carbon prepared from olive cake waste* **Aljundi I.H.**

0180 *Analysis of an anaerobic filter for the treatment of high fat effluents of edible oil refineries: experiments and modeling* **Chakraborty C.**, Chowdhury R., Bhattacharya P.

0181 *Studies on removal of arsenic from contaminated ground water through a microbial route* **Bag P.**, Bhattacharya P., Chowdhury R.

0182 *Analysis of non-ideality and washout condition of a chemostat used for bioreduction of hexavalent chromium* **Samanta K.**, Bhattacharya P., Chowdhury R.

0183 *Treatment of contaminated water using membrane-based solvent extraction* **Alex S.**, Biasotto F., Fournier J., Aroca G.

0184 *SCR catalyst regeneration of a stationary oil-fired engine* **Lee J.B.**, Kim D.W., Park K.I., Park K.K.

0185 *Investigation of corrosion on reinforcement concrete with different pozzolans in the sour system* **Bakhshi E.**, Abniki F., Mosalla M.

## Tuesday AM

### Plenary

**PLEN Sherbrooke B**

#### Plenary

Organizer(s) - Gervais Soucy  
Chair(s) - Gaétan Lantagne

Introduction of Carolyn Merritt by Della Wong, Vice-Chair, Process Safety Management Division

08:30 0186 *Safety culture* **Merritt C.W.**

09:30 End of Session

09:30 **Coffee Break**

### Bioprocessing/Biotechnology

**BIO3 L Brome**

#### Biosystems

Organizer(s) - Christine Moresoli  
Chair(s) - Yen-Han Lin

10:00 0187 *Application of mixture experiments for medium development and optimization in *Streptomyces lividans* producing Recombinant Human Interleukin 3 (rHuIL-3)* **Nowruzi K.**, Elkamel A., Scharer J.M., Moo-Young M. **PAPER WITHDRAWN**

10:20 0188 *Metabolic flux analysis in *Aspergillus niger** **Gheshlaghi R.**, Scharer J.M., Moo-Young M., Douglas P.L.

10:40 0189 *Metabolic modeling and <sup>13</sup>C-labeling flux balance analysis of *Rhodococcus strain RHAL*, an important organism for environmental biotechnology* **Frigon D.**, Hara H., Mohn W.W.

11:00 0190 *Whole-cell gene expression profiles of *Saccharomyces cerevisiae* in two different gravity conditions* **Yang D.**, Lin Y.-H.

11:20 0191 *Calorimetric characterization of *Saccharomyces cerevisiae* in very high gravity fermentation* **Theerarattananon K.**, Lin Y.-H., Peng D.-Y.

11:40 End of Session

### Challenges in Regenerative Medicine

**REGM1 L Memphr**

#### Biomaterials

Organizer(s) - Nathalie Faucheux  
Chair(s) - Kim Jones and Amyl Ghanem

10:00 0192 *Interaction of serum protein fibrinogen with a medical-grade stainless steel 316Lvm surface* **Desroches M.J.**, Omanovic S., Roscoe S.G.

10:20 0193 *Relationship between acute inflammation and biomaterial-induced fibrosis* **Chang A.**, Doggart J., Jones K.

10:40 0194 *Influence of cell adhesion peptides on osteoblast responses to BMP-9* **Marquis M.**, Lord E., Faucheux N.

11:00 0195 *Influence of serum on alginate-induced macrophage activation* **Yang D.**, Jones K.S.

11:20 End of Session

### Energy Policy Issues

**ENER1 R St-Fran**

#### Energy Efficiency

Organizer(s) - Gaétan Lantagne  
Chair(s) - Gaétan Lantagne

10:00 0196 *A new approach for the production of syngas based on an efficient use of electricity* **Labrecque R.**, Laflamme C.B., Clayton R.

10:20 0197 *Identifying opportunities for reducing energy/emissions intensity in Canadian industry* **Kidd G.**, Navarri P., Giguère D., Putz A.

10:40 0198 *Low cost energy related emissions reduction* **Peachey B.R.**

11:00 0199 *CeTECH™, an ecological and innovative solution to your inefficient and pollutant oxidation process: commercial production of vitamin K3 and its derivatives* **Mahdavi B.**, Amouzegar K., St-Amant G.

11:20 End of Session

**ENER4 R St-Fran**

### Chemical Engineering Concepts in Regard to the Kyoto Protocol

Organizer(s) - Gaétan Lantagne  
Chair(s) - Gaétan Lantagne

11:20 0200 *Essential but not inevitable: navigating into a nuclear-powered future* **Miller A.I.**, Duffey R.B.

11:40 0201 *Mitigating human impacts on climate change* **Peachey B.R.**

12:00 End of Session

### Environment

**ENV3 L Brmptn**

#### Environment

Organizer(s) - J. Peter Jones  
Chair(s) - Handan Tezel

10:00 0202 *Measurement of individual malodorous sulfur compounds in ambient air near a Kraft mill* **Liang V.**, Catalan L.J.J., Jia C.Q.

10:20 0203 *Dimensions of odour impact* **Nicell J.A.**, Henshaw P.

10:40 0204 *Removal of organic contaminants from produced-water using micellar enhanced ultrafiltration* **Derizadeh A.**, Harding T.G., Husein M.M.

11:00 0205 *Removal of arsenate from water using various adsorbent materials* **Qiu W.**, Zheng Y.

11:20 0206 *Effects of operating conditions on the thermal and emission performance of a conical fluidized-bed combustor firing rice husk* **Janvijitsakul K.**, Kuprianov V.I., Douglas P.L.

11:40 0207 *Biodegradation of 17 $\alpha$ -ethinylestradiol* **O'Grady D.**, Yargeau V.

12:00 End of Session

**ENV4 L Fraser**

**Successful and Sustainable Treatment Alternatives**

Organizer(s) - J. Peter Jones  
Chair(s) - William Anderson

10:00 0208 *Kinetics of bioremediation of naphthenic acids in a rotating bioreactor* **Paslowski J.C.**, Hill G.A., Nemat M., Headley J.

10:20 0209 *Stratified fjord Nitinat Lake as a model system for bioremediation of metal-contaminated mine pit lakes* **Schmidtova J.**, Baldwin S.A., Muttray A.F.

10:40 0210 *Wet air oxidation of benzene* **Abussaud B.**, Berk D., Kubes G.

11:00 0211 *Immobilized laccase on Celite® and continuous elimination of the endocrine disrupting substance bisphenol A in a packed-bed bioreactor* **Cabana H.**, Alexandre C., Jones J.P., Agathos S.N.

11:20 0212 *Rhamnolipid-enhanced remediation of styrene-contaminated soil followed by anaerobic biodegradation* **Guo Y.**, Mulligan C.N.

11:40 0213 *Changing Ryznar Stability Index by changing the method of microorganism control in industrial waters* **Abniki F.**, Bakhshi E., Heydari A.

12:00 End of Session

**Fuel Cells and Innovative Energy Technology**

**FUEL2 L d Nations**

**Hydrogen Production**

Organizer(s) - François Gitzhofer and Pierre Bénard  
Chair(s) - Chris Thurgood

10:00 0214 *Experimental study and kinetic modeling of hydrogen production by non-equilibrium plasma discharge decomposition of methane* **Yang Y.**, Boutot T., Liu Z., Whidden T.K.

10:20 0215 *The analysis and design of microchannel reactors* **Bellemare-Davis C.A.**, Karan K., Pharoah J.G., Zak G.

10:40 0216 *Hydrogen production by non-equilibrium plasma treatment of hydrogen sulfide in natural gas: experimental studies and equilibrium simulation* **Yang Y.**, Boutot T., Liu Z., Whidden T.K.

11:00 0217 *Anaerobic production of hydrogen in a UASB* **Bourque J.S.**, Guioit S.R., Thériault R., Garnier A.

11:20 0218 *Status of heat exchange reformers* **Thurgood C.P.**, Amphlett J.C., Mann R.F., Peppley B.A.

11:40 0219 *Cyclic production of pure hydrogen from syngas via an ethanol intermediate* **Chladek P.**, Croiset E., Hudgins R.R., Silveston P.L.

12:00 End of Session

**Plasma Technologies**

**PLAS1 L Mégantic**

**Plasma Processing I. Nanopowder Synthesis**

Organizer(s) - Maher Boulos  
Chair(s) - Richard J. Munz and Jerzy Jurewicz

10:00 0220 *Inductively coupled thermal plasma synthesis of ceria nano-powders* **Jia L.**, Gitzhofer F.

10:20 0221 *Induction plasma synthesis of Titania nanopowders* **Nessim C.**, Boulos M.I.

10:40 0222 *Synthesis of nano-coated Cu nanoparticles for nanofluid applications* **Qin C.**, Tavares J., Coulombe S.

11:00 0223 *Syntheses of nanostructured carbonaceous materials by thermal plasma technology* **Kim K.S.**, Imris M., Soucy G.

11:20 0224 *Modélisation de la synthèse de nanopoudres dans un réacteur à plasma inductif* **Mendoza-Gonzalez N.Y.**, Proulx P.

11:40 0225 *Change of nanostructure and size along the reactor wall in the thermal plasma synthesis of nanoparticles* **Mostajeran Goortani B.**, Mendoza N., Proulx P.

12:00 End of Session

**Polymers**

**POLY4 R Magog**

**Polymer Processing**

Organizer(s) - Basil Favis  
Chair(s) - Basil Favis

10:00 0226 *Rheological properties of short fiber filled polypropylene in elongational flow* **Férec J.**, Heuzey M.C., Carreau P.J., Ausias G.

10:20 0227 *Effect of coupling agent on polymer composites made from industrial waste fibres* **Leduc S.**, Galindo Ureña J.R., González-Núñez R., Quirarte J.R., Riedl B., Rodrigue D.

10:40 0228 *Surface properties of modified montmorillonite* **Uribe J.**, Kamal M.R., Lennox B.

11:00 0229 *Surface defects of TPO foamed injected molded parts for automotive applications* **Santoni A.**, Guo M.C., Heuzey M.C., Carreau P.J.

11:20 0230 *Multi-objective design optimization of an industrial LDPE tubular reactor* **Ray A.K.**

11:40 0231 *Fluorescence quenching of phenanthrene and anthracene by maleic anhydride (MAH) and n-octadecenyl-succinic anhydride (ODSA) in polypropylene* **Fang H.**, Mighri F., Ajji A.

12:00 End of Session

**Process Dynamics**

**PROC4 L Stukely**

**Statistical Methods**

Organizer(s) - Biao Huang  
Chair(s) - Thomas E. Marlin and Hector Budman

**CSCHE Award in Industrial Practice Lecture presented by John F. MacGregor**

10:00 0232 *Learning from industrial data: the key to productivity and quality improvement* **MacGregor J.F.**

10:40 0233 *Integration of control and design: calculation of the "worst-case" scenario* **Ricardez Sandoval L.A.**, Douglas P.L., Budman H.

11:00 0234 *Bayesian inference for development of soft sensors* **Khatibisepehr S.**, Huang B.

11:20 0235 *Soft sensing quality variables for processes with irregularly sampled multivariate data* **Li W.**, Ni B., Shah S.L., Xiao D.

11:40 0236 *Stochastic programming with risk management via minimization of mean-absolute deviation (MAD) for decision-making in petroleum refinery production-operations planning under uncertainty* **Khor C.S.**, Elkamel A., Pomambalam K., Douglas P.L.

12:00 End of Session

**Process Safety and Loss Management**

**PSLM3 R Coati**

### Plant Layout and Land-Use Management

Organizer(s) - Luc Piché  
Chair(s) - Della Wong

10:00 0237 *Buffer zones and land use planning: the importance of potential rather than actual land use* **Creedy G.D.**

10:30 0238 *Managing the consequences of dangerous goods occupancies in Red Deer* **Phillips K.G., Young D.A.**

11:00 0239 *Occupied building blast integrity assessment process* **Marta M.**

11:30 0240 *Lessons learned from the BP accident* **Merritt C.W.**

12:00 End of Session

### Transport Phenomena and Computational Fluid Dynamics

**TRAN2 L d'Argent**

#### Fluid Dynamics

Organizer(s) - Committee  
Chair(s) - Edward Paul

10:00 0241 *Experimental investigation of different turbine sizes in a coaxial mixer* **Farhat M., Fradette L., Tanguy P.A.**

10:20 0242 *Rheological model for carbonaceous mesophase mixtures* **Golmohammadi M., Rey A.D.**

10:40 0243 *Two phase mass transfer coefficients prediction using the class method of population balance* **Bannari R., Proulx P.**

11:00 0244 *Equation for correlating the viscosity of binary and ternary heavy oil-solvent mixtures of high viscosity ratios* **Black J., D'Orsay L., Mladonye A.**

**Syn crude Canada Innovation Award Lecture presented by Suzanne M. Kresta**

11:20 0245 *Mixing as a discipline: emerging from the essentials of equipment design to fundamental control of the scale of segregation* **Kresta S.M., Aubin J.**

12:00 End of Session

#### General

**GEN3 L Aylmer**

#### Commercial Success

Organizer(s) - Committee  
Chair(s) - Christian Roussel

10:00 0246 *Patent protection strategies* **Sajewycz M.**

10:20 0247 *Starting a new company: business plan, road show presentation and funding challenges for the founding scientist* **Skinner J.D.**

10:40 0248 *Management of turn-arounds and restarts - the challenges and the rewards* **Skinner J.D.**

11:00 0249 *Direction technique dans les usines opérantes* **Simoneau R.**

11:20 0250 *Architecture for model-based decision applications in plant operations* **Mahalec V.**

11:40 0251 *Real-time economic optimization of process operations: the long road to commercial success* **Mahalec V., Marlin T.**

12:00 End of Session

#### Tuesday PM

### Bioprocessing/Biotechnology

**BIO4 L Brome**

#### Biosystems

Organizer(s) - Christine Moresoli  
Chair(s) - Mario Jolicoeur

13:40 0252 *Separation of bioethanol from fermentation broth using fatty acids* **Boudreau T.M., Hill G.A.**

14:00 0253 *Primary recovery and purification of adeno-associated virus produced by Baculovirus/insect cell system* **Chahal P.S., Kamen A.A.**

14:20 0254 *Accelerated viral particle capture onto surfaces using non-uniform electric fields* **Wood J.A., Zhang B., Tomkins M., Docoslis A.**

14:40 0255 *Purification of monoclonal antibody from transgenic tobacco plant by membrane technology* **Yu D., Ghosh\* R.**

15:00 0256 *Continuous purification of monoclonal antibody using a novel two-stage cascade ultrafiltration configuration* **Mohanty K., Ghosh R.**

15:20 0257 *Characterization of membrane fouling during microfiltration* **Stressmann M., Moresoli C.**

15:40 End of Session

### Challenges in Regenerative Medicine

**REGM2 L Memphr**

#### Tissue Engineering and Delivery Systems

Organizer(s) - Nathalie Fauchoux  
Chair(s) - Lucie Germain

13:40 0258 *Drug delivery and tissue engineering strategies* **Shoichet M.S.**

14:20 0259 *Cellular and molecular delivery in a nerve guidance channel* **Kim H., Tator C.H., Shoichet M.S.**

14:40 0260 *Preosteoblast differentiation using a delivery system with BMPs and bioactive glass microspheres in collagen* **Bergeron E., Marquis M., Chrétien I., Fauchoux N.**

15:00 0261 *Gradient biopolymer porous structures* **Liu S., Nawaby V., Cao X.**

15:20 Coffee Break

15:40 0262 *Development of an injectable gel for embolization of the abdominal aortic aneurysm (AAA)* **Bonneviot M.C., Lerouge S., Soulez G.**

16:00 0263 *Statistical design of experiments to optimize the yield of human pancreatic islet progenitors* **Hoesli C.A., Szabat M., Luu M., Lakey J.R., Korbutt G.S., Piret J.M.**

16:20 0264 *Chemotactic response of human and rabbit bone marrow mesenchymal stem cells towards components of a hybrid biomaterial for cartilage repair* **Thibault M., Buschmann M.D.**

16:40 0265 *Adipose-derived cells for soft-tissue reconstruction: producing human 3D adipose tissues in vitro from precursor cells* **Fradette J., Trottier V., Vermette M., Saint-Pierre L.**

17:00 End of Session

### Energy Policy Issues

**ENER2 R St-Fran**

#### Energy Efficiency

Organizer(s) - Gaétan Lantagne  
Chair(s) - Gaétan Lantagne

13:40 0266 *L'insoutenable légèreté de l'énergie* **Dumontier S.**

14:00 0267 *Fluidized bed gasification of biomass: modeling and experimentation* **Mahinpey N., Nikoo M.B.**

14:20 0268 *Microwaves as GHG-reducing process tools* **Paré J.R.J., Bélanger J.M.R., Fairbridge C.**

14:40 0269 *Pre- and post-combustion capture of carbon dioxide by clathrate hydrate crystallization* **Kumar R., Linga P., Englezos P.**

15:00 End of Session

**ENER3 R St-Fran**

#### Clean Coal Technologies

Organizer(s) - Gaétan Lantagne  
Chair(s) - Glen Kidd

15:40 0270 *Clean coal technologies: overview and opportunities* **Trass O.**

16:00 0271 *Effectiveness of sulphur-impregnated activated carbons produced using different impregnation methods in mercury vapour adsorption* **Fuentes de Maria L., Tong S., Jia C.Q.**



16:20 0272 *Roles of sulphur in sulphur impregnated activated carbon production and mercury adsorption* **Cai J. H.**, Jia C.Q., Tong S.

16:40 End of Session

### Environment

**ENV5** **L Fraser**

#### Environment

Organizer(s) - J. Peter Jones  
Chair(s) - Handan Tezel

13:40 0273 *An optimization approach for integrating planning and CO<sub>2</sub> emission reductions in the petroleum refining industry* **Ba-Shammakh M.S.**, Elkamel A., Douglas P.L., Croiset E.

14:00 0274 *Laboratory studies of atmospheric photochemical oxidation of oxygenated species* **Ray M.B.**, Yang L., Yue L.

14:20 0275 *Optimal design of petroleum refineries using mixed-integer programming of structural optimization of process flowsheet superstructure with environmental considerations* **Elkamel A.**, **Khor C.S.**

14:40 0276 *Assessing energy projects at an integrated newsprint mill using LCA: impact of selected methodological choices* **Gaudreault C.**, Bisson J., Samson R., Stuart P.

15:00 Coffee Break

15:40 0277 *Photochemical treatment of persistent organic pollutants in metallurgical off-gases* **Anderson W.A.**, Zhang L., Peney A., Sawell S., Moralejo C.

16:00 0278 *The oxidation of aqueous sulfur dioxide by transition metal ions* **Reda M.**

16:20 0279 *Hydrocarbon cold start emission control by single-file diffusion* **Iliyas A.**, Zahedi-Niaki H.M., Eic M., Kaliaguine S.

16:40 0280 *Hydrocavitational Advanced Fenton Process for industrial wastewater treatment* **Chakinala A.G.**, Bremner D.H.

17:00 End of Session

### Fuel Cells and Innovative Energy Technology

**FUEL3** **L d Nations**

#### Hydrogen Production

Organizer(s) - François Gitzhofer and Pierre B nard  
Chair(s) - Nicolas Abatzoglou

13:40 0281 *Thermodynamic analysis of hydrogen production by ethanol oxidative steam reforming from atmospheric pressure to supercritical water conditions* **Srisirawat N.**, Croiset E., Therdthianwong A., Therdthianwong S.

14:00 0282 *Ethanol steam reforming over Mg-Al mixed oxide-supported nickel catalysts* **Coleman L.J.J.**, Croiset E., Hudgins R.R.

14:20 0283 *Supported Ni catalysts for oxidative steam reforming of ethanol in the hydrogen production* **Srisirawat N.**, Therdthianwong A., Therdthianwong S.

14:40 0284 *Partial oxidation of methanol for hydrogen production over carbon nanotubes supported Cu-Zn catalysts* **Eswaramoorthi L.**, Sundaramurthy V., Dalai A.K.

15:00 0285 *Autothermal partial oxidation of methyl acetate in a catalytic bed reactor* **Nguyen B.N.T.**, Leclerc C.A.

15:20 End of Session

### Green Chemical Engineering

**GRCE2** **L Aylmer**

#### Biofuels

Organizer(s) - Esteban Chornet  
Chair(s) - Jean Paris

13:40 0286 *The production of high quality biodiesel fuel from a novel membrane reactor* **Cao P.**, Dub  M.A., Tremblay A.Y.

14:00 0287 *A novel solid acid catalyst for biodiesel synthesis* **Gopinath R.**, Kulkarni M., Meher L., Dalai A.K.

14:20 0288 *Liquid-liquid equilibria of the system: methyl oleate, glycerol, hexane and methanol* **Tizvar R.**, McLean D.D., Kates M., Dub  M.A.

14:40 0289 *Ternary phase diagram for fatty acid methyl ester/methanol/glycerol mixtures* **Zhang Y.**, Tremblay A.Y., Dub  M.A.

15:00 0290 *Base-catalyzed transesterification of canola oil to fatty acid methyl esters at ambient conditions* **Ataya F.**, Dub  M.A., Ternan M.

15:20 Coffee Break

15:40 0291 *Synthetic alcohols (methanol as a prototype) from biomass-rich wastes: a strategy enhancing sustainability* **Merlo-Sosa L.**

16:00 0292 *Catalytic liquefaction of wood biomass in sub-/super-critical water* **Xu C.C.**

16:20 0293 *Innovative pyrolysis reactor for the conversion of sugarcane bagasse into bio-oil* **Jacobson M.**, Berruti F., Briens C.

16:40 0294 *The Canadian network on biorefining: a driving force for change* **Browne T.**, Kerekes R., Towers M., **Paris J.**

17:00 End of Session

### Plasma Technologies

**PLAS2** **L M gantic**

### Nonequilibrium Plasmas

Organizer(s) - Maher Boulos  
Chair(s) - Sylvain Coulombe and Pierre Proulx

13:40 0295 *Measurements and modeling of non-equilibrium supersonic plasma jets* **Blais A.**, Jodoin B.

14:00 0296 *Study of the thermal boundary layer of a supersonic impinging plasma jet* **Xue S.**, Lakaf Y., Gravelle D., Boulos M.I.

14:20 0297 *Induction plasma torch modelling: a comparison between a commercial and an open source package* **El Morsli M.**, Bannari R., Proulx P.

14:40 0298 *Two temperature chemically non-equilibrium modelling of air/N<sub>2</sub> supersonic ICP* **El Morsli M.**, Proulx P.

15:00 0299 *Two temperature chemically non-equilibrium modelling of Ar/H<sub>2</sub> supersonic ICP: a comparison between a commercial and an open source package* **Bannari R.**, El Morsli M., Proulx P.

15:20 Coffee Break

15:40 0300 *A new "cold" plasma instrument for precise biomedical applications* **L veill  V.**, Coulombe S., Yonson S., Leask R.

16:00 0301 *Dry reforming of methane by an atmospheric pressure glow discharge enhanced catalytic reactor* **Nsungui A.J.**, Abatzoglou N., Gitzhofer F., Gravelle D.

16:20 0302 *Dual plasma synthesis of a metal-ethylene glycol nanofluid* **Tavares J.**, Coulombe S., Qin C.

16:40 0303 *Study of dye degradation for the optimization of an atmospheric pressure direct-contact DBD and application to a pharmaceutical compound* **Jureidini J.**, Coulombe S., Leclair C., Yargeau V.

17:00 End of Session

### Polymers

**POLY5** **L Brmp n**

#### Polymerization Reactions

Organizer(s) - Basil Favis  
Chair(s) - Alex Penlidis

14:20 0304 *High molecular weight, narrow polydispersity polymers mediated by reverse atom transfer radical polymerization in miniemulsion* **Simms R.W.**, Cunningham M.F.

14:40 0305 *Nanoporous materials by templating from block copolymers* **Grafte A.**, Maic M.

15:00 0306 *Copolymer composition control policies and applications* **Fujisawa T.**, Penlidis A.

15:20 Coffee Break

15:40 0307 *Free radical copolymerization of styrene and divinylbenzene in the presence of TEMPO* **McManus N.T.**, Roa-Luna M., Vivaldo-Lima E., Lona L.M.F., Penlidis A.

16:00 0308 *Clarifying the effect of (TEMPO/ dibenzoyl peroxide) ratio in the nitroxide mediated radical polymerization (NMRP) of styrene* **Nabifar A.**, Ximenes J.B., Roa-Luna M., McManus N.T., Vivaldo-Lima E., Lona L.M.F., Penlidis A.

16:20 0309 *Optimal control determination of ethylene polymerization in a high-pressure tubular reactor with different initiators* **Tendulkar J.**, Yao Z., Upreti S.R., Lohi A.

16:40 0310 *Mathematical modeling of the poly(lactic acid) ring-opening polymerization* **Mehta R.**, Kumar V., Upadhyay S.N. **PAPER WITHDRAWN**

16:40 End of Session

### Process Dynamics

#### PROC5 L Stukely

#### Process and Control Monitoring/Bioengineering

Organizer(s) - Biao Huang  
Chair(s) - James McLellan and Michel Perrier

**D.G. Fisher Award Lecture presented by Sirish L. Shah**

13:40 0311 *Plant health management: the role of digital automation systems in process monitoring* **Shah S.L.**

14:20 0312 *Techniques for diagnosing performance-degradation in model-based real-time optimization systems* **Sherkin M.**, Hanley C., Forbes J.F., **McLellan P.J.**

14:40 0313 *MPC performance monitoring using a Bayesian graphical model* **Agarwal N.**, Huang B., Tamayo E.C.

15:00 0314 *A PCA-based reactor energy balance monitoring scheme for an industrial LDPE/EVA reactor* **Sharmin R.**, Sundararaj U., Shah S.L.

15:20 Coffee Break

15:40 0315 *Systems biology: reverse and forward engineering approaches in molecular and cellular biology* **Kaern M.**

16:20 0316 *Continuous process optimization using an output sign based switch method* **Jutan A.**, **Ping Y.**

16:40 End of Session

### Process Safety and Loss Management

#### PSLM4 R Coati

#### Process Safety Management Award Lecture and Discussion Panel

Organizer(s) - Luc Piché  
Chair(s) - Mariette Tremblay

#### Process Safety Management Award Lecture presented by Laird Wilson

13:45 0317 *The practical essentials of industrial risk management* **Wilson L.**

14:45 Coffee Break

15:15 Discussion Panel on Land-Use Planning around Hazardous Installations

Participants: David Belgue, Romain St-Cyr, Yves Dubeau, Valérie Gagnon and Jean Halde

17:45 End of Session

### Separation Processes

#### SEPN2 L d Nations

#### Separation Processes

Organizer(s) - Committee  
Chair(s) - Boguslaw Kruczek

15:40 0318 *Characterization of polymeric membranes using contact angle measurement and atomic force microscopy* **Hyder M.N.**, Huang R.Y.M., Chen P. **PAPER WITHDRAWN**

16:00 0319 *Preparation of crosslinked poly(vinyl alcohol) membranes using trimestic acid chloride for pervaporation dehydration of isopropanol* **Xiao S.**, Huang R.Y.M., Feng X., Hsu H.L., Chen P., Douglas P.L., Pal R., Nawawi M.

16:20 0320 *Application of zeolites in heterogeneous catalysis* **Sugungun M.M.**, Mohammed I.A.

16:40 0321 *Optimization of the nimbin extraction process using AspenPlus* **Ajchariyapagorn A.**, Douglas S., Douglas P.L., Pongamphai S.

17:00 End of Session

### Thermodynamics

#### THER3 R Magog

#### Thermodynamics

Organizer(s) - Denis Gravelle  
Chair(s) - William Smith and Pak Yuet

15:40 0322 *Molecular simulations of chemically crosslinked polyelectrolyte networks in salt solutions* **Yin D.-W.**, de Pablo J.J.

16:00 0323 *Monte Carlo simulation of fluid systems at fixed entropy and application to vapor-compression refrigeration cycles* **Smith W.R.**, Figueroa-Gerstenmaier S., Lisal M., Nezbeda I.

16:20 0324 *A new local composition-equation of state mixing rule for high-pressure equilibrium calculation of water +ethylene glycol + hydrocarbon systems* **Haghtalab A.**, Mazloumi S.H. **PAPER WITHDRAWN**

16:40 0325 *On extension of UNIQUAC-NRF model to study the solubility of acid gases in alkanolamines* **Haghtalab A.**, Dehghani-Tafti M., Al-fadale H.

17:00 End of Session

### Transport Phenomena and Computational Fluid Dynamics

#### TRAN3 L d'Argent

#### Fluid Dynamics

Organizer(s) - Committee  
Chair(s) - A.M. Al Taweel

13:40 0326 *You can observe a lot just by watching: industrial problem solving via flow visualization* **Cloeter M.D.**

14:00 0327 *Flow of suspensions in coating dies: experiments and modeling* **Apostolou K.**, Hrymak A.N.

14:20 0328 *CFD simulation of fluidized bed gasifier* **Vejahati F.**, **Mahinpey N.**

14:40 0329 *CFD simulation of oil sand conditioning during hydrotransport* **Naveen B. P.**, Al Taweel A.M., Koksai M., Friesen W., Gupta Y.P., Podilla K.

15:00 0330 *Using CFD simulation to assess bubble/drop breakage models* **Jadeja R.R.**, Al Taweel A.M., Koksai M., Gupta Y.P., Podilla K. **PAPER WITHDRAWN**

15:20 Coffee Break

15:40 0331 *Using CFD to simulate and design airlift reactors* **Appasani P.**, **Al Taweel A.M.**, Ghanem A., Koksai M.

16:00 0332 *Progressive cavity pumps CFD simulation* **Alemaskin K.**, Nandakumar K., Sundararaj U.

16:20 0333 *Layer inversion and bed contraction in downward liquid fluidization of binary solids* **Escudie R.**, **Epstein N.**, Grace J.R., Bi H.T.

16:40 0334 *Population balance modelling using the quadrature method of moments* **Selma B.**, Proulx P.

17:00 End of Session

### Posters

#### POS2 Sherbrooke B

#### Posters

Organizer(s) - Committee

From 17:00 until 18:40

0335 *On the solvent versatility in immobilized amylose tris-(3,5-dimethylphenylcarbanate) chiral stationary phase in high-performance liquid chromatography: application to the asymmetric cyclopropanation of olefins* **Ghanem A.**

0336 *Enantioselective GC and HPLC analysis of cyclopropane derivatives* **Ghanem A.**

0337 *The bacterial cellulose - silver system: a nano / nano antimicrobial material technology platform* **Guhados G., Panchal C., Wan W.K.**

0338 *Prediction of protein-protein interactions using signature profiling* **Mahdavi M.A., Lin Y.-H.**

0339 *The role of telomerase and transcription factors Sp1/Sp3 in the lifespan of cultured human skin keratinocytes* **Paquet C., Fugère C., Gaudreault M., Martel I., Bourget J.M., Guérin S.L., Germain L.**

0340 *Pervaporation separation of isopropanol/water mixtures through genipin crosslinked chitosan membranes* **Hsu H.L., Huang R.Y.M., Chen P., Feng X., Pal R., Douglas P.L., Nawawi M.**

0341 *Stimulatory effect of tea in enhanced bacterial cellulose production* **Mahabir S., Guhados G., Wan W.K.**

0342 *FT-IR investigation of the characteristics of modified phenolic resins from one-pot microwave synthesis* **MacIntyre M., Miadonye A.**

0343 *Simultaneous estimation of vapour liquid equilibria of binary mixtures, chlorodifluoromethane-carbon dioxide, trifluoromethane-carbon dioxide, carbon disulfide-chlorodifluoromethane and carbon disulfide-trifluoromethane using artificial neural networks* **Karimi H., Yousefi F.**

0344 *A new method to study the solubility of CO<sub>2</sub> in amine aqueous solutions* **Ghotbi C., Goharrokhi M., Taghikhani V.**

0345 *Simulation of batch reactive distillation for methyl acetate production* **Nakkash N.B., Hamodée H.M.**

0346 *Effect of solvent on the kinetics and characteristics of polyurea synthesized by interfacial polycondensation (IP)* **Wagh S.J., Kshirsagar P.R., Patil P.G.**

0347 *Modeling of non-isothermal fluid catalytic cracking riser reactor* **Gupta R., Kumar V., Srivastava V.K.**

0348 *Empirical hydrodynamic model for demetallization of reduced crude oil in trickle-bed reactor* **Abbas A., Barno S.PAPER WITHDRAWN**

0349 *Study of methanol to formaldehyde reaction in fluidized bed reactor* **Khorshidi J.**

0350 *Wall-to-bed heat transfer coefficient in three phase sparged reactors* **Rao K.S.K., Bommareddy S.**

0351 *Heat transfer in turbulent fluidized beds* **Leu L.-p., Tao C.-l.**

0352 *A study on effective parameters in hydrodesulphurization of oil products in a fluidized bed reactor* **Rezaei H., Sohrabi M.**

0353 *Controlled particle deposition by design of an electrochemical adsorption cell* **Bakhshi E., Abniki F., Mosalla M.**

0354 *Problems arising from impurities in steam turbines* **Abniki F., Bakhshi E.**

0355 *Kinetics based modeling of gas hydrate formation in the gas pipeline* **Sarshar M., Fathikalajahi J., Esmailzade F.**

0356 *Controlled release to reduce biocide leaching from wood* **Salma U., Matuana L., Dawson-Andoh B., Heiden P.PAPER WITHDRAWN**

0357 *Security risk assessment of chemical process industries* **Bajpai S., Gupta J.P.**

0358 *An update on CCPA Process-Related Incidents Measure (PRIM) program* **Marta M.**

0359 *Gestion du risque industriel* **Ricard M.**

0360 *Adsorption separation of methane and nitrogen with silicalite* **Tezel F.H., Li P.**

0361 *A novel algorithm for filter selection in chemical and petroleum processes* **Khatibisepehr S., Nikooyeh K., Farhadi F.**

### Wednesday AM

#### Plenary

#### PLEN Sherbrooke B

#### Plenary

Organizer(s) - Gervais Soucy  
Chair(s) - J. Peter Jones

Introduction of Esteban Chomet by Michel Chomet, President and CEO, SCFuels Inc.

08:30 0362 *Sustainability and green chemicals: a challenge and opportunity for chemical engineers* **Chornet E.**

09:30 End of Session

09:30 Coffee Break

#### Bioprocessing/Biotechnology

#### BIO5 L Brome

#### Enzyme Technologies/Food Processing

Organizer(s) - Christine Moresoli  
Chair(s) - Amarjeet Bassi

10:00 0363 *Proteomic analysis of softwood-degrading fungi* **Mahajan S., Master E.R.**

10:20 0364 *Purification of polyurethane esterase enzyme for the biodegradation of polyurethane foam* **Gautam R., Bassi A.S., Yanful E.K.**

10:40 0365 *Enzymatic biodiesel production in ionic liquids* **Ruzich N., Bassi A.S.**

11:00 0366 *Use of a foaming process for separations in liquid waste streams from poultry and mussel industries* **Chan N.Y., Rouse M.W., Brooks M.S.**

11:20 0367 *The effect of electroacidification pre-treatment on the filtration behavior of soy protein extracts* **Skorpova J., Guettler B., Moresoli C.**

11:40 0368 *Membrane ultrafiltration applications in food processing: potential and limitations* **Ali F., Moresoli C., Mondor M.**

12:00 End of Session

#### Challenges in Regenerative Medicine

#### REGM3 L Memphr

#### Tissue Engineering

Organizer(s) - Nathalie Fauchoux  
Chair(s) - Nathalie Fauchoux and Xudong Cao

10:00 0369 *Hybrid biomaterials for regenerative medicine* **Buschmann M.D.**

10:40 0370 *A study of the in vitro effects of biomaterials on lymphocyte responses to an allogeneic challenge* **Farooqui N.Z., Jones K.S.**

11:00 0371 *Development of a bioactive stent-graft for abdominal aortic aneurysms (AAA)* **Charbonneau C., Gautrot J., Hébert M.J., Zhu X., Lerouge S.**

11:20 0372 *Cross-linked chitosan hydrogels for cartilage repair applications* **Hoemann C.D., Chenite A., Sun J., Hurtig M., Serreqi A., Lu Z., Buschmann M.D.**

11:40 0373 *Endothelial cell response to shear stress in an asymmetric stenosis model* **Rouleau L., Farcas M., Tardif J.C., Thorin E., Mongrain R., Leask R.L.**

12:00 End of Session

#### Chemical Engineering Education

#### CEED1 Sherbrooke B

#### Bantrel Forum on Design in Chemical Engineering: Design-Directed Research

Organizer(s) - Paul Stuart  
Chair(s) - Viviane Yargeau and Paul Stuart

10:00 Janet Walden, NSERC

10:20 Discussion

10:40 John McVey, Bantrel

11:00 0374 *Conceptual process design for the Canadian oil sands industry: a systems approach for water and energy efficiency* **Alva-Argaez A., Savulescu L., Hammaché A.**

11:20 Esteban Chornet, Université de Sherbrooke

11:40 Discussion

12:00 End of Session

**CEED3** L Aylmer

**Integrating Design into the Curriculum**

Organizer(s) - Bernard Marcos  
Chair(s) - Bernard Marcos

10:00 0375 *Collaborative learning in a second year design engineering course*  
Davidson V.J., Silver W.H., Newberry J., Hayward M., Rohatynskj M., Yuval L.

10:20 0376 *Incorporating project based learning into unit operations laboratory*  
Royann P., Gyenge E., Kannangara D., Creagh L., Lee Q.F., Sibley J.

10:40 0377 *Innovation and Opportunity Atlantic Canada: a partnership in design education at UNB*  
Collins F., Thibault J.D.

11:00 End of Session

**Environment**

**ENV6** L Brmptn

**Water and Air Quality**

Organizer(s) - J. Peter Jones  
Chair(s) - Nathalie Tufenkji

10:00 0378 *Wastewater treatment modelling in environmental risk assessment*  
Shen J., Gutzman D., Tigner J., Bonnell M.

10:20 0379 *Deposition kinetics of Escherichia coli O157:H7 and Enterococcus faecalis in model groundwater environments*  
Castro F., Tufenkji N., Faubert G., Madramootoo C.

10:40 0380 *Degradation of antibiotics in wastewater using ozonation*  
Leclair C., Yargeau V.

11:00 0381 *High pressure solubility and kinetic rates of carbon dioxide in monoethanolamine, piperazine and 2-(2-aminoethylamino)ethanol solutions*  
Alam M.R., Alem M., Henni A.

11:20 0382 *Kinetics of biodegradation of p-xylene and naphthalene and oxygen transfer in a novel airlift immobilized bioreactor*  
Jajuee B.J., Margaritis A.M., Karamanev D.K.

11:40 0383 *A computer based expert system for conceptual review and cost evaluation of desalination processes*  
Alishiri M., Farhadi F.

12:00 End of Session

**ENV7** L Fraser

**Successful and Sustainable Treatment Alternatives**

Organizer(s) - J. Peter Jones  
Chair(s) - Gordon Hill and Zisheng Zhang

10:00 0384 *In-situ decontamination of surface waters by filtration*  
Davarpanah N., Mulligan C.N., Fukue M.

10:20 0385 *Hydroxyl radical and hydrogen peroxide production in different ultrasonic reactors*  
Ray M.B., Hu H., Mujumdar A.S.

10:40 0386 *Upstream oil and gas fugitive emissions*  
Peachey B.R.

11:00 0387 *The DAD (Double Air Demand) control system for sulphur recovery units*  
d'Haene P.E., Schermann P.S.

11:20 0388 *Adsorptive removal of phosphate and nitrate anions over ammonium-functionalized mesoporous silicas*  
Saad R., Belkacemi K., Hamoudi S.

11:40 0389 *Studying different factors on corrosion of coated titanium anodes in NaCl solution*  
Bakhshi E., Abniki F.

12:00 End of Session

**New Technologies**

**NTEC3** R Magog

**New Technologies**

Organizer(s) - Gervais Soucy  
Chair(s) - Reghan Hill

10:00 0390 *Use of oscillatory motion and turbulence promoters to enhance microfiltration processes*  
Rao S., Gomaa H.G., Al Taweel A.M., Koksai M., Fels M.

10:20 0391 *Enhanced permeability and reverse-selectivity of nanocomposite membranes*  
Hill R.J.

10:40 0392 *Momentum and ion transport in neutral hydrogels with charged spherical inclusions*  
Hill R.J.

11:00 0393 *Pervaporation of propyl propionate-water mixtures through PEBA membranes*  
Mujiburohman M., Feng X.

11:20 0394 *The antimicrobial effects of ozone and hydrodynamic cavitation in a liquid whistle reactor*  
Chand R., Bremner D.H., Collier P.J., Namkung K.C.

11:40 0395 *Experimental investigation of explosion occurrence in underbalanced drilling*  
Shahbazi K., Mehta S.A., Moore R.G., Urnsbach M.G.

12:00 End of Session

**Pharmaceutical Engineering**

**PHAR1** R St-Fran

**Process Analytical Technologies (PAT)**

Organizer(s) - Nicolas Abatzoglou  
Chair(s) - Jean-Sebastien Simard and Mahmoud Mirmehrabi

10:00 0396 *Process analytical technologies in the pharmaceutical industry and the role of chemical engineering*  
Levins J.

10:40 0397 *Development of a NIR quantitative model to evaluate segregation in a hopper before the compression step of a simple pharmaceutical formulation*  
Abatzoglou N., Cartilier L., Cournoyer A., Simard J.-S.

11:00 0398 *Qualitative and quantitative blend homogeneity determination of a multicomponent dry pharmaceutical formulation for direct compression using near-infrared spectroscopy in a V-type blender*  
Lapointe-Garant P.P., Abatzoglou N., Simard J.-S.

11:20 0399 *Cohesive multicomponent dense powder flow characterization of a pharmaceutical dry formulation for direct compression using Near-Infrared Spectroscopy as a PAT tool*  
Benedetti C., Abatzoglou N., Simard J.-S.

11:40 0400 *Rheological properties of pharmaceutical powders*  
Léonard G., Abatzoglou N., Simard J.-S.

12:00 End of Session

**Plasma Technologies**

**PLAS3** L Mégantic

**Plasma Processing II. Industrial Applications**

Organizer(s) - Maher Boulos  
Chair(s) - François Gitzhofer

10:00 0401 *Materials processing using induction plasma technology*  
Boulos M.I., Dolbec R., Fan X., Guo J.

10:40 0402 *Thermal plasma production of fumed silica: the influence of quench conditions and agglomeration on powder properties*  
Pristavita R., Munz R.J., Addona T.

11:00 0403 *Induction plasma spraying of refractory metals*  
Fan X., Kovarik O., Boulos M.I.

11:20 0404 *Application of two-color pyrometry during impact and spreading of plasma-sprayed particles*  
McDonald A., Chandra S., Moreau C.

11:40 0405 *Comparative study on nanostructured SOFC electrolyte deposition using solution and suspension plasma spraying*  
Jia L., Gitzhofer F.

12:00 End of Session

**Process Dynamics**

**PROC6** L Stukely

**Statistical Methods**

Organizer(s) - Biao Huang  
Chair(s) - Amos Ben-Zvi and Sohrab Rohani

10:00 0406 *Assessing the quality of time series predictions using generalized profiling*  
Soon A., Harris T.J., McLellan P.J.

10:20 0407 *Statistical evaluation of the factors affecting the crystal size of hexammoniate in an industrial crystallizer* **Jenkins D.H.**, Lwin T.

10:40 0408 *Identifiability of nonlinear differential-algebraic equation systems* **Ben-Zvi A.**, McLellan P.J., McAuley K.B.

11:00 0409 *Excitation signal design for parameter convergence in adaptive control of linearizable systems* **Adetola V.A.**, Guay M.

11:20 0410 *Multivariate Image Analysis for on-line estimation of the composition of heterogeneous mixtures of solids* **Tessier J.**, Duchesne C.

11:40 0411 *Quality control of wood/plastic composites by hyperspectral imaging* **Gosselin R.**, Duchesne C., Rodrigue D.

12:00 End of Session

### Process Safety and Loss Management

**PSLM5** **R Coati**

#### Practical Application of Tools and Techniques

Organizer(s) - Luc Piché  
Chair(s) - Eric Clément

10:00 0412 *Development of a novel incident potential matrix and severity index for risk quantification and HES performance analysis* **Condor J.**, Asghari K.

10:30 0413 *Practical methods for process safety management* **Kozma S.**

11:00 0414 *Internal vapour cloud explosions: a state-of-the-art review* **Pierorazio A.J.**, Thomas J.K., Kolbe M., Goodrich M.L.

11:30 0415 *Étude de cas: analyse de risque et plan particulier d'intervention pour une chaîne de production* **Ricard M.**

12:00 End of Session

### Pulp and Paper

**PPAP1** **L d Nations**

#### Pulp and Paper

Organizer(s) - Robert Lanouette and Chantal Goyette  
Chair(s) - Robert Lanouette

10:00 0416 *A new model for the consolidation of pigments in paper coating* **Pianet G.**, Vidal D., Desaulniers E., Bertrand F.

10:20 0417 *The potential of novel SMA chemistries in surface sizing of paper and boards* **Pervaiz M.**, **Sain M.M.**, Janardhan S., Dougherty W.

10:40 0418 *The role of deinking parameters in neutral deinking process* **Nguyen Minh H.**, **Nazhad M.**, **Navae-Ardeh S.**

11:00 0419 *Process-based approach for supply chain analysis: application in the pulp and paper industry* **Lafamme-Mayer M.**, Stuart P.

11:20 0420 *Hybrid modelling of a pulp and paper mill activated sludge treatment plant: steady-state results* **Brault J.-M.**, Comeau Y., Perrier M., Stuart P.

11:40 0421 *Mechanistic model for nutrient transformations in pulp and paper activated sludge wastewater treatment plants* **Cotter L.**, Stuart P.

12:00 End of Session

### Transport Phenomena and Computational Fluid Dynamics

**TRAN4** **L d'Argent**

#### Transfer with Chemical Reaction

Organizer(s) - Committee  
Chair(s) - Norman Epstein

10:00 0422 *Electrocatalytic hydrogenation of phenol on a Pd/Al<sub>2</sub>O<sub>3</sub> catalyst: mathematical modelling* **Bannari A.**, Proulx P.

10:20 0423 *Mathematical modeling of electrocatalytic hydrogenation of phenol on a Pd/Al<sub>2</sub>O<sub>3</sub> catalyst: effect of the configuration on efficiency* **Bannari A.**, Proulx P.

10:40 0424 *Validation of CFD modeling of alkali removal in a molten aluminum reactor* **Bolduc I.**, Bannari A., Proulx P., Dupuis C.

11:00 0425 *Interfacial instability in reactive miscible flow displacements* **Ghesmat K.**, Azaiez J.

11:20 0426 *Role of velocity on calcium sulphate scaling under sensible heating conditions* **Fahiminia F.**, Watkinson A.P., Epstein N.

11:40 0427 *Iron carbonate film deposition and erosion in aqueous CO<sub>2</sub> pipeline flow* **Kennell G.F.S.**, Heppner K.L., Evitts R.W.

12:00 End of Session

### Wednesday PM

#### Bioprocessing/Biotechnology

**BIO6** **L Brome**

#### Biosystems

Organizer(s) - Christine Moresoli  
Chair(s) - Joël Sirais

13:40 0428 *Dynamics of ex vivo megakaryopoiesis* **Hains M.C.**, Leysi-Derilou Y., Lemieux R., Pineault N., Duchesne C., Garnier A.

14:00 0429 *Serum-free media development for the expansion of two types of muscle precursor cells* **Drouin F.**, Parent V.A., Sancen-Chaparro L.E., Tremblay J.P., Garnier A.

14:20 0430 *Design of a small-scale bioreactor for in vivo NMR analysis of CHO cells* **Ben-Tchavtchavdze M.**, Chen J., Perrier M., Jolicoeur M.

14:40 0431 *Monitoring of mammalian cell cultures using on-line capacitance measurements* **Ansoorge S.**, Henry O., Aucoin M.G., Voyer R., Kamen A.A.

15:00 0432 *Temperature increases the yield of adeno-associated virus produced in insect cell culture* **Aucoin M.G.**, Kamen A.A., Perrier M.

15:20 0433 *Adenofection: a simple and efficient process for large-scale helper-dependent adenoviral vector production* **Dormond E.**, Durocher Y., Perrier M., Kamen A.A.

15:40 End of Session

### Challenges in Regenerative Medicine

**REGM4** **L Memphr**

#### Tissue Engineering

Organizer(s) - Nathalie Fauchoux  
Chair(s) - Nathalie Fauchoux and Xudong Cao

13:40 0434 *Synergic action of bone morphogenetic proteins and ascorbic acid on the transdifferentiation of human preadipocytes to osteoblasts* **Lord E.**, Bergeron E., Fauchoux N.

14:00 0435 *Effect of chitosan on bone marrow stromal cell osteogenesis* **Hoang M.P.**, Lavalée G., Sun J., El-Gabalawy H., Hoemann C.D.

14:20 0436 *CFSE cell division analysis to reveal cytokine effects in erythropoiesis* **Horner D.**, **Wang W.**, Audet J.

14:40 0437 *A growth model for a stem cell aggregate experiencing hydrodynamic shear* **Gates I.D.**, Kallós M.S., Sen A.

15:00 0438 *Chondrocyte proliferation at the agarose-media interface resembles appositional mechanisms of the epiphyseal growth plate* **Tran-Khanh N.**, Lavertu M., Hoemann C.D., Buschmann M.D.

15:20 End of Session

### Chemical Engineering Education

**CEED2** **Sherbrooke B**

#### Bantrel Forum on Design in Chemical Engineering: Design-Directed Research

Organizer(s) - Paul Stuart  
Chair(s) - Nicolas Abatzoglou

- 13:40 Tom Marlin, McMaster University
- 14:00 Vladimir Malahec, McMaster University
- 14:20 0439 *Industrial implementation of the Mg(OH)<sub>2</sub>-based peroxide bleaching process* Ni Y.
- 14:40 Jean-Sebastien Simard, Wyeth
- 15:00 Break-Out Sessions Protocols
- 15:20 **Coffee Break**
- 15:40 Break-Out Sessions
- 16:00 Jerzy Jurewicz, Université de Sherbrooke
- 16:20 Al Taweel, Dalhousie University
- 16:40 Barrie Jackson, Queen's University
- 17:00 End of Session

### Environment

#### ENV8 L Brmptn

#### Waste Management

- Organizer(s) - J. Peter Jones  
Chair(s) - Gordon Hill and Nathalie Tufenkji
- 13:20 0440 *Gasification as an approach to convert waste into clean synthetic gas: applications to urban biomass and petroleum residues* Valsecchi B.
- 13:40 0441 *Intermittent aeration in biological treatment of wastewater containing ethylene glycol using a packed column aerator* Thuraisingham G., Doan H.D.
- 14:00 0442 *Bioremediation of diesel-contaminated soil by heated and humidified biopile system in cold climates* Sanscartier D., Reimer K., Zeeb B., Koch I.
- 14:20 0443 *Treatment of a simulated textile dye-wastewater in two-phase and single-phase anaerobic bio-treatment systems* Bhattacharyya D., Singh K.S.
- 14:40 0444 *Land-based aquaculture solids management using bio-treatment technology* Ramachandran M., Singh K.S., Wilson B.G.
- 15:00 0445 *Feasibility of generating sulphur impregnated activated carbon using petroleum coke and flue gases from a copper smelter* Morris E.A., Jia C.Q., Tong S.
- 15:20 End of Session

#### ENV9 L Brmptn

#### Pollution Prevention

- Organizer(s) - J. Peter Jones  
Chair(s) - Nathalie Tufenkji

- 15:40 0446 *Combined electrochemical and photocatalytic treatment of wastewater containing propylene glycol methyl ether and metal ions* Welil A., Doan H.D.
- 16:00 0447 *Biosorption in nickel plating rinse water treatment* Munroo R., Niu H.
- 16:20 0448 *Novel mesoporous materials for the adsorption of volatile organic compounds* Serna-Guerrero R., Sayari A.
- 16:40 0449 *Quantitative thermography for electrical motor efficiency testing* Narrol M., Stiver W.H.
- 17:00 End of Session

### Fuel Cells and Innovative Energy Technology

#### FUEL4 L Fraser

#### Proton Exchange Membrane Fuel Cells (PEMFC)

- Organizer(s) - François Gitzhofer and Pierre Bénard  
Chair(s) - Adam Tuck
- 13:40 0453 *A rigorous CFD modeling of water balance in a single PEM fuel cell* Jagannathan A., Mahinpey N., Idem R.
- 14:00 0450 *Optimizing control of a hybrid fuel cell power system* Dalvi A., Guay M.
- 14:20 0451 *Correlation of DMFC electrode fabrication, structure and fuel cell performance* Allen R.G., Birry L., Bock C., McMillan R., MacDougall B.
- 14:40 0452 *A diagnostic tool to determine water flooding in the channel of PEM fuel cells* Golpaygan A., Ashgriz N.
- 15:00 0454 *Transient controller for hybrid fuel cell and lithium-ion battery system* Yamagishi E., Al-Hallaj S.
- 15:20 End of Session

#### FUEL5 L Fraser

#### Hydrogen Storage

- Organizer(s) - François Gitzhofer and Jean-Pol Dodelet  
Chair(s) - Gessie Brisard
- 15:40 0455 *Effect of activated alloys on hydrogen discharge kinetics of MgH<sub>2</sub> nanocrystals* Dehouche Z., Hamoudi S., Yoo Y., Belkacemi K.
- 16:00 0456 *Evolution of porous structure of pitch-based activated carbon fibers* Mushrif S.H., Rey A.D.
- 16:20 0457 *Methane storage and transport via gas hydrates* Susilo R., Ripmeester J.A., Englezos P.
- 16:40 End of Session

### New Technologies

#### NTEC2 L Mégantic

#### Nanotechnology

- Organizer(s) - Gervais Soucy  
Chair(s) - Charles Dubois
- 13:40 0458 *Single molecule force spectroscopy of asphaltenes* Long J., Zhang L., Xu Z., Masliyah J.H.
- 14:00 0459 *Liquid crystal defects near surfaces* Wincure B., Rey A.D.
- 14:20 0460 *Electric field -templated manipulation and assembly of colloids into ordered structures* Docoslis A., Guo Z., Wood J.A.
- 14:40 0461 *The electric-field-induced force on a charged spherical colloid embedded in an electrolyte-saturated Brinkman medium* Hill R.J.
- 15:00 0462 *The electric-field-induced displacement of a charged spherical colloid embedded in an electrolyte-saturated Brinkman medium* Hill R.J., Ostoja-Starzewski M.
- 15:20 **Coffee Break**
- 15:40 0463 *Agglomerate fluidization of nanoparticles* Esmaeili B., Chaouki J., Dubois C.
- 16:00 0464 *Preparation and characterization of porous hydrogel particles* Fang D.-Y., Pan Q.-M., Rempel G.L.
- 16:20 0465 *Preparation of FeOOH nanoparticles from its solid powder in aerosol-OT w/o microemulsions* Nassar N.N., Husein M. M.
- 16:40 End of Session

### Pharmaceutical Engineering

#### PHAR2 R St-Fran

#### Pharmaceutical Processes

- Organizer(s) - Nicolas Abatzoglou  
Chair(s) - François Bertrand and Jamal Chaouki
- 13:40 0466 *Determination of macroscopic mixing properties of granular materials from particle tracking experiments* Doucet J., Chaouki J., Bertrand F.
- 14:00 0467 *Design-oriented research for process understanding and optimization of divided solids mixing in pharmaceutical processes* Abatzoglou N., Simard J.-S.
- 14:20 0468 *Mixing effects in crystallization operations in the pharmaceutical industry* Paul E.L.
- 14:40 0469 *Quantitative, solubility and molecular structure analysis of buspirone hydrochloride polymorphs (anti-anxiety drug)* Sheikhzadeh M., Rohani S., Jutan A., Murthy K., Horne S.

**15:00 0470** *Thermodynamics insight into pharmaceuticals hydrates: a case study* **Mirmehrabi M.**, Tadayon S., Yu Q., Deshmukh S.

### 15:20 Coffee Break

**15:40 0471** *Modeling of granular mixing dynamics using Markov chains and the discrete element method* **Doucet J.**, Hudon N., Bertrand F., Chaouki J.

**16:00 0472** *Development and evaluation of a prediction model for granule properties in a high shear wet granulation (HSWG) process* **Dasgupta D.**, Debnath S., Thibert R.

**16:20 0473** *Comparative study of cohesionless granular mixing in bin- and V-blenders* Lemieux M., Gosselin P., Chaouki J., **Bertrand F.**

**16:40 0474** *Development of a chitosan nanoparticle carrier for the anticancer prodrug cladribine* **Domaratzki R.E.**, Ghanem A.

**17:00** End of Session

## Process Dynamics

### PROC7 L Stukely

#### Process Control Applications

Organizer(s) - Biao Huang  
Chair(s) - Carl Duchesne and Michel Perrier

**13:40 0475** *Control of catalytic flow reversal reactor: a geometric approach* **Hudon N.**, Guay M., Perrier M., Dochain D.

**14:00 0476** *Neural networks based control of batch MMA polymerisation* **Ekpo E.E.**, Mujtaba I.M.

**14:20 0477** *Performance-driven adaptive PID controller design: theory and experimental evaluation* **Ohnishi Y.**, Shah S.L.

**14:40 0478** *Gas flow measurement: problems and solutions* **Desaulniers S.**

**15:00 0479** *Dual mode control with neural network based inverse model for a steel pickling process* **Kittisupakorn P.**, Daosud W., Hussain M.A.

**15:20** End of Session

### PROC8 L Stukely

#### Modeling and Simulation

Organizer(s) - Biao Huang  
Chair(s) - Austine Ajah and Ali Elkamel

**15:40 0480** *On the incorporation of performance indicators-economics, reliability and flexibility in the conceptual Design of infrastructure systems: model development* **Ajah A.N.**, Herder P.M., Grievink J., Weijnen M.P.C.

**16:00 0481** *An improved mathematical programming model for refinery planning* Al-Hajri I., **Ba-Shammakh M.**, Elkamel A., Al-Bahri T., Douglas P.L.

**16:20 0482** *A comparison between referred derivative method and Newton-Raphson method for solving nonlinear simultaneous pressure-flow equations in dynamic simulation* **Mohajer M.**, Young B.R., Svrcek W.Y.

**16:40 0483** *Multirefinery integration and coordination using mathematical programming* **Al-Qahtani K.**, Elkamel A., Douglas P.L.

**17:00** End of Session

## Process Safety and Loss Management

### PSLM6 R Coati

#### Case Studies and Lessons Learned

Organizer(s) - Luc Piché  
Chair(s) - Richard Piette

**13:45 0484** *Resilience Engineering* **Wreathall J.**

**14:45 0485** *LNG hazards and their assessment* **Alp E.**

### 15:15 Coffee Break

**15:45 0486** *Internal vapour cloud explosions: a risk-based case study* **Pierorazio A.J.**, Rogers T.M., Moosemiller M.D., Edel M.T.

**16:15 0487** *La sécurité des procédés industriels chez Norsk Hydro Canada Inc. Usine de production de métal et d'alliage de magnésium* **Ouellet B.**

**16:45 0488** *Revue des principaux incidents ayant valeur de leçon rapportés dans le cadre du programme PRIM* **Gauvin R.**

**17:15** End of Session

## Pulp and Paper

### PPAP2 L d Nations

#### Pulp and Paper

Organizer(s) - Robert Lanouette and Chantal Goyette  
Chair(s) - Jean Paris

**13:40 0489** *Steam usage reduction in a black liquor evaporator train* **Meyer-Heye P.**, Perrier M., Paris J.

**14:00 0490** *Pinch analysis as a diagnostic tool for energy efficiency enhancement in a kraft mill* **Mateos E.**, Meyer P., Marechal F., Paris J.

**14:20 0491** *Effect of Craya-Curtet number and excess air on flame length in lime kilns* **Aloqaily A.**, Tran H., Kuhn D.C.S., Sullivan P.**PAPER WITHDRAWN**

**14:40 0492** *Prediction of the effects of potassium, chloride and sulfate on causticizing efficiency* **Saeidi A.S.**, Tran H.N., Papangelakis V.

**15:00 0493** *Effect of air jet exposure frequency and duration on the breakup of brittle deposits formed on the tube surfaces* **Eslamian M.**, Pophali A., Tran H.N., Comack D.

### 15:20 Coffee Break

**15:40 0494** *Forest bioenergy and bioproducts: a step-by-step approach to optimize the carbon chain value in the kraft pulp and paper process* **Navarri P.**, Stuart P.

**16:00 0495** *Condensing heat recovery for papermaking applications* **Preto F.**, He I., Singbeil D., Kish J.

**16:20 0496** *Commissioning and modelling of the world's first commercial demonstration of black liquor gasification* **Preto F.**, He I., Rowbottom B., Middleton T.

**16:40 0497** *Water energy-based targeting a retrofit approach for pulp and paper kraft mills* **Savulescu L.**, Poulin B., Alva-Argaez A., Bedard S.

**17:00** End of Session

## Reaction Engineering

### REAC3 L Memphr

#### Catalysis

Organizer(s) - Committee  
Chair(s) - William Epling

**15:40 0498** *Developing IR thermography as an analytic technique for catalysis* **Aftab K.**, Epling W.

**16:00 0499** *Stability of tungsten nitride catalysts to sulfur species during hydrotreating of light gas oil derived from Athabasca bitumen* **Botchwey C.**, **Dalai A.K.**, Adjaye J.

**16:20 0500** *Evidence of H<sub>2</sub> spillover from Pt/Al<sub>2</sub>O<sub>3</sub> with protected active sites* **Boateng K.A.**, Hill J.M.

**16:40** End of Session

## Separation Processes

### SEPN3 R Magoq

#### Separation Processes

Organizer(s) - Committee  
Chair(s) - Boguslaw Kruczek

**13:40 0501** *Predicting sizes of toluene-diluted heavy oil emulsions using  $S^E$  by two kinetic models with H-K and W-C size predictive models* **Angle C.W.**, Dabros T., Hamza H.A.

**14:00 0502** *Diffusion of hydrocarbons in SBA-16 materials with tailored intrawall porosity* **Gobin O.**, **Huang Q.**, Kleitz F., Eic M., Kaliaguine S.

**14:20 0503** *Study of the turbulent swirling flow in gas cyclones by PIV* **Liu Z.**, Zheng Y., Jia L.

**14:40 0504** *Using static mixers to intensify inter-phase mass transfer in liquid-liquid contacting operations* **Al Taweel A.M.**, Li C., Gomaa H.G., Yuet P.K.

**15:00 0505** *Measurement of holdup and residence time distribution of solid particles (RTD) in a Two Impinging Streams Cyclone Reactor (TISCR) in solid-liquid systems* **Fathi Pirkashani S.**, Sohrabi M., Kaghazchi T.

**15:20** End of Session

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### Thermodynamics

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#### **THER4 L Brome**

#### Thermodynamics

Organizer(s) - Denis Gravelle  
Chair(s) - Pak Yuet

**15:40 0506** *Monte Carlo simulation of charged nanoparticles confined in a cylindrical tube* **Rahman M.H.**, Yuet P.K.

**16:00 0507** *Investigation of suspended solution droplet evaporation and particle evolution in reduced pressures* **Eslamian M.**, Ashgriz N.

**16:20 0508** *Corrosion of selected metals and alloys in ammonium hydroxide solutions under different environmental conditions* **Al-Darbi M. M.**, Alfantazi A.

**16:40 0509** *A study of the performance of the Freed-based free volume models for binary polymer solutions* Radfamia H.R., **Ghotbi C.**, Taghikhani V.

**17:00** End of Session

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### Transport Phenomena and Computational Fluid Dynamics

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#### **TRAN5 L d'Argent**

#### Fluid Dynamics

Organizer(s) - Committee  
Chair(s) - Denis Rodrigue

**13:40 0510** *Low Reynolds number unstable flows of complex fluids with pH dependent rheology: experimental evidence, stability analysis, applications* **Burghilea T.I.**, Frigaard I.A., Feng J.J., **Martinez M.**

**14:00 0511** *Model-based - electrical capacitance tomography (MB-ECT)* **Hadi B.**, Berruti F., Briens C., Adamiak K. **PAPER WITHDRAWN**

**14:20 0512** *Hydrodynamics and heat transfer in a gas-solid fluidized bed of binary particles* **Pisters K.**, Prakash A.

**14:40 0513** *Hydrodynamics of nematic liquid crystal point defects in a cylindrical capillary* **De Luca G.**, Rey A.D.

**15:00** End of Session

#### **TRAN6 L d'Argent**

#### Heat and Mass Transfer

Organizer(s) - Committee  
Chair(s) - Denis Gravelle

**15:40 0514** *A new approach to capillary rise in porous media* **Ahadian S.**, **Moradian S.**, Sharif F., Amani Tehran M., Mohseni M.

**16:00 0515** *Natural convection control of melting in vertical cylindrical containers* **Subrahmaniyam S.**, **Krishna Parasharan A.V.**

**16:20 0516** *Assessment of plate type evaporators in multi effect desalination processes* **Alishiri M.**, Malekpour S.

**16:40 0517** *Modeling of a beet sugar extraction tower* **Faridkho A.**, Mostoufi N., Shamekhi H., **Sotudeh R.**

**17:00** End of Session