Sunday PM

3-Minute Elevator Pitch Competition for Graduate Students

3MEP1 Salon 3

3-Minute Elevator Pitch Competition
Organizer(s) - Zukui Li
Chair(s) - Zukui Li

This is the preliminary round; the final round will be held on Tuesday evening, beginning at 18:20.

If a participant is not present at the scheduled time, the next participant will be asked to speak so the schedule may change during the duration of the preliminary competition.

13:00 0001 Polymer Retention in Porous Media: A Microfluidic Approach
Zargaratalebi M. 1, 2Porous Media Laboratory, Chemical and Petroleum Engineering, University of Calgary, 3Department, University of Calgary, 4Naranq R., 5Hejazi S.H., 6Azadeh J., 7Mehdi-Nezhad A.

13:05 0002 Characterizing Adsorbents for Humid Post-Combustion Carbon Capture
Wilkins N. 1Department of Chemical and Materials Engineering, University of Alberta, 2Edmonton, AB, 3Jafar M., 4Sadeghi M., 5Rahal S., 6Frostick J.T.

13:10 0003 Application of a Mathematical Model for Describing the Flocculation Process of Oil Sands Tailings Treatment
Vajjheinajad V. 1University of Alberta, Department of Chemical and Materials Engineering, 2Soares J.B.P.

13:15 0004 Computational Fluid Dynamics of Viscous Fingering in Supercritical Fluid Chromatography
Subraveti S.G. 1Department of Chemical and Materials Engineering, University of Alberta, 29211-116 St, Edmonton, AB T6G1H9, 3Nikrityuk P., 4Rajendran A.

13:20 0005 PEDOT:PSS Nano-Gels For Highly Electrically Conductive Silver/Epoxy Composite Adhesives
Si P. 1Department of Chemical Engineering, University of Waterloo, 2Waterloo Institute of Nanotechnology, University of Waterloo; Institute for Polymer Research, University of Waterloo, 3Chen L., 4Trinidad J., 5Lee B., 6Zhao B.

13:25 0006 Treatment of Oil-Sand Produced Water using Electrocoagulation
Shu T. 1Department of Chemical and Petroleum Engineering, University of Calgary, 2Calgary, AB T2N IN4, 3Hojaghan B., 4Yasri N., 5Nightingale M., 6Roberts E.P.L.

13:30 0007 Designing and Scheduling of Upgrading Plants under Uncertainty
Shahandeh H. 1Department of Chemical and Materials Engineering, University of Alberta, 2Edmonton, AB T6G 1H9, 3`Li Z.

13:35 0008 Safety Aspects of Floating LNG: Preliminary Inherent Safer Design Selection of Liquefaction Process
Shah D. 1Department of Chemical Engineering, 2University of Alberta, Edmonton, AB, 3Lefradt L.M.

13:40 0009 Hierarchical Porous Materials to the Rescue or How to Utilize Hierarchy of Porosity to Maximize Catalytic Activity
Sadeghi M. 1McGill University, 2Gostick J.T.

13:45 0010 Decision Making Policy: Resilience towards the Uncertain
Rahal S. 1Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9, 2Li Z.

Pai K.N. 1University of Alberta, 2Rajendran A.

13:55 0012 Nanoparticle Technology for Oil Sands Application
Nafie G. 1University of Calgary, 2500 University Dr. NW, 3Calgary, AB T2N 1N4, 4Vitale G., 5Nassar N.

14:00 0013 Using New Developed Adsorbents Made of Biomaterial for Removal of Antibiotics
Movahagi Z. 1Department of Chemical, 2Biological Engineering, University of Saskatchewan, 357 Campus Dr., 4Saskatoon, SK S7N 5A9, 5Niu C.H., 6Yan B.

14:05 0014 Strategic Planning of SAGD Reservoir Development under Uncertainty
Motamed Nasab F. 1University of Alberta, Department of Chemical and Materials Engineering, 2Li Z, 3Shahandeh H.

14:10 0015 Polymerization in Supercritical CO2
López-Domínguez P. 1Facultad de Química, Departamento de Ingeniería Química, Universidad Nacional Autónoma de México, 204510, México D.F., 3Mexico

14:15 0016 Green Chemistry: High Conductivity of Polyhydroxybutyrate Composites Assisted by Well-Dispersed Reduced Graphene Oxide
Li D. 1Department of Chemical and Materials Engineering, University of Alberta, 2Elias A.

14:20 0017 Biofuel Production using Supported Solid Acid Catalyst
Kurhade A. 1Catalysis and Reaction Engineering Laboratories, Department of Chemical & Biological Engineering, University of Saskatchewan, 2Saskatoon, SK S7N 5A9, 3Dalai A.K.

14:25 0018 Data Mining Driven Design of a Low-Cost Canadian Oil for the Development of Cost-Effective Carbon Capture Process
Khakpour N. 1University of Calgary, Calgary, AB T2N 1N4, 2Siegl M.H., 3Mahinpey N.

14:30 0019 Identification of Cause-Effect Relationships from Small Data in Multi-Variable Processes
Karthi S. 1Systems and Control Group, Department of Chemical Engineering, Indian Institute of Technology Madras, Chennai - 600036, India, 2Tangirala A.K.

14:35 0020 Influence of Mesoporous Titanosilicates on the Activity and Selectivity of Cobalt-Based FTS Catalysts
Kamath G. 1Department of Chemical and Biological Engineering, University of Alberta, 2Edmonton, AB, 3Dalai A.K.

14:40 0021 Towards the Development of a Bio refinery Operator Training Simulator for Autochrome Standard Operating Procedure Adaptation
Isimite J.O. 1Department of Chemical Engineering, University College London, 2London, 3UK, 4Baganz F., 5Volker V.C.

14:45 0022 From Seaweed to Jet Fuel
Harris J. 1Department of Chemical Engineering, Queen's University, 2Champagne P., 3Jessop P.G.

14:50 0023 Leveraging Data to Make Chemical Process Industries More Profitable
Garg A. 1Department of Chemical Engineering, McMaster University, 21280 Main St. W, Hamilton, ON L8S 4L8, 3Mhaskar P.

14:55 0024 Optimizing the Applications of Water-Soluble Polymers in Environmental Remediation
Ezenwajiaku I.H. 1Department of Chemical Engineering, Queen's University, 2Kingston, ON K7L 3N6, 3Hutchinson R.A.

15:00 0025 Biochar: A Sustainable Solution for Waste Management in Prince Edward Island
Dahal R. 1School of Sustainable Design Engineering, University of Prince Edward Island, 2PEI, 3Acharya B.

15:05 0026 Microstructured Flow Chemistry for Oxidation of Molecules from Biomass using Gold as Catalyst
Behravesh E.E. 1Abo Akademi University, Finland, 2PAPER WITHDRAWN

15:05 0027 How Does Granular Segregation Influence Heat Transfer in a Rotary Kiln?
Beaulieu C. 1Ecole Polytechnique Montreal, Montreal, QC H3C 3A7, 2Vidal D., 3Chauaki J., 4Bertrand F.

15:10 0028 Comparison of Different Mixing Methods in Solid-Liquid Separation of Oil Sands Tailings
Bazoubandi B. 1Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2Y4, 2Asare E., 3Samuel A., 4Afacan A., 5Soares J.B.P.
15:15 0029 Disclose the Mystery of Oil Recovery Bazzaz P. <Porous Media Laboratory, Chemical and Petroleum Engineering Department, University of Calgary>, Hejazi S.H., Sanati-Nezhad A.

15:20 0030 Improving Organic Waste Conversion using Non-Biological Conductive Materials Barua S. <Department of Civil and Environmental Engineering, University of Alberta, 9211-116 St. NW, Edmonton, AB T6G 1H9>

15:25 0031 Minimization of End Product Inhibition using a Two Step Sequential Enzymatic Hydrolysis Approach Baksi S. <Department of Chemical Engineering, Jadavpur University, Kolkata, India>, Sarkar U.

15:30 0032 Mitigation and Bioconversion of Methane using Methane-Consuming Bacteria Bakhtiar F. <Department of Chemical and Material Engineering, University of Alberta, Edmonton, ABT6G 2R3>, Stein L.Y., Sauvageau D.

15:35 0033 Anemia Management in Chronic Kidney Disease using Zone Model Predictive Control Bajwa N. <University of Alberta>, McAllister J., Li Z., Liu J.

15:40 0034 A Smart Pipeline Leak Detection and Localization System Based on the Kantorovich Distance Arifin B.M.S. <CME Department, University of Alberta, Edmonton, AB>, Li Z.

15:45 0035 Simultaneous Gross Error Detection and Data Reconciliation Alighardashi H. <Department of Chemical and Materials Engineering University of Alberta, Edmonton, AB T6G 1R1>, Huang B.

15:50 0036 Investigating the Mechanistic Steps involved in the Long Chain Branch Formation Process in Polyolefins made with Metalloocene Catalysts Albeladi A. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2G6,>

15:55 0037 CO2 Capture with Ionic Liquids Aghaie M. <Memorial University>, Zendehboudi S.

16:00 0038 Life Cycle Greenhouse Gas Assessment of Canola-Derived Renewable Jet Fuel in Western Canada Zemanek D. <Queen’s University, Department of Civil Engineering>, Champagne P., Mabee W.

16:05 End of Session

Monday AM

Plenary

PLEN Hall B

Plenary

15:20 08 Introductory Remarks

Plenary Lecture presented by Arun Majumdar, Stanford University

08:20 08 Introductory Remarks

08:30 0039 Navigating the Turbulence of the Global Energy System Majumdar A. <Department of Mechanical Engineering, Precourt Institute for Energy, Stanford University,>

09:30 Coffee Break

09:50 End of Session

Honorary Symposia

HOB1 Salon 15/16

Symposium in Memory of Khaled Belkacemi - A Journey across Food & Chemical Engineering Dyad
Organizer(s) - Faïcal Larachi and Cristina Ratti
Chair(s) - Faïcal Larachi and Cristina Ratti

Keynote Lecture presented by Nicolas Abatzoglou, Université de Sherbrooke
09:50 0040 The NanoF-PoRes Project: NanoFilaments from Polymeric Residues Abatzoglou N. <Université de Sherbrooke>, Gitzhofer F., Blanchard J.

10:30 0041 Studies of Chemical Reactions on Metal and Metal Carbide Surfaces Lemay J.-C. <Département de chimie, Université Laval>, Dong Y., Zeng Y., McBreen P.H.

10:50 0042 Synthesis of a New Generation of Agro-Surfactants via Catalytic Metathesis in Green Solvents Chorfa N., Hamoudi S. <Department of Soil Sciences & Agri-Food Engineering, Université Laval>, Arul J., Belkacemi K.

11:10 0043 Shrinkage during Drying of Cellular Foods Ratti C. <Université Laval, Département des sols et de génie agroalimentaire>

11:30 0044 Phytotoxicity of Rare Earth Elements on Edible Plants Rezaee A., Hale B., Santos R.M. <University of Guelph, School of Engineering>, Chiang Y.W.

11:50 End of Session

Honourary Symposium in Recognition of Archie Hamielec, Harmon Ray and Charles Cozewith for Outstanding Contributions in Polymer Reaction Engineering
Organizer(s) - Jeff Brinen, Robin Hutchinson, João Soares and Shaping Zhu
Chair(s) - João Soares and Jeff Brinen

09:50 0045 An Integrated Product Design and Control Framework Applied to Polymer Nanocomposite Manufacturing Ogunnaike B. <University of Delaware, USA>, Wetzel M., Gou Q.

10:10 0046 Modeling of Polymer Processes for Art and Industry Iedema P.D. <Universiteit van Amsterdam, Van ’t Hoff Institute for Molecular Science, Science Park 904, 1098 XH Amsterdam, The Netherlands>

10:30 0047 Modeling of High Temperature Radical Polymerization through Statistical Data Mining Debling J. <BASF Corporation>, Taek K.

10:50 0048 Catalytic Emulsion Polymerization of Acetylene Monomers for Well-Defined Ultra-Small Carbon Nanospheres for Supercapacitive Energy Storage Ye Z. <Department of Chemical and Materials Engineering, Concordia University, Montreal, QC; Bharti School of Engineering, Laurentian University, Sudbury, ON>, Tiwari V., Chen Z.

11:10 0049 Model-Based Reactor Design to Control Hyperbranched Polymer Architecture Tobita H. <Department of Materials Science and Engineering, University of Fukui, Japan>

11:30 0048 Understanding Condensed Mode Cooling for Gas Phase PE Production McKenna T.F.L. <Université de Lyon, C2P2-Université de Lyon, C2P2>, Belkacemi K.

11:50 End of Session

HOM1 Salon 3

Honorary Symposium in Recognition of Jacob Masliyah for Outstanding Contributions in Heavy Oil Processing
Organizer(s) - Qingxia (Chad) Liu, Zhenghe Xu, Sean Sanders and Shawn Taylor
Chair(s) - Qingxia (Chad) Liu and Zhenghe Xu

09:50 0051 Recent Innovations in Oil Sands Engineering: Contributions from NSERC-IRC in Oil Sands Engineering Xu Z. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Room</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>09:50</td>
<td>BIO1</td>
<td>Salon 6</td>
<td>Organizer(s) - Todd Hoare, Hyo-Jick Choi, Ravin Narain and Dominic Sauvageau Chair(s) - Todd Hoare and Hyo-Jick Choi</td>
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<tr>
<td>09:50</td>
<td>BIO1</td>
<td>Salon 6</td>
<td>Beckman D. &lt;Zetcon Inc., Burlington, ON&gt;</td>
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<td>10:30</td>
<td>ENR1</td>
<td>Salon 9</td>
<td>Organizer(s) - Bruce Peachey and Japan Trivedi Chair(s) - Lesley James and Bruce Peachey</td>
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<tr>
<td>09:50</td>
<td>ENR1</td>
<td>Salon 9</td>
<td>Peachey M. &lt;University of Calgary&gt;, Zirrahi M., Hassanzadeh H., Abedi J.</td>
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<td>11:30</td>
<td>FUN1</td>
<td>Salon 5</td>
<td>Organizer(s) - Dimitry Eskin, Petr Nikrityuk and Vinay Prasad Chair(s) - Samir Mushrif and Dave Sharp</td>
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<td>11:30</td>
<td>FUN1</td>
<td>Salon 5</td>
<td>Keynote Lecture presented by Martin Graebner, Air-Liquefied GmbH</td>
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<td>11:30</td>
<td>CCU1</td>
<td>Salon 13/14</td>
<td>Organizer(s) - Rajender Gupta, Charles de Lannoy and Arvind Rajendran Chair(s) - Nader Mahinepy</td>
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<td>11:30</td>
<td>CCU1</td>
<td>Salon 13/14</td>
<td>Enhanced CO₂ Hydrogenation to Methanol with Tertiary Catalysts Ci₅g-C₅N₄-Modified ZnO/Al₂O₃ 'Lu Q. &lt;Department of Chemical and Petroleum Engineering, University of Calgary, AB&gt;, Deng K., Hu B., Hong X.</td>
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<td>11:30</td>
<td>CCU1</td>
<td>Salon 13/14</td>
<td>Mathematical Modeling of CO₂ Removal from Flue Gas using Micron-Size Water Droplets 'McCayle K.B. &lt;Queen's University, Kingston, ON K7L 3N6&gt;, Tran N.</td>
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<td>11:30</td>
<td>CCU1</td>
<td>Salon 13/14</td>
<td>Reduced Red Mud as Catalyst for Cracking of Biomass Tar Model Compound Wu Z., Zhang Z., Ellis N. &lt;Department of Chemical and Biological Engineering, The University of British Columbia&gt;, Bi X.T., Grace J.R.</td>
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<td>10:10</td>
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<td>11:10</td>
<td>Galdieria sulphuraria in a CSTR for the Production of Biodiesel X. Formation of Asphaltene Colloids 'Optimization of Nitrogenous Biomass Chair(s) - Todd Hoare and Hyo-Jick Choi</td>
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<td>From Batch to Cycling Strategy Improvement in Bioethanol Productivity 'Wang J. &lt;Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB T6G 2P5&gt;, Chae M., Bressler D.C., Sauvageau D.</td>
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<td>Industrial Research and Development for Partial Oxidation Processes 'Graebner M. &lt;Air-Liquefied Forschung und Entwicklung GmbH, Frankfurt Research and Technology Center (FRTC), Gwinnerstrasse 27-33, 60388 Frankfurt am Main, Germany&gt;</td>
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<td>An Integrated Experimental and Theoretical Approach to Investigate the Interplay of Reaction and Transport within Biomass Particle during Fast Pyrolysis 'Ansari K.B. &lt;School of Chemical and Biomedical Engineering, Nanyang Technological University, Singapore&gt;, Mushrif S.H</td>
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<td>Extension of Gravimetric and ZLC Techniques for Determination Surface Barrier Effects on Carbon Molecular Sieves 'Shirani B. &lt;Department of Chemical Engineering, University of New Brunswick, Fredericton, NB E3B 5A3&gt;, Han X., Eic M.</td>
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<td>Three-Dimensional Modelling of Open Sea Aeration Systems using the Euler-Euler Method in OpenFOAM 'Totten J. &lt;Department of Process Engineering and Applied Science, Dalhousie University, Halifax, NS B3H 4R2&gt;, Donaldson A., Haeussig J.</td>
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**Keynote Lecture presented by Longaswamy Nandakumar, Louisiana State University**

- **10:10 0052 Enabling Process Innovation through Computation**
  - **Nandakumar K.** <Cain Department of Chemical Engineering, Louisiana State University, Baton Rouge, LA 70803 USA,>  
  - Chair(s) - Todd Hoare and Hyo-Jick Choi  
  - ExxonMobil Upstream Research Company  

- **10:50 0053 Using Data Analytics Techniques in Process Model Development for Heavy Oil Processing**
  - **Lenart P.J.** <ExxonMobil Upstream Research Company>  

- **11:00 0054 Molecular Models for Formation of Asphaltene Colloids**
  - **Gray M.R.** <University of Alberta>, Yarranton H.W.  

- **11:50 End of Session**

**Biotechnology and Biomedical Engineering**

- **BIO1**
  - Salon 6
  - Organizer(s) - Todd Hoare, Hyo-Jick Choi, Ravin Narain and Dominic Sauvageau Chair(s) - Todd Hoare and Hyo-Jick Choi  

- **Award in Design and Industrial Practice Lecture presented by David Beckman, Zetcon Inc.**

- **09:50 0055 Scaling Up Bioenergy and Biocatalytic Process Technology**
  - **Beckman D.** <Zetcon Inc., Burlington, ON>  

- **10:30 0056 System Identification of Gauquier sulphuraria in a CSTR for the Optimization of Nitrogenous Biomass Production**
  - **Cameron E.T.** <University of Alberta>, McCaffrey W.C.  

- **10:50 0057 Tailored Enzyme Supports for the Pretreatment of FFA-Containing Oils in the Production of Biodiesel**
  - **Roebuck K.** <Department of Chemical and Biological Engineering, University of Ottawa, Ottawa, ON K1N 6N5>, Tremblay A.Y., Zhou J., Meng X.  

- **11:10 0058 Reduced Red Mud as Catalyst for Cracking of Biomass Tar Model Compound**
  - **Wu Z., Zhang Z., Ellis N.** <Department of Chemical and Biological Engineering, The University of British Columbia>, Bi X.T., Grace J.R.  

**Chemical Engineering Fundamentals**

- **FUN1**
  - Salon 5
  - Organizer(s) - Dimitry Eskin, Petr Nikrityuk and Vinay Prasad Chair(s) - Samir Mushrif and Dave Sharp  

- **Keynote Lecture presented by Martin Graebner, Air-Liquefied GmbH**
11:10 End of Session

**Industrial Multiphase Flow**

**MUL1** Salon 1

**MUL1** Organizer(s) - Sean Sanders and Ryan Spelay
Chair(s) - Sean Sanders and Ryan Spelay

**Keynote Lecture presented by Kevin Reid, Syncrude Canada Ltd.**

09:50 0081 **Step Change Improvements in Bitumen Production Performance through the Use of CFD** Reid K., <Syncrude Canada Ltd.>

10:30 0082 **Physical Modeling of Multi-Phase Flows** Hilderman T., <Coanda Research & Development Corporation>, Kiel D.

10:50 0083 **Yield Stress Measurements of Bimodal Suspensions** Olayode A.E., <University of Alberta, Department of Chemical and Materials Engineering>, Sarker N.R., <Sanders P.S., Spelay R.B.>

11:10 0084 **Flocculant-Dosed Clay Aggregate Restructuring in Laminar Pipeline Transport** Sun Y., <University of Alberta, Edmonton, AB T6G 2R3>, Breakey D., Sanders R.S.

11:30 End of Session

**Macromolecular Sciences and Engineering**

**POL1** Salon 12

**POL1** Organizer(s) - Phillip Choi, João Soares and Boxin Zhao
Chair(s) - Phillip Choi and Hongbo Zeng

**Keynote Lecture presented by Eric Vignola, NOVA Chemicals**

09:50 0085 **Creating a More Sustainable Future through Polymer Chemistry and Engineering** Vignola E., <NOVA Chemicals Corp>

10:30 0086 **Simulation of Morphology Evolution of Polyurethane Foams** Ferki P., Krskova L., <Kosek J., <University of Chemistry and Technology Prague, 166 28 Prague 6, Czech Republic>

10:50 0087 **Synthesis of Hydrophobically-Modified Cationic Polyelectrolytes for Dewatering of Oils Sands Tailings** Gufmefkar S., <Department of Chemical and Materials Engineering, University of Alberta>, Guo X., <Soares J.B.P.>

11:10 0088 **Multifunctional Polymeric Films Prepared by a Facile and Covalently Bonded Layer-by-Layer Deposition Process** Huang J., <Department of Chemical and Materials Engineering, University of Alberta>, Qiu X., Yan B., Xie L., Zhang H.

11:30 End of Session
PSM1
Organizer(s) - Lianne Lefsrud, Norman Nipher and Gord Winkel
Chair(s) - John Cocchio and Neil Anderson
09:50 0094 Making Safety Real: Taking Risk Management to the Next Level <Winkel G. <Lynch School of Engineering Safety and Risk Management, University of Alberta>

10:00 0095 Employing Multifaceted Teaching and Learning Components to Foster CEAB Graduate Attribute Development (Anderson N.E. <Lynch School of Engineering Safety and Risk Management, University of Alberta>, Cocchio J.R., Watson E., Lefsrud L.M., Li L.)

10:50 0096 Creating QRA Scenarios <Odeluga I. <Department of Chemical and Materials Engineering, University of Alberta>, Sharma V., Lefsrud L.M.>

11:20 0097 I've Got an App for That! All Things Risk in One Place, or the Democratization of PHA Software and Tools <Timbers W.G. <Timbers Consulting Inc>>

11:50 End of Session

RXN1
Organizer(s) - Bob Hayes, Natalia Semagina and David Simakov
Chair(s) - Hui Wang and Jinwen Chen

09:50 0098 Single Pass, Highly-Selective Thermocatalytic Upgrading of Landfill Gas into Renewable Natural Gas over the Highly Active and Stable, Ultra-Low Loading Ru/-Al₂O₃ Catalyst <Zhuang Y., Simakov D.S.A. <University of Waterloo>>

10:10 0099 Surface Investigation of Tungstophosphoric Acid (H₃PW₁₂O₄₃) Supported on Ordered Mesoporous Aluminosilicates for Biodiesel Synthesis <Kurhade A. <Catalysis and Reaction Engineering Laboratories, Department of Chemical Engineering, University of Saskatchewan, Saskatoon, SK S7N 5A9>, Hu Y., Dalai A.K.>


11:00 0101 Bio-Oil Reforming over a Mining Residue Functionalized with Nickel as Catalyst: Ni-UOSG Bali A. <Department of Chemical and Biotechnological Engineering, Université de Sherbrooke, Sherbrooke, QC J1K 2R1>, Blanchard J., Chamouni M., Abatzoglou N.

11:10 0102 Preparation of Eco-Friendly Lubricant Basestocks from Canola Biodiesel Derived Estolides via Epoxydation Route <Borugadda V.B. <Catalysis and Chemical Reaction Engineering Laboratories, Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK S7N 5A9>, Dalai A.K.>

11:30 0103 Synthesis and Performance Evaluation of Coal Fly Ash and Waste Brine-Derived Solid Sodalite Catalyst for Biodiesel Production using Animal Fat <Aniokete T.C. <School of Chemical and Metallurgical Engineering, Faculty of Engineering and the Built Environment, University of the Witwatersrand, Wits 2050, Johannesburg, South Africa>, Daramola M.O.>

11:50 End of Session

Systems and Control

SYS1
Organizer(s) - Prasad V., Rajendran and Shafiq Jaffer
Chair(s) - Prasad V.

11:50 End of Session
15:50 0118 Nascent Growth of α-Olefin Polymers with rac-Et(ind)/Zr/Cl/MgO Catalyst on Unfolded Silica Support Choi K.Y., <Department of Chemical and Biomolecular Engineering, University of Maryland, College Park, MD 20742 USA>, Tran D., Yang W.

16:10 Coffee Break

16:30 0119 The Influence of (Macro)monomer Functionality on Reactivity in Radical (Co)polymerization Hutchinson R.A., <Department of Chemical Engineering, Queen’s University, Kingston, ON K7L 3N6>, Rooney T.R.

16:50 0120 Application of Artificial Neural Networks in Ethylene/1-Olefin Copolymerization Anantawaraskul S., <Center of Excellence on Petrochemical and Materials Technology, Department of Chemical Engineering, Faculty of Engineering, Kasetsart University, Bangkok 10900, Thailand>, Chaiwat S., Charoenpanich T., Soares J.B.P.

17:10 0121 High Temperature Radical Polymerization: From Inception to Commercial Practice Campbell D., <BASF Corporation, Advanced Materials and Systems Research>, Debeling J.

17:30 0122 Predicting Mw and Branching Levels for Self-Condensing Vinyl Copolymerization in a CSTR Buren B.D., <Queen’s University>, Zhao Y.R., Puskas J.E., McAuley K.B.

17:50 End of Session

HOM2 Salon 3

Honorary Symposium in Recognition of Jacob Masliyah for Outstanding Contributions in Heavy Oil Processing

Organizer(s) - Qingxia (Chad) Liu, Zhenghe Xu, Sean Sanders and Shawn Taylor Chair(s) - Andrea Sedgwick and Zhenghe Xu

Keynote Lecture presented by Vince Wallwork, Canadian Natural

14:30 0123 Canadian Natural’s Culture of Innovation and Continuous Improvement Wallwork V., <Canadian Natural>


15:30 0125 The Recovery of Solvent from Oil Sands Froth Treatment Tailings Slurries Moran K., <Titanium Corporation, 1400 - 10025 106 St. NW, Edmonton, AB T5J 1G4>

15:50 0126 Experimental Investigation of Asphaltene-Induced Formation Damage in Porous Media Taylor S.D., <Schlumberger-Doll Research>, Mohammadzadeh O., Eskin D., Ratulowski J.

16:10 Coffee Break

16:30 0127 Study on Microbubbles in Bitumen Floation in Oil Sands Extraction Liu Q., <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H6>, Liu B., Zhang X., Manica R., Xu Z., Masliyah J.H.

16:50 0128 First Quantification of <2μm Clays and <0.2μm Ulrafines in Commercial Streams of Naphthenic Froth Treatment Process Mercier P.H.J., <National Research Council Canada>, Couillard M., Tyo D.D., Zborowski A., Patarachao B., Kingston D.M., Kung J., McCracken T., Ng S.

17:10 0129 Role of Mineral Flotation Separation Technology in Improving Bitumen Extraction Recovery from Mined Athabasca Oil Sands Zhou J., <Heavy Oil and Oil Sands, InnoTech Alberta Inc., Edmonton, AB, >, Li H., Chow R.

17:30 0130 Observations on Flocculation in Oil Sands Kaminsky H.A.W., <NAIT - Center for Oil Sands Sustainability>, Sedgwick A.

17:50 End of Session

Biotechnology and Biomedical Engineering

BIO2 Salon 15/16

BIO2 Organizer(s) - Todd Hoare, Hyo-Jick Choi, Ravin Narain and Dominic Sauvageau Chair(s) - Dominic Sauvageau and Todd Hoare


16:50 0132 Towards the Development of a Biofinery Operator Training Simulator for Automatic Standard Operating Procedure Adaptation Isimite J.O., <Department of Biochemical Engineering, University College London, Gordon Street, London, W1H 0AH UK>, Baganz F., Volker V.C.
17:10 0133 Supercritical Water Gasification of Waste Food Residues for Hydrogen Production Nanda S., Dalai A.K. <Department of Chemical and Biological Engineering, University of Saskatchewan, SK>, Kozinski J.A., Naik S.N.

17:30 0134 Optimization of Hemicellulose Oligomers Production from Pulp Mill Residues for Use as Pulp Strength Additives Chen J. <Department of Chemical and Biological Engineering, University of British Columbia>, Chang X.F., Beaton R.P., Trajano H.L.

17:50 End of Session

Carbon Reduction and Utilization

CCU2 Salon 13/14

CCU2 Organizer(s) - Rajender Gupta, Charles de Lannoy and Avird Rajendran Chair(s) - Ebrahim Rezaei and David Simakov

Keynote Lecture presented by George H. Shimizu, University of Calgary

14:30 0135 Carbon Capture by Metal Organic Framework (MOF) Solid Sorbents Shimizu G.K.H. <Department of Chemistry, University of Calgary>


15:30 0137 Characterizing Humid Post-Combustion Carbon Capture Using Zeolite 13X Wilkins N. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Rajendran A.

16:10 Coffee Break

16:50 0140 Post-Combustion CO2 Capture using Solid Sorbents with Multicyclic Study Pudasainee D. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Sandhu N.K., Liu Z., Mittal N., Zhao A., Gupta R.

17:10 0141 Evaluation of Diamine Attached Metal-Organic Frameworks for Post-Combustion CO2 Capture Pai K.N. <University of Alberta>, Baboolal J., Sharp D., Rajendran A.

17:30 0142 CO2 Enrichment in Ambient Air by Temperature Swing Adsorption and its Applications for Stimulating Plant Growth in Greenhouses Bao J. <College of Chemical Engineering, Fuzhou University, China>, Xi T.

17:50 End of Session

Chemical Engineering Fundamentals

FUN2 Salon 5

FUN2 Organizer(s) - Dimitry Eskin, Petr Nikritiyuk and Vinay Prasad Chair(s) - John Shaw and Neda Nazemifard

14:30 0143 Membrane Fouling Mitigation by Air Back Pulsing in Dairy Wastewater Ultrafiltration Ashari M. <Department of Chemical Engineering, Ryerson University, Toronto, ON>, Doan H., Lohi A.

14:50 0144 Preparation and Characterization of Clinoptilolite Membranes for Natural Gas Mixture Separations Kennedy D.A. <Department of Chemical and Biological Engineering, University of Toronto>, Omar T., Tezel F.H.

15:10 0145 Water Adsorption Properties of Flax Shives and their Potential for Natural Gas Dehydration Ghanbari S. <Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK>, Niu C.H.

15:30 0146 Synthesis and Characterization of Graphene-Based Polyethersulfone Nano-Composite Membrane Karkooti A. <Department of Chemical and Material Engineering, University of Alberta>, Sadrzadeh M., Nazemifard N.


17:30 0151 Gas Separations with Mixed Matrix Membranes Composed of Polyimide Matrimid with ZIF 8, Silicalite and SAPO 34 Carter D., Tezel F.H. <Department of Chemical and Biological Engineering, University of Ottawa, Ottawa, ON>, Kuczek B., Kalipic H.

17:50 End of Session

Colloids and Interfacial Sciences

COL1 Salon 6

COL1 Organizer(s) - Edgar Acosta, Janet A.W. Elliott and Hongbo Zeng Chair(s) - Janet A.W. Elliott and Edgar Acosta

14:50 0157 Probing Coagulation and Flocculation in Colloidal Dispersions with Viscosity Measurements: an-silico Proof of Concept Kroupa M., Vorka M., Soos M. *Kosek J. <University of Chemistry and Technology Prague, 166 28 Prague 6, Czech Republic>

15:10 0158 Interactions between Water Droplets and Self-Assembled Octadecyltrichlorosilane Coating with Thermal Treatment Zhang L. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9>, de Haas T., Bao B., Zeng H.

15:30 0159 Photonic Force Microscopy Measurement of Droplet-Droplet Interactions Pilapil B.K. <Department of Chemical and Petroleum Engineering, University of Calgary, 2500 University Dr. NW, Calgary, AB T2N 1N4>, Derakhshandeh M., Sirsar J., Stephenson T., Bryant S.L., Triljkovic M.

15:50 0160 Molecular Dynamics Study of Dissolution of Kaolinite Basal Surfaces in Alkaline Media: Effect of Aqueous Medium Impurities Naderi Khorshidi Z. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Choi P., Liu Q.

16:10 Coffee Break

16:30 0161 Use of the Hydrophilic-Lipophilic Difference (HLD) and Net-Average Curvature (NAC) to Predict the Solubilization Phase Boundary of Ternary Phase Diagrams and Design Fully Dilutable Microemulsions Acosta E. <University of Toronto, Department of Chemical Engineering and Applied Chemistry>, Nouraei M., Lin S.

16:50 0162 Mechanism and Conditions of Oil-Water Interfacial Tension Reduction by Hydrophilic Silica Nanoparticles for Enhanced Oil Recovery Implications Jafari S. <Memorial University, St. John's, NL A1B 3X9>, *James L.A.

17:10 0163 Understanding the Behavior of Oil in Water Pickering Emulsions Stabilized by Cellulose Nanocrystals with Varying Extent of De-sulphonation Pandey A. <Department of Chemical and Petroleum Engineering, University of Calgary>, Derakhshandeh M., Selin E., Bryant S.L., Triljkovic M.

17:30 0164 A Molecular Dynamics Study on Contact Angle and Line Tension of Galena and Sphalerite Hosseini Anvari M. <Department of Chemical and Materials Engineering, University of Alberta>, *Liu Q., Xu Z., Choi P.

17:50 0165 Tailoring the Pore Architecture and Surface Chemistry of Hydrothermally Synthesized Graphene Oxide Sponges: Role of Surface Parameters and Chemical Functionalization Yousefi N. <Department of Chemical Engineering, McGill University, Montreal, QC>, Wei K., Tufenkji N.

18:10 End of Session

17:50 0166 A Techno-Economic Comparison of Centralized and Distributed Mobile Pyrolysis Systems for the Production of Bio-oil from Hardwood Patel M. <Faculty of Engineering, Department of Mechanical Engineering, 10-263 Donoado Innovation Centre for Engineering, 9211 116 St. NW, University of Alberta, Edmonton, AB T6G 1H9>, Oyedun A., *Kumar A.

14:30 0167 Screening of Co-Pyrolysis Additives to Enhance Pyrolysis Oil and Char Quality Krutof A. <Department of Process Engineering, Faculty of Engineering and Applied Sciences, Memorial University of Newfoundland>, *Hawboldt K.A.

15:10 0168 Study on the Quality of Oat Hull Fuel Pellets using Bio-Additives Abedi A. <Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK>, Dalai A.K.

15:30 0169 Utilizing Legacy Underground Mines as Municipal Infrastructure *Peachey B.R. <New Paradigm Engineering Ltd., Edmonton, AB>, Theriault Y

16:10 Coffee Break

16:30 0171 Synthesis of Biodegradable Alkoxides from Canola Biodiesel: Physico-Chemical Characterization and Optimization Study Borugadda V.B. <Catalysis and Chemical Reaction Engineering Laboratories, Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK S7N 5A9>, Somidi A.K.R., *Dalai A.K.

16:50 0172 Well-to-Wake Life Cycle Assessment of Canola-Derived Hydroprocessed Renewable Jet Fuel in Western Canada Zemanek D. <Department of Civil Engineering, Queen's University; Department of Geography and Planning, Queen's University>, 'Champagne P., *Mabee W.

17:10 0173 Production of Biojet Fuel Precursors from Cellulose using Biphasic Reactions and High Pressure CO2 Marsden J. <Queen's University, Department of Chemical Engineering; Queen's University, Department of Chemistry>, Yao J., Lee R., Jessop P.G., *Champagne P.


17:50 End of Session

Environmental Engineering and Waste Management / Oil Spill Recovery

ENV2 Salon 8

ENV2 Organizer(s) - Bing Chen, Bipro Dhar, Madhumita Ray and Stanislav Stoyanov Chair(s) - Edward Roberts and Madhumita Ray

Keynote Lecture presented by D. Grant Allen, University of Toronto

14:30 0175 Challenges and Opportunities for Processing Biosludge from Wastewater Treatment Systems in the Pulp and Paper Industry Allen D.G. <Department of Chemical Engineering and Applied Chemistry, University of Toronto>, Bonilla S., Meyer T., Shi Y., Ghazisaidi H., Ya J., Tran H.

15:10 0176 Development of Enzymatic Membrane Bioreactors for Removal of Persistent Organohalogen Compounds from Wastewater Asif M.B., *Hai F.I. <Strategic Water Infrastructure Lab, School of Civil, Mining and Environmental Engineering, University of Wollongong (UOW), Wollongong, NSW 2522, Australia>
16:10 End of Session

Industrial Multiphase Flow

MUL2 Salon 1

MUL2 Organizer(s) - Sean Sanders and Ryan Spelley
Chair(s) - David Breakey

14:30 0179 Nanoparticles Displacements in Porous Media of Different Pore Geometries
Zargartalebi M. <Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Calgary, AB, T2N 1N4>, Azáiez J.

14:50 0180 Eulerian-Eulerian Modeling of Fluidized Beds: Validation and Parameter Studies
Shi H. <Department of Mechanical Engineering, University of Alberta, Edmonton, AB>, Komrokova A.E., Nikifryuk P.

15:10 0181 Physical Boundary Conditions for Two-Phase Flow Simulations: Use of Control Feedback
Agnaou M. <University of Waterloo>, Treeratanaphitak T., Mowla A., Ioannidis M., Abukhdeir N.M., Budman H.

15:30 0182 Simulation of Two-Phase Multiphase Flow Behaviour of a Toroid Wear Tester using Computational Fluid Dynamics
Adelej O.E. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, T6G 1H9>, Sanders R.S.

15:50 0183 Comparative Study of Viscous Fingering Phenomenon and Oil Recovery in Carbon Dioxide and Nitrogen Gas Injection
Hokmabadi K. <Faculty of Engineering and Applied Science, Memorial University, St. John's, NL>, James L.A.

16:10 Coffee Break

16:30 0184 Measuring Agricultural Residue and Woodchips Biomass Slurry Flows Critical Velocity in Pipelines using High-Frequency Impedance Method
Vaezi M. <Faculty of Engineering, Department of Mechanical Engineering, 10-263 Donadeo Innovation Centre for Engineering, 9211 116 St. NW, University of Alberta, Edmonton, AB, T6G 1H9>, Verma S., Kumar A.

16:50 0185 Comparing Slurry Friction and Erosion in Toroid Wear Tester (TWT)
Zhang L. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Breakay D., Sarker N.R., Sanders R.S.

17:10 0186 Investigation of the Transport of Fines in Porous Media using a Refractive Index Matching Technique
Sabbagh R. <Optical Diagnostics Group, Department of Mechanical Engineering, University of Alberta, Edmonton, AB>, Ansari S., Nobes D.S.

17:30 0187 Novel Drug Reducing Agents for Oil Sands Industry
Mogul M. <SNF HC, Riceboro, Georgia, USA>, Tizzetti M., Dang-Vu T.

17:50 End of Session

Macromolecular Sciences and Engineering

POL2 Salon 12

POL2 Organizer(s) - Phillip Choi, João Soares
Chair(s) - Phillip Choi and Milana Trifkovic

14:30 0188 Exact Solutions for Oscillatory Shear Sweep Behaviors of Complex Fluids from the Oldroyd 8-Constant Framework
Saengow C. <Polymer Research Group, Chemical Engineering Department, Queen's University, Kingston, ON K7L 2N9>, Giacomin A.J.

15:10 0189 Effects of Free Surfaces, Interfaces and Nanoscale Confinement on the Glass Transition Temperature of Polymer Thin Films, Nanotubes and Nanospheres
Torkelson J.M. <Chem. and Biol. Eng. Dept., Northwestern University, Evanston, IL 60208 USA; Materials Science and Eng. Dept., Northwestern University, Evanston, IL 60208 USA>, Tan A., Chen L.

15:30 0190 Reptation through Free Volume Redistribution
Wong C.P.J. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9>, Zhou Y., Cho P.

15:50 0191 Coarsening Mechanism of Cocontinuous Polymer Blends via Confocal Rheology
Shah R. <Department of Chemical and Petroleum Engineering, University of Calgary>, Ansari M., Bryant S.L., Trifkovic M.

16:10 Coffee Break

16:30 0192 Force Spectroscopy of Quadruple H-Bonded Dimers in Water: Cooperative Effect between Hydrogen Bonding and Hydrophobic Interactions
Chen J. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2V4>, Wu M., Thundat T., Zeng H.

16:50 0193 Laser-Induced Graphene: Bio-Mass Derived Polymer Precursors and New Electrochemical Device Architectures
Yilmaz D., Lau I., Chan N., Pope M.A. <University of Waterloo>

17:10 0194 Diffraction-Based Degradation Sensor for Polymer Thin Films
Abukarasa P. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Martínez-Tobón D.I., Sauvageau D., Elias A.

17:30 0195 Binodal High-Density Polyethylene: Influence of the Stereoregularity of the Copolymer Fraction on the Environmental Stress Crack Resistance
Fisch A.G. <Universidade Luterana do Brasil (ULBRA), Chemical Engineering Department>, Cardoso M.N.

17:50 End of Session

Nanotechnology

NAN2 Salon 7

NAN2 Organizer(s) - Hyun-Joong Chung, Anastasia Elias and Zeinab Hosseinidoust
Chair(s) - Hyun-Joong Chung and Anastasia Elias

14:30 0196 Flexible, Stretchable and Healable Electronics
Ciofara F., Zhang S. <Polytechnique Montréal>

14:50 0197 Flexible, Multilayered Printed Circuit Boards and Sensors for Surface Electromyogram
Qiu S. <Department of Chemical and Materials Engineering, University of Alberta>, La T.-G., Scott D.K., Shi S., Chung H.-J., Rieger J.

15:10 0198 Potassium Ion Selective Electrode
Tran N.T.T. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AT6G, 2V4>, Qiu S., Chung H.-J.

15:30 0199 Langmuir Films and Uniform, Large Area, Transparent Coatings of Chemically Exfoliated MoS2 Single Layers
Zhang Y., Xu L., Walker W., Tittle C., Backhouse C., Pope M.A. <University of Waterloo>

15:50 0200 New Approaches to Integrate the Porous Membrane into Microfluidic Devices
Yan S.Y. <Department of Chemical Engineering, Ryerson University, 350 Victoria St., Toronto, ON M5B 2K3; Keenan Research Centre for Biomedical Science, St. Michael's Hospital, 30 Bond St., Toronto, ON M5B 1W8; Institute for Biomedical Engineering, Science and Technology (IBEST), A partnership between Ryerson University and St. Michael's Hospital, 30 Bond Street, Toronto, ON M5B 1W8>, Hwang D.K.

16:10 Coffee Break
16:30 0201 Markus Permeating Nanocarriers for the Delivery of Biopharmaceutics Bourgani V., Karamanidou Th., Kammona O., Kiparissides C. <Department of Chemical Engineering, AUTH, Thessaloniki, Greece; Chemical Process & Energy Resources Institute, CERTH>

16:50 0202 Pharmaceutical Nanotechnology to Overcome the Bottleneck of Cancer Radiotherapy Wu X.Y. <Leslie Dan Faculty of Pharmacy, University of Toronto, 144 College St., Toronto, ON M5S 3M2>

17:10 0203 Reorientation Dynamics of Confined Liquid Crystal Domains Abukhdeir N.M. <Department of Chemical Engineering, University of Waterloo, Waterloo, ON, Department of Physics and Astronomy, University of Waterloo, Waterloo, Waterloo; Waterloo Institute for Nanotechnology, University of Waterloo, Waterloo, ON>

17:30 0204 Production and Characterization of Yarn Spun Directly from Carbon Nanotube Bundles Aberua O. <School of Chemical and Metallurgical Engineering, University of the Witwatersrand, Johannesburg, South Africa>, Daramola M.O., Iyuke S., Madhi S., Bedasie K.

17:50 End of Session

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Process Safety and Risk Management

PSM2 0201

Organizer(s) - Lianne Lefsrud, Norman Nibber and Gord Winkel
Chair(s) - Melanie Wilson and Munira Umme

14:30 0205 Creating a Positive Safety Culture and Continuous Improvement in Alberta’s Construction Industry Lefsrud L.M., Pennetta de Oliveira L. <University of Alberta>, Caldera A., Esmaeeli N., Farjoo A.

15:00 0206 Risk According to a Matrix Dancey J.J. <Baker Engineering and Risk Consulting, Inc>

15:30 0207 The New Updated International Standard IEC 61511:2016 Ed. 2 (Key Changes) Pacanins G. <ACM Facility Safety>

16:00 Coffee Break

16:30 0208 PHA Risk Reduction Optimization for Implementing Recommendations Mukherjee R.K.M. <ACM Facility Safety>

17:30 0209 You Be the Barrier: Bowsites to Assess Hazards and Analyze Incidents due to Human Error Vitoria E., Herb J. <Enbridge>, Uly R.L., Robbins L.

18:00 End of Session

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Reaction Engineering and Catalysis

RXN2 0201

Organizer(s) - Bob Hayes, Natalia Semagina and David Simakov
Chair(s) - Josephine Hill and Ya-Huei (Cathy) Chin

14:30 0210 Advanced Photo-Oxidation Process over Mn-TiO2 for Water Treatment Stucch M., Galli F. <Polytechnique Montréal, Chemical Engineering, Montréal, QC H3T 1J4>, Eliaf A., Boffito D.C.


15:10 0212 Ozone-Assisted Catalytic Oxidation of a Binary Mixture of Volatile Organic Compounds in Air Aghabolyagh M. <University of Saskatchewan, Saskatoon, SK>, Chen N., Soltan J.

15:30 0213 Catalytic Oxidation of Acetone by Ozone over Alumina Supported Cobalt-Manganese Catalysts Ghavami M. <Department of Chemical & Biological Engineering, University of Saskatchewan, Saskatoon, SK>, Aghabolyagh M., Chen N., Soltan J.

15:50 0214 Catalytic Ozonation of Ibuprofen with Fe-Substituted MCM-41 Jeirani Z. <Department of Chemical and Biological Engineering, University of Saskatchewan, 57 Campus Dr., Saskatoon, SK S7N 5A9>, Soltan J.

16:10 Coffee Break

16:30 0215 Multiscale Modeling of the Flow Inside of an Automotive Catalytic Converter Cornejo I. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB; Department of Chemical and Environmental Engineering, Santa Maria University, Valparaiso, Chile>, Nikifryuk P., Hayes R.E.

16:50 0216 CH4 Oxidation Catalysts Evaluated in a Monolith Reactor Almahamadi H. <Department of Chemical and Biological Engineering, University of British Columbia, 2360 East Mall, Vancouver, BC V6T 1Z3>, Smith K.J.

17:10 0217 Towards Earth-Abundant Elements in Methane Combustion Catalysts Nassiri H. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9>, Hayes R.E., Semagina N.

17:30 0218 Highly Stable Silica Encapsulated Emission Control Catalysts for Lean Methane Combustion Habibi A.H. <University of Alberta, Edmonton, AB>, Hayes R.E., Semagina N.

17:50 End of Session

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Systems and Control

SYS2 0201

14:30 0219 Monitoring and Estimation of Column Flotation Azhin M. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Popli K., Mafan A., Liu Q., Prasad V.

14:50 0220 Simultaneous Data Reconciliation and Gross Error Diagnosis Based on Maximum Likelihood Estimation using EM Algorithm Alighardashi H. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Li Z., Shah S.L.

15:10 0221 A Smart Pipeline Leak Detection and Localization System Based on the Kantorovich Distance Ariffin B.M.S. <Department of Chemical and Materials Engineering, University of Alberta>, Li Z., Shah S.L.

15:30 0222 A Robust Multivariate Fault Detection Scheme for Process Monitoring Rashidi B. <Department of Electrical and Computer Engineering, University of Alberta, Edmonton, AB>, Zhao Q., Meenakshi S., Saha S.

16:10 Coffee Break

16:30 0223 Real Time Monitoring of Feed Frame Powder and Tablets using Near Infrared Spectroscopy Dalvi H. <Université de Sherbrooke, Pfizer Industrial Research Chair, Sherbrooke, QC>, Gosselin R., Abatzoglou N., Guay J.-M., Langlet A.

16:50 0224 Anemia Management in Chronic Kidney Disease using Zone Model Predictive Control Najwa N. <Department of Chemical and Materials Engineering, University of Alberta>, McAllister J., Liu J., Li Z.
16:50 0225  Optimal Crystal Size Control through a Plug Flow Crystallizer Configured with Recycle  Xu X. <University of Alberta, Department of Chemical and Materials Engineering>, Yuan Y., Dubiljevic S.

17:10 0226  Multi Input Multi Output Model Predictive Control for Steam-Assisted Gravity Drainage (SAGD)  Purkayastha S.N. <University of Calgary>, Gates I.D., Trifkovic M.

17:30 0227  Dynamic Optimization and Control of a CO₂ Absorber Column for Post-Combustion CO₂ Capture  Cerrillo Briones I., Ricardez-Sandoval L. <Department of Chemical Engineering, University of Waterloo, Waterloo, ON N2L 3G1>

17:50 End of Session

Special

SPEC  Salon 4

Special  Organizer(s) - João Soares, Arvind Rajendran and Shaffiq Jaffer  Chair(s) - Eddy Isaacs

Special Event

18:10  Fireside Chat with Michael Crothers, President and Country Chair, Shell  Facilitator, Eddy Isaacs, University of Alberta

19:10 End of Session

Posters

POS  Hall C

Posters  Organizer(s) - Arvind Rajendran

From 17:50 until 19:50

0228  Macromolecular Engineering towards Smart Materials  Abraham S. <EngenuityLab, chemical and Materials Engineering Department, University of Alberta, Edmonton, AB>, Monemagnio C., Gray M.R., Mathews A.S., Kollarigowda R.H., Kumar S., Ma G.

0229  Mathematical Modeling and Scale-Up of Size Exclusion Chromatography for the Fractionation of Polymers  Afacan G. <University of Alberta, Department of Chemical and Materials Engineering, 9211 - 116 St., Edmonton, AB T6G 1H9>, Rajendran A., Soares J.B.P.

0230  Drying Air using Out Halls Based Adsorbents  Aghababae A. <Department of Chemical and Biological Engineering, University of Saskatchewan, 57 Campus Dr., Saskatoon, SK S7N 5A9>, Niu C.H.

0231  Comparative Study of a Set of Controller for Dynamic Positioning in Harsh Environments  Iliaz S.A., Ahmed S. <Memorial University of Newfoundland>, Jayasiri A.

0232  Decomposition of m-Aminophenol in Water using Advanced Oxidation Unit combined with Zeolite  Akimoto M. <Department of Chemical, Energy and Environmental Engineering, Faculty of Environmental and Urban Engineering, Kansai University, Japan>, Araki S., Yamamoto H.

0233  Boundary Linear-Quadratic Control of a Coupled System of Parabolic-Hyperbolic PDEs and ODE  Alsikas A. <University of Alberta>, Alsikas I., Hayes R.E., Forbes J.F.

0234  The Effect of Solvent Viscosity on the Solution Polymerization of Ethylene with a Constrained Geometry Catalyst on Polymer Molecular Weight and Long Chain Branching  Albeladi A. <Department of Chemical and Materials Engineering, University of Alberta>, Soares J.B.P.


0236  Synthesis and Performance Evaluation of Coal Fly Ash Derived Solid Sodalite Catalyst for Biodiesel Production  Aniokete T.C. <School of Chemical and Metallurgical Engineering, Faculty of Engineering and the Built Environment, University of the Witwatersrand, Wits 2050, Johannesburg, South Africa>, Daramola M.O.

0237  Hydrodesulfurization of Selected Sulfur-Containing Model Systems using Iron-Based Sherry-Dispersed Catalyst  Antwi Peprah B. <University of Alberta,> McCaffrey W.C.

0238  Biocconversion of Single Carbon Substrates in Fed-Batch Cultures  Bakhktiari F. <University of Alberta, Edmonton, AB T6G 2R3>, Sauvageau D.

0239  Application of Statistical Design of Experiments for Optimization of As(V) Biosorption by Immobilized Bacterial Biomass  Banerjee A. <Biosensor laboratory, Department of Polymer Science and Technology, University of Calcutta, India>, Banerjee A., Sarkar P.

0240  Application of Surface-Modified Cellulose Nanocrystals for Enhanced Oil Recovery  Bhatt V., Bazazi P. <Porous Media Laboratory, Chemical and Petroleum Engineering Department, University of Calgary>, Sanati-Nezhad A., Hejazi S.H.

0241  Conductive Polyethylene/Polypropylene Blend Nanocomposites: Effect of Master Batch on Phase Morphology and Electrical Properties  Borhot A. <University of Calgary, 2500 University Dr. NW, Calgary, AB T2N 1N4>, Otero I., Sundararaj U.


0243  Correlation of Polymer Mechanical Properties with Polymer Primary Structures using the Primary Structural Parameter (PSP2) Approach  Caldera A. <University of Alberta, Edmonton, AB T6G 1H9>, Soares J.B.P., DesLauriers P.

0244  Characterization of Thermal and Mechanical Properties of Polyhydroxybutyrate (PHB) Processed via Fused Deposition Modelling (FDM) and Direct-Write Printing  Caputo J.V. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9>, Elias A., Sauvageau D.

0247  Local Control of Fuel Cell Systems within Hybrid Renewable Energy Generation using Model Predictive Control  Chen S. <Chemical and Biomolecular Engineering, National University of Singapore; Chemical and Materials Engineering, University of Alberta>, Siu M.-S., Wang X.

0248  Adhesion Interactions between Clathrate Hydrates and Electrolyte Solutions by Integrated Thin Film Drainage Apparatus (ITFDA)  Chen Z.H. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2V4>, Xu Z.

0249  Study of Sand Filtration for Removal of Pollen from Swimming Pools  Bradley B., Creber S. <Royal Military College of Canada>


0251  Clinical Data from Near-Infrared Imaging of Traumatic Brain Injuries  Riley J., Creber S. <Royal Military College of Canada>
0252 Hydrogen Production through Supercritical Water Gasification of Bitumen Rana R., Nanda S., Dalai A.K. <Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK>, Kozinski J.A.

0253 Studies on the Fouling of Catalysts during Hydroprocessing of Gas-Oils Kaushik P., Dalai A.K. <Department of Chemical and Biological Engineering, University of Saskatchewan>

0254 Production of Jet Fuel through Hydroprocessing of Canola Oil over Bimetallic Supported CuFe Catalysts Ayandiran A.A, Williams J., Khakshouri J.A. <Department of Chemical and Biological Engineering, University of Calgary, 2500 University Dr. NW, Calgary, AB>, Pilapil B.K., Workman B., Bryant S.L., Trifkovic M.


0256 Coupling of Fermentation with Pervaporation: A Membrane Bioreactor System Jain A., Dalai A.K. <Dept. of Chem. Eng., Banasthali University, Rajasthan 304022, India; Dept. of Chem. and BioL. Eng., University of Saskatchewan, Saskatoon, SK T9N 5A9>, Chaurasia S.P.


0258 Synthesis of Ionic Liquid Grafted on SBA-15 as Heterogeneous Catalyst for Esterification of Oleic Acid to Biodiesel using Ethanol Ibrahim H., Deedwania A. <Process Systems Engineering, University of Regina, 3737 Wascana Pkwy., Regina, SK S4S 0A2>

0259 Catalytic Hydrothermal Conversion of Camelina sativa Straw for Production of Gasoline Range Liquid Biofuel Ibrahim H., Akande A., Deedwania A. <Process Systems Engineering, University of Regina, 3737 Wascana Pkwy., Regina, SK S4S 0A2>

0260 Stability Signature of Oil-in-Water Emulsions Stabilized by Silica Nanoparticles Derakhshandeh M. <Department of Chemical and Petroleum Engineering, University of Calgary, 2500 University Dr. NW, Calgary, AB>, Pilapil B.K., Workman B., Bryant S.L., Trifkovic M.

0261 Which Crudes Have the Lowest GHG Emission Intensity? A Discussion on Field Lullo G. <Faculty of Engineering, Department of Mechanical Engineering, 10-263 Donoade Innovation Centre for Engineering, 9211 116 St. NW, University of Alberta, Edmonton, AB T6G 1H9>, Oni A.O., Kurnar A.

0262 Oil Soluble Polymer Flocculants for the Removal of Fine Solids in Organic Media Dixon D.V. <Department of Chemical and Materials Engineering, University of Alberta; CanmetENERGY, Natural Resources Canada, Devon, AB>, Stoyanov S.R., Xu Y., Soares J.B.P., Zeng H.

0263 Evaluation of Adsorption Efficiency of Hydrophobic Silica Adsorbents using Hansen Solubility Parameters Fuwara N. <Department of Chemical Energy and Environmental Engineering, Faculty of Environmental and Urban Engineering, Kansai University, Japan>, Yamamoto H.


0267 Supercritical Carbon Dioxide Pretreatment of Flax Fibers for Enzymatic Production of Lignocellulosic Nanofibrils Nlandu H., Belkacemi K., Elkoun S., Robert M., Chorfa N., Hamoudi S. <Department of Soil Sciences & Agri-Food Engineering, Université Laval>

0268 Separation of Zr and Hf from K-Zr(HF)6 by Fractional Crystallization and Microwave-assisted Microwave Hayashi T. <Department of Chemical, Energy and Environmental Engineering, Faculty of Environmental and Urban Engineering, Kansai University, Japan>, Yamamoto H.

0269 Evaluation of Physical Property for Zeolite Surface using the Hansen Solubility Parameter Hirao K. <Department of Chemical, Energy and Environmental Engineering, Faculty of Environmental and Urban Engineering, Kansai University, Japan>, Yamamoto H.

0270 Oxidation Kinetics of Asphaltene-Born Coke Residue over in-situ and ex-situ Prepared NiO Nanoparticles Amrollahi B. A., Hosseinpour N. <Institute of Petroleum Engineering, College of Engineering, University of Tehran, P.O. Box: 11155/4563, Tehran, Iran>, Nassar N., Marei N., Bahramian A., Vatani A., Hassaan PAPER WITHDRAWN

0271 Effects of the Concentration and Flowrate of Silica Nanofluids on Ultimate Oil Recovery in Micromodels Bahalou N., Hosseinpour N. <Institute of Petroleum Engineering, College of Engineering, University of Tehran, P.O. Box: 11155/4563, Tehran, Iran>, Rasaei M. PAPER WITHDRAWN

0272 Asphaltene Aggregation Control in Reservoir Oils by Metal Oxides Nanoparticles Igder M., Hosseinpour N. <Institute of Petroleum Engineering, College of Engineering, University of Tehran, P.O. Box: 11155/4563, Tehran, Iran>, Bahramian A. PAPER WITHDRAWN

0273 Asphaltene Deposition under Shear Stress at Different Temperatures Fazl Ali A., Hosseinpour N. <Institute of Petroleum Engineering, College of Engineering, University of Tehran, P.O. Box: 11155/4563, Tehran, Iran>, Bahramian A., Javadi A. PAPER WITHDRAWN

0274 Effects of Silica Nanoparticles on Water-Heavy Oil IFT and Elasticity in Nanofluid Injection EOR Processes Salehi Foroz M., Hosseinpour N. <Institute of Petroleum Engineering, College of Engineering, University of Tehran, P.O. Box: 11155/4563, Tehran, Iran>, Bahramian A. PAPER WITHDRAWN

0275 Formation Damage Associated with Nanofluid Injection in Glass Micromodel Mohamadalinejad P., Hosseinpour N. <Institute of Petroleum Engineering, College of Engineering, University of Tehran, P.O. Box: 11155/4563, Tehran, Iran>, Rasaei M. PAPER WITHDRAWN

0276 Butanol/Water Adsorption on Oat Hulls and Site Energy Distribution Analysis Huang Q. <Department of Chemical Engineering, University of Saskatchewan>, Niu C.H., Dalai A.K.

0277 Determination of Zn and Al Parameters of Molecular Group Contribution Method for Hansen Solubility Parameter Imai S. <Department of Chemical, Energy and Environmental Engineering, Faculty of Environmental and Urban Engineering, Kansai University, Japan>, Yamamoto H.

0278 Experimental Studies on Cold Flow Properties Improvement of Hexadecane by Catalytic Hydrodewaxing Reaction Mehfuz O., Imtiaz S.A. <Process Engineering, Memorial University of Newfoundland, St. John's, NL A1B 3X5>
0279 Evaluating the Hydrothermal Stability of Amine-Tethered Large-Pore SBA-15 Silica during Cyclic CO2 Capture JahanDar Lashaki M., <Centre for Catalysis Research and Innovation, Department of Chemistry and Biomolecular Sciences, University of Ottawa, Ottawa, ON K1N 6N5>, Ziaei-Azad H., Sayari A.

0280 The Impact of the Support Pore Size and Intrawall Pore Volume on the CO2 Capture Performance of Triamine-Grafted SBA-15 Silica JahanDar Lashaki M., <Centre for Catalysis Research and Innovation, Department of Chemistry and Biomolecular Sciences, University of Ottawa, Ottawa, ON K1N 6N5>, Ziaei-Azad H., Sayari A.

0698 Polymerization of 1-Hexene using Binuclear LTM Catalysts Khoshsfat M., <Department of Catalyst, Iran Polymer and Petrochemical Institute (IPPI), P.O. Box 14965-115, Tehran, Iran>, Dechaie A., Ahmadsjo S., Mortazavi M.M., Zohuri G.H.

0699 Novel Binuclear Ni-Based FI Catalysts for Polymerization of 1-Hexene Khoshsfat M., <Department of Catalyst, Iran Polymer and Petrochemical Institute, Tehran, Iran>, Ahmadsjo S., Mortazavi M.M., Zohuri G.H.

0281 Fabrication of Superhydrophobic and Superoleophilic Cellulose Biomembrane for Oil/Water Separation KollariGowda R.H., <Ingenuity Lab, 11421 Saskatchewan Drive Northwest, Edmonton, AB T6G 2M9, Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2V4>, Abraham S., Montemagni C., Gray M.R.

0282 Thermodynamics of Sorption in Polyolefins Podvinskis M., Krajakova L., Chmeler J., *Kosek J., <University of Chemistry and Technology Prague, 166 28 Prague 6, Czech Republic>

0283 Nanoparticle Stabilized Solvent-Based Emulsion for Enhanced Heavy Oil Recovery Kumar G., <Enhanced Oil Recovery Laboratory, Department of Ocean Engineering, Indian Institute of Technology, Madras, India>, Kakati A., Mani E., *Sangwai J., PAPER WITHDRAWN


0700 Effect of Vanadium Content and Calcination Temperature on the Performance of a Cr-V Bimetalic Catalyst for Ethylene Polymerization Liu B., <East China University of Science and Technology, Shanghai 200237 China>, Zhou T., Soares J.B.P., *Liu B.

0285 Fabrication and Characterization of Biodegradable Electronic Elements Based on Poly-(3-hydroxybutyrate) (PHB) and Graphite-Nanoplatelets (GNP) Composites Caputo J.V., Lopera-Valle A., <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9>, Anbuskarasu P., Sauvageau D., Eliaas A.

0286 Modeling of ATRP Polymerization via Kinetic Monte Carlo and the Method of Moments Lopez-Dominguez P., <Department of Engineering Quimica, Facultad de Quimica, Universidad Nacional Autonomia de Mexico, 04510, Ciudad de Mexico, Mexico>, *Ivaldo-Lima E.

0287 Synthesis of Copper Oxide/Alumina Composite Aerogel as an Oxygen Carrier for Chemical Looping Combustion of Methane Karami D., *Mahinpey N., <Department of Chemical and Petroleum Engineering, University of Calgary>

0288 Free Energies of Adhesion of Bitumen Compounds on Clay Minerals Mane J., <CanmetENERGY, Natural Resources Canada, 1 Oil Patch Dr., Devon, AB>, *Stoyanov S.R.

0289 EMI Shielding Effectiveness ofCNT/NiW Polystyrene Hybrid Nanocomposites Mende Anjanyalu A., <Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB>, Shayesteh A., *Sundararaj U.

0290 Ionic Liquid Incorporation into Zeolitic Imidazolate Framework (ZIF-8) as Efficient Sorbents for CO2 Capture Mohamadali M., *Clean Energy Technology Research Institute (CETRI), and Process Systems Engineering, University of Regina, 3737 Wascana Pkwy., Regina, SK, S4S 0A2>, Henni A., Ibrahim H.

0291 The Impact of Selecting the Appropriate Probit for Hydrogen Sulphide (H2S) when Conducting a Quantitative Risk Assessment (QRA) Montgomery D., <Atkins Consulting Canada Ltd>


0293 Evaluation of Removal of Heavy Metals Water Pollutants using Polyacrylamide/Sodium Montmorillonite Moreno-Sader K., <Chemical Engineering, University of Cartagena>, Garcia-Padilla A., Acedo Morantes M., Realpe-Jimenez A., Soares J.B.P.

0294 Characterization of Starch/Sodium Montmorillonite Composite (Starch/Na-MMT) and its Application for Removal of Cobalt (II) and Nickel (II) Ions from Aqueous Solutions Garcia-Padilla A., Moreno-Sader K., <Chemical Engineering, University of Cartagena, Cartagena, Colombia>, Acevedo-Morantes M., Realpe-Jimenez A., Soares J.B.P.

0295 Role of Cations and Particle Sizes on the Flocculation of Mature Fine Tailings using an Anionic Hydrolyzed Polyacrylamide Polymer Gaikwad R., *Motta F.L., <Department of Chemical and Materials Engineering, University of Alberta>, Botha L., Soares J.B.P.

0296 Bridge Method for Site-Wide Energy Analysis and its Application in the Pulp and Paper Industry Moussavi A. <Process Design Engineering Group, Department of Chemical Engineering, Ecole Polytechnique de Montreal, P.O. Box 6079, Station Centre-Ville, Montreal, QC H3C 3A7>, Bonhivers J.C., *Stuart P.R.

0297 Removal of Ciprofloxacin from Aqueous Solution using Oat Hulls Based Adsorbents Movasaghi Z., <Department of Chemical and Biological Engineering, University of Saskatchewan, 57 Campus Dr., Saskatoon, SK S7N 5A9>, Yan B., *Niu C.H.

0298 Investigating Hydrocracking of Waste Plastic Mixture using Mesoporous Beta Catalysts Munir U.A. <Institute of Chemical Engineering and Technology, University of the Punjab Lahore, Pakistan>, Usman M.R.


0300 Negatively-Templated Multiscale Porous Polymer Monoliths for Bioseparations Muzzin N., <McMaster University, 1280 Main St. W, Hamilton, ON L8S 4L8>, Johnson K., Hoare T., Latulippe D.

0301 Removal of Organic Compound Contaminants from Wastewater using Hybrid Pyroxene Nanoparticles Nafie G., <University of Calgary, 2500 University Dr., NW, Calgary, AB T2N 1N4>, Vitale G., Carbognani Ortega L., *Nassar N.


0304 Process Characterization of Water Stable Metal Organic Frameworks (MOFs) for Post-Combustion CO2 Capture Nguyen T.T.T. <Department of Chemical and Materials Engineering, University of Alberta>, Taylor J., Rajendran A.

0305 Regeneration of Phosphoric Acid from Phosphate Waste Discarded from Fertilizer Manufacturing Process Nishiguchi K. <Department of Chemical Energy and Environmental Engineering, Faculty of Environmental and Urban Engineering, Kansai University, Japan>, Yamamoto H.

0306 Game Based Learning for Process Safety Ormerod G. <Risktec Solutions; Institution of Chemical Engineers (UK)>

0307 Synthesis and Characterisation of Zeolite NaY Catalyst Using Lawani Benin River Nigeria Kaolin as a Precursor for Silicon and Alumina Osayi J.I. <Department of Chemical Engineering, Vaal University of Technology, South Africa>, lyuke S., Daramola M.O., Osfo P., Van der Walt I.J., Ogbeide S.E.

0308 The Need to Ensure Climate Science is Based on Valid Mass and Energy Balances Peachey B.R. <New Paradigm Engineering Ltd., Edmonton, AB>

0309 Direct Contact Steam Generation: Design Options for Oil Sands Applications Peachey B.R. <New Paradigm Engineering Ltd.>, Godin M.

0310 TIRF Tomography to Study Bitumen-Clay Association in Oil Sands Tailings Shende S., Nazemifard N., Pendharker S. <University of Alberta, Department of Electrical and Computer Engineering>, Jacob Z.

0311 Toward Quantitative Measurement of Clay Content in Water: Enhaptic End Point Detection for the Methylene Blue Test Pourmohammadbagher A. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Shaw J.M.

0312 Economical Superiority of Two-Compartment Processing versus One-Compartment Processing for Production of Recrystallized Products Pourmohammadbagher M. <University of Alberta, Edmonton, AB T6G 1H9>, Abdollahi M., ‘Jazini M.

0313 Optimal Scheduling of a Bitumen Upgrader Facility for Steam-Assisted Gravity Drainage (SAGD) Purkayastha S.N. <University of Calgary>, Gates I.D., Trifkovic M.

0314 Effect of Reynolds Number on Jet Flow out of a High Aspect Ratio Rectangular Slot using Stereo-PIV Rasimarzabadi F. <Department of Mechanical Engineering, University of Alberta, Edmonton>, Mendez C., Nobes D.S.

0315 Thermodynamic Properties of Aqueous Solutions of Glycols, Alkanalamines and Blends and Hybrid of Alkanalamines: Experimental Measurements and Modelling using Redlich-Kister (RK) Equation, Prigogine-Flory-Patterson (PPF) Theory and Extended Real Associated Solution (ERAS) Models Razavi S. <Thermodynamics Research Unit, School of Engineering, University of KwaZulu-Natal, Howard College Campus, King George V, Avenue, Durban 4014, South Africa>, Mohammadi A.H.

0316 Effect of Solvent Additives on Liquid-Liquid Equilibrium of n-Butane-Athabasca Bitumen Sadeghi H. <University of Calgary>, Zinari M., Hassanzadeh H.

0317 Separation of Trolite and Ferronickel Sandhu J. <Department of Materials Science & Engineering, University of Toronto, Toronto, ON M5S 3E4>, Wang J., Bobicki E.

0318 Numerical Studies of Crude Oil Batches Mixing in a Long Channel Sepehr H. <Department of Chemical and Material Engineering, University of Alberta, Edmonton, AB>, Nikrytuk P., Breakey D., Sanders R.S.

0319 Application of ZnO-Ag and WO3-Ag as a Photocatalyst for Dye Removal by Homogeneous Modified Fenton Reaction using Fe2+–Glutamate Complex as Catalyst Shafaei B.S. <Chemistry Department, Islamic Azad University (Tehran North Branch), Iran>, Motiee F., Olya M.E.

0320 PEDOT:PSS Nano-Gels for Highly Electrically Conductive Silver/Epoxy Composite Adhesives Si P. <Department of Chemical Engineering, University of Waterloo; Institute for Polymer Research, University of Waterloo>, Chen L., Trinidad J., Lee B., Zhao B.

0321 Viscosity Reduction of Athabasca Bitumen during Viscbreaking: Effect of Solvents, Shear Rates and Solids Sivaramakrishnan K. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Prasad V., de Klerk A.

0322 Estimating the Bulk Density of Polyolefin Particles Made in Industrial Reactors via Monte Carlo Simulation Romero J., Soares J.B.P. <Department of Chemical and Materials Engineering, University of Alberta>

0323 The Effects of Rare and Alkaline Earth Metal Zirconates on Ca-Based Sorbents for CO2 Capture Processes at Elevated Temperatures Soleimanisalim A.H. <Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Calgary, AB>, Karami D., Mahipney N.

0324 Modification of Alumina as a Support for Metal Oxide Oxygen Carriers using Core-Shell Technique Soleimanisalim A.H. <Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Calgary, AB>, Karami D., Mahipney N.

0325 Photodegradation of Bisphenol A using Singlet Molecular Oxygen as Advanced Oxidation Process Doria G.M., Soltan J. <University of Saskatchewan, 57 Campus Dr., Saskatoon, SK S7N 5A9>, Peñuela G., Valencia G.C.

0326 Degradation of Thiabendazole Systemic Fungicide by Homogeneous Modified Fenton Reaction using Fe2+–Glutamate Complex as Catalyst Men A.L., Balladares O., Munoz F., Soltan J. <University of Saskatchewan>

0327 Application of Adsorption on Granular Activated Carbons for the Removal of Lincomycin from Water Balladares O., Soltan J. <University of Saskatchewan, 57 Campus Dr., Saskatoon, SK S7N 5A9>

0328 Simplified Model: Post-Combustion Adsortent Screening Balashankar V. <Department of Chemical and Materials Engineering, University of Alberta, 9211-116 St. NW, Edmonton, AB T6G 1H9>, De Pauw R., Ragopalan A.K., Avila A.M., Rajendran A.


0330 Identification of Output-Error (OE) Models using QZ Algorithm Maurya D., Tangirala A.K. <Systems & Control Group, Department of Chemical Engineering, Indian Institute of Technology Madras, Chennai - 600036 India>, Narasimhan S.S.

0331 Impact of Substrates on Development of Industrial Process for Methylotrophs Tays C. <University of Alberta, Edmonton, AB>, Stein L.Y., Sauvageau D.

0332 Mesoporous Silica Copper Catalysts for Methanol Steam Reforming Thurgood C. <Department of Chemistry/Chemical Engineering, Royal Military College, Kingston, ON>, Scott J., Popple B.
Tuesday AM 0357  CSChE 2017  0375 Tuesday AM  
Oct 24, 2017  

10:50 0357 Pattern Mining for Industrial 
Alarm Floods  <Yang F. <Department of 
Automation, Tsinghua University, Beijing 
100084, China>, Guo C., Huang D., Xiao D. 

11:10 0358 Irrigation Scheduling for 
Water Conservation  <Nahar J. <Department of 
Chemical and Materials Engineering, 
University of Alberta>, Li J., Shah S.L. 

11:30 End of Session 

HOW1 Salon 11 
Honourary Symposium in 
Recognition of Sieghard E 
Wanke for Outstanding 
Contributions in Chemical 
Reaction Engineering 
Organizer(s) - Robert Hayes 
Chair(s) - Robert Hayes and Natalia 
Semagina 

09:50 0359 Sieg Wanke - A Leader in 
Catalyst Research  <Hayes R.E. <University of 
Alberta> 

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Keynote Lecture presented by Kevin J. 
Smith, University of British Columbia 

10:10 0360 Stability of Pd Catalysts for 
Low Temperature Methane Oxidation Relevant 
to Natural Gas Vehicle Emission Control  
<Smith K.J. <Department of Chemical and 
Biological Engineering, University of British 
Columbia, Vancouver, BC> 

10:50 0361 Structural Dynamics of Pd-Pt 
Clusters during Methane Oxidation Catalysis 
<Nie H., Geng H., Howe J., Chiu Y.-H. 
Department of Chemical Engineering and 
Applied Chemistry, University of Toronto, 
Toronto, ON M5S 3E5> 

11:10 0362 Ageing Studies of Mixed Pt 
and Pd Catalysts for the Combustion of Lean 
Methane Mixtures  <Istratecuy G.M., Hayes 
R.E. <Department of Chemical and Materials 
Engineering, University of Alberta, Edmonton, 
AB> 

11:30 0363 Intrinsic and Observed 
Synergism in Bimetallic Catalysis 
<Shen J., Scott R.W.J., Hayes R.E., Nassiri H., 
Mansouri A., Ziaei-Azad H., Semagina N. 
Department of Chemical and Materials 
Engineering, University of Alberta, Edmonton, 
AB> 

11:50 End of Session 

Biotechnology and Biomedical 
Engineering 

BIO3 Salon 12 
BIO3 

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Keynote Lecture presented by Elizabeth 
Gillies, Western University 

09:50 0364 Stimuli-Responsive Polymers 
with Amplified Responses to Stimuli: 
Development and Applications for Controlled 
Drug Release  <Gillies E.R. <Department of 
Chemical and Biochemical Engineering, The 
University of Western Ontario, London, ON; 
Department of Chemistry, The University of 
Western Ontario, London, ON; Centre for 
Advanced Materials and Biomaterials Research, 
London, ON> 

10:30 0365 Connecting Microstructure 
and Rheological Properties of 
Poly(oxyethylene glycol methacrylate) 
Hydrogels for Biomedical Applications  
<Malone R. <University of Calgary, 2500 
University Dr. NW, Calgary, AB T2N 1N4>, 
Paron E., Hoare T., Trifkovic M. 

10:50 0366 Engineering Responsive and 
Biomimetic Hydrogels for Biomedical 
Therapeutic and Diagnostic Applications 
(<BIOGEL>)  <Tsanaktsidi E., Kammona O., 
Kiparissides C. <Chemical Process & 
Energy Resources Institute, CERTH; 
Department of Chemical Engineering, AUTH, 
Thessaloniki, Greece> 

11:10 0367 Overcoming Inhibition 
through Sequential Hydrolysis of Cedras 
deodara Wood Dust: A Novel Approach  
<Baksi S. <Chemical Engineering Department, 
Jadavpur University, Kolkata-32, India>, 
Sarkar U. 

11:30 End of Session 

Chemical Engineering Education 

EDU1 Salon 15/16 

EDU1 Organizer(s) - Marnie Jamieson, Suzanne 
Kresta and Michel Perrier 
Chair(s) - Marnie Jamieson and Suzanne 
Kresta 

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Keynote Lecture presented by Greg 
Evans, University of Toronto 

09:50 0368 Moving Entropy and 
Elements from Chaos to Connections: Teaching 
Chemical Engineering in Turbulent Times  <Evans G.J. <Department of Chemical 
Engineering and Applied Chemistry, University of 
Toronto> 

10:30 0369 Pump-pipeline System Design 
Cases for Introductory, Undergraduate Fluid 
Mechanics Courses  <Sanders R.S. <NSERC 
Industrial Research Chair in Pipeline Transport 
Processes, Department of Chemical and 
Materials Engineering, University of Alberta, 
Edmonton, AB> 

10:50 0370 Are We Near a Threshold of 
Yet Another Paradigm Shift in Chemical 
Engineering Education? If So, Is That Good or 
Bad?  <Samavedham L. <National University of 
Singapore>, Nandakumar K. 

11:10 End of Session 

Chemical Engineering 
Fundamentals 

FUN4 Salon 8 

FUN4 Organizer(s) - Dimitry Eskin, Petr Nikrityuk 
and Vinay Prasad 
Chair(s) - David Nobes and Petr Nikrityuk 

09:50 0371 Quantifying Air Bubble 
Characteristics Rising through a Mini-Slot 
inside a Rectangular Flow Channel using 
Shadow Image Velocimetry  <Abukhdeir N.M. 
<Optical Diagnostics Group, Department of 
Mechanical Engineering, University of Alberta, 
Edmonton, AB>, Sabbagh R., Nobes D.S. 

10:10 0372 Phase-Bounded Finite 
Element Method for Two-Fluid Incompressible 
Flow Systems  <Treeratanaphitak T. 
<Department of Chemical Engineering, 
University of Waterloo>, <Abukhdeir N.M. 
<Optical Diagnostics Group, Department of 
Mechanical Engineering, University of Alberta, 
Edmonton, AB>, Sabbagh R., Nobes D.S. 

10:30 0373 A New Lattice-Boltzmann 
Method for the Simulation of Rarefied Flows in 
Complex Porous Media  <Tucny J.-M. <École 
Polytechnique de Montréal, Montréal, QC H3C 
3A7>, Vidal D., Bertrand F. 

10:50 0374 Computational Fluid 
Dynamics Study of viscous Fingering in 
Supercontinul Fluid Chromatography  
Subraveti S.G. <Department of Chemical 
and Materials Engineering, University of Alberta, 9211-116 St., Edmonton, AB T6G 1H9>, 
Nikrityuk P., Rajendran A. 

11:10 0375 Interfacial Instabilities of 
Shear-Thinning/Newtonian Flow 
Displacements in Hele-Shaw Cells  <Lee Y.H. 
<Department of Chemical and Petroleum 
Engineering, Schulich School of Engineering, 
University of Calgary, Calgary, AB>, Azalez J. 

11:30 End of Session 

Colloids and Interfacial Sciences 

COL2 Salon 6 

COL2
Environmental Engineering and Waste Management / Oil Spill Recovery

ENV3 Salon 13/14

Organizer(s) - Bing Chen, Bipro Dhar, Madhumita Ray and Stanislav Stoyanov
Chair(s) - Stanislav Stoyanov and Lindsay Hournej

Environmental Engineering and Waste Management / Oil Spill Recovery

ENV3

09:50 0391 All Around the Circle with Hydrocarbons
Dettman H.D. <Natural Resources Canada, CanmetENERGY, Devon, AB>

10:30 0392 Resurfacing of Chemically-Dispersed and Bio-Dispersed Oil in Frozen Ice-Covered Water
Song X., Chen B., Zhang B., Lye L., Zhang K., Liu B. <Northern Region Persistent Organic Pollution Control (NRPOP) Laboratory, Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St. John's, NL A1B 3X5>

10:50 0393 Amylopectin-Based Solidifier for Oil Spill Recovery
Motta F.L. <Department of Chemical and Materials Engineering, University of Alberta, AB>

Environmental Engineering and Waste Management / Oil Spill Recovery

11:10 0394 Effects of Salinity and pH on the Distribution of Diluted Bitumen Products in Water
Hounjet L.J. <CanmetENERGY, Natural Resources Canada, 1 Oil Patch Dr., Devon, AB, T9G 1A8>

11:30 0256 Interaction of Oil with Model Sediment and Field Sediment for Oil Spill Response
De Crisci A.G. <CanmetENERGY-Devon, Natural Resources Canada>, Utting N., Pawlowicz J., Utting N., *Stoyanov S.R.

Environmental Engineering and Waste Management / Oil Spill Recovery

11:50 0395 Preparation and Application of Low-Cost Ceramic Membranes for Treatment of Oily Wastewater
Agarwal A., Samanta A. <Department of Chemical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad-826004, India>, Mandal A., Nandi B.K.

End of Session

Tuesday AMCSChE 2017 0395 Tuesday AM

0395 Tuesday AM

Organizer(s) - Edgar Acosta, Janet A.W. Elliott and Hongbo Zeng
Chair(s) - Janet A.W. Elliott and Hongbo Zeng

Keynote Lecture presented by François Winnik, Université de Montréal

09:50 0376 Colloids and Interface Science: Traditions and Prospectives
Winnik F.M. <Department of Chemistry, University of Montreal, Montreal QC, Department of Chemistry and Faculty of Pharmacy, University of Helsinki, Helsinki, Finland; Centre for Materials Nanosarchitectonics, NIMS, 1-1-Namiki, Tsukuba, Ibaraki, Japan>

10:00 0377 A Quantitative Approach for Producing Oil-Induced Wormlike Micelles, and their Use in Nanoparticle Stabilization
Acosta E. <University of Toronto, Department of Chemical Engineering and Applied Chemistry>, Choi F.

10:50 0379 Probing Molecular Interactions of Bitumen-Coated Mineral Solids in Organic Solvents

11:50 End of Session

Tuesday AM 0376

Conventional and Unconventional Energy Sources

ENR3 Salon 9

ENR3

Organizer(s) - Bruce Peachey and Japan Trivedi
Chair(s) - Ali Telmadarreie and Japan Trivedi

Keynote Lecture presented by Soheil Asgarpour, Petroleum Technology Alliance Canada

09:50 0381* Clean Resource Innovation Network
Asgarpour S. <Petroleum Technology Alliance Canada>

10:30 0382 In-situ Oil Sands Technology Needs and Opportunities Change as Recovery Progresses
Peachey B.R. <New Paradigm Engineering Ltd., Edmonton>
Organizer(s) - Neda Nazemifard and David Sinton
Chair(s) - Tom de Haas and Jennifer McMillan

09:50 0396 Nanofluidics: Direct Observations of Fluid Behaviors at Sub-10 nm for Unconventional Reservoirs Zhong J. <University of Toronto>, Zandavi S.H., Li H., Bao B., Persad A.H., Mostowfi F., Sinton D.

10:10 0397 Water Based Heavy Oil Recovery: A Microfluidic Approach Bazazi P. <Porous Media Laboratory, Chemical and Petroleum Engineering Department, University of Calgary>, Hejazi S.H., Sanati-Nezhad A.

10:30 0398 Microfluidic Assessment of CO₂-Oil Phase Behavior: Oil Swelling and Extraction Shariatbani A. <Department of Mechanical and Industrial Engineering and Institute for Sustainable Energy, University of Toronto, 5 King's College Rd, Toronto, ON M5S 3G8>, Abedini A., Qi Z., Sinton D.

11:10 0400 The Effect of Rheology on the Measured Velocity in Capillary Tubes Sabbagh R. <Department of Mechanical Engineering, University of Alberta, Edmonton, AB>, Waghmare P.R., Nobes D.S.


11:50 End of Session

Process Safety and Risk Management

PSM3 Salon 10

Organizer(s) - Lianne Lefsrd, Norman Nibber and Gord Winkel
Chair(s) - Norm Nibber and Anuar Caldera

Process Safety and Risk Management Plenary Lecture presented by Fred Henselwood, NOVA Chemicals

09:50 0402 The Use of Inherent Layers of Protection to Create Line-of-Sight between Individual Activities and Process Safety Performance Henselwood F.W. <Nova Chemicals>

10:50 0403 Process Safety Implementation in a Greenfield Refinery Project in Alberta Thomas T. <Integration Commissioning and Startup, NWR Partnership>, Belyea R., Holuk R.

11:20 0404 Safety Aspects of Floating LNG: Preliminary Inherent Safer Design Selection of Liquefaction Process Shah D. <Faculty of Engineering, University of Alberta, Edmonton, AB>, Lefsrd L.M.

11:50 End of Session

Systems and Control

SYS3 Salon 4

Organizer(s) - Stevan Dubilevic, Zukui Li and Jinfeng Liu
Chair(s) - Yuri Shardt and Jinfeng Liu

09:50 0405 Using Normal Probability Plots to Determine Parameters for Higher-Level Fall Factorial Experiments with Orthogonal and Orthogonal Bases Donnelly T. <Department of Chemical Engineering, University of Waterloo>, Shardt Y.A.W.

10:10 0406 Reconstruction of Missing Data in Vector Autoregressive (VAR) Processes Agarwal P., Tangirala A.K. <Department of Chemical Engineering, Indian Institute of Technology Madras, Chennai, 600036, India>

10:30 0407 Robust Gaussian Process Regression with a Mixture of Gaussian Likelihood using Em Algorithm Daemi A. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2G6>, Hariprasad K., Huang B.

10:50 0408 Estimation of Random Time Delay for Soft Sensors Vasile A. <Department of Chemical Engineering, University of Waterloo>, Yang X., Shardt Y.A.W.


11:30 0410 Data Mining and Optimization of SAGD Process Li C. <University of Alberta, Edmonton, AB T6G 2R3>, Magboul Jan N., Huang B.

11:50 End of Session

Upgrading and Tailings Reduction

UPG1 Salon 1

Organizer(s) - Jinwen Chen, William McCaffrey, Richard Nelson and Yuming Xu
Chair(s) - Richard Nelson and Feng Lin

Keynote Lecture presented by John Brogly, Canada’s Oil Sands Innovation Alliance

09:50 0411 Improving the Environmental Performance of Oil Sands Tailings: An Update Brogly J. <COSIA, Canada’s Oil Sands Innovation Alliance>

10:30 0412 Flocculation of MFT by Hydrophobically-Modified Polyacrylamide Copolymers: Impact of Copolymer Microstructure on Flocculation and Dewatering Hipko J. <Department of Chemical and Materials Engineering, University of Alberta>, Vajihinejad V., Motta F.L., Soares J.B.P.

10:50 0413 Functionalized Polyethylene as Flocculants for Treatment of Oil Sands Tailings Rostami Najafabadi Z. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2G6>, Soares J.B.P.

11:10 0414 A Model Study on Water Soluble Polymeric Nanofibers for Rapid Flocculation and Enhanced Dewatering of Fine Oil Sands Tailings Simulated Through Kaolin Afacan C. <University of Alberta, Department of Chemical and Materials Engineering, 9211 - 116 St., Edmonton, AB T6G 1H9>, Naram R., Soares J.B.P.

11:30 0415 Poly(methyl acrylate), a Viable Alternative for the Conventional Acrylamide-Based Polymers in Treatment of Oil Sands Tailings Njiru O.K. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2V4>, Vajihinejad V., Soares J.B.P.

11:50 End of Session

Tuesday PM

Plenary

PLEN Hall B

Plenary

Organizer(s) - João Soares, Arvind Rajendran and Shaffiq Jaffer
Chair(s) - Biao Huang

R. S. Jane Memorial Award Plenary Lecture presented by Sirish Shah, University of Alberta

13:30 0416 From Autonomous Cars to Autonomous Processes: Hype or Reality? Shah S.L. <University of Alberta>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
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<tbody>
<tr>
<td>14:30</td>
<td>End of Session</td>
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<tr>
<td>14:40</td>
<td>Honorary Symposium</td>
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<tr>
<td>14:40</td>
<td>HOP4 Salon 2</td>
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<tr>
<td>14:40</td>
<td>Honorary Symposium in Recognition of Archie Hamielec, Harmon Ray and Charles Cozewith for Outstanding Contributions in Polymer Reaction Engineering</td>
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<tr>
<td>14:40</td>
<td>Organizer(s) - Jeff Brinen, Robin Hutchinson, João Soares and Shiping Zhu Chair(s) - Robin Hutchinson and Markus Busch</td>
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<tr>
<td>14:50</td>
<td>0050 An Ode to Elegant Solutions in Polymerization Reaction Engineering $^a$Soares J.B.P. &lt;University of Alberta&gt;</td>
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<tr>
<td>15:10</td>
<td>0419 Effect of Hydrogen on the Molecular Weight of Polyolefins - Non-Linear Response Curves $^a$Paulik C. &lt;Johannes Kepler University Linz, Altenbergerstrasse 69, 4040 Linz, Austria&gt;, Garoff T., Kreuzer A., Saeed I.</td>
</tr>
<tr>
<td>15:30</td>
<td>0420 Online Measurement of Polymer Properties: Benefits, Challenges and Comparison of Current Options $^a$Floyd S. &lt;Fluence Analytics, 1078 S. Gayoso St., New Orleans, LA 70125 USA&gt;, $^a$Drenski M., Brahmbhatt T.</td>
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<tr>
<td>15:50</td>
<td>0421 Applications of Process Engineering Fundamentals to Polymer Technology Commercialization $^a$Schiffin R. &lt;Wilmington, DE 19807 USA&gt;</td>
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<tr>
<td>16:10</td>
<td>Coffee Break</td>
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<td>16:30</td>
<td>0422 Dynamic Optimization of a Simulbatch Polymerization Process $^a$Villa C. &lt;Dow Chemical&gt;</td>
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<td>16:50</td>
<td>0423 Modeling Vapor Solubility in Semi-Crystalline Polyethylene $^a$Greenhalgh B.R. &lt;ExxonMobil Chemical Company&gt;, Moebus J.A.</td>
</tr>
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<td>17:10</td>
<td>0424 Steady-State Solution for the Molecular Weight Distribution in the Autoclave LDPE Process $^a$Saldivar-Guerra E. &lt;Centro de Investigación en Química Aplicada, Saltillo, Mexico&gt;, $^a$Lopez-Carpy B., Garcia-Franco C.</td>
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<td>17:50</td>
<td>0426 State Estimation of Polymerization Processes Having Delayed Lab Measurements $^a$Rawlings J.B. &lt;Department of Chemical and Biological Engineering, University of Wisconsin, Madison, WI 53706 USA&gt;, Arnold T.J.</td>
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<td>18:10</td>
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<td>17:10</td>
<td>0433 Diagnosis of Root Cause of Process Fault using BN with Multiple Uncertain Evidence $^a$Amin M.T., $^a$Imtiaz S.A. &lt;Centre for Risk Integrity and Safety Engineering, Memorial University of Newfoundland, St. John's, NL A1B 3X5&gt;, Khan F.I.</td>
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<td>17:30</td>
<td>0434 Objective Functions for Estimating Parameters in Nonlinear Dynamic Models with Stochastic Disturbances $^a$Karimi H., $^a$Mcauley K.B. &lt;Department of Chemical Engineering, Queen's University, Kingston, ON K7L 3N6&gt;</td>
</tr>
<tr>
<td>17:50</td>
<td>0435 Simultaneous Input and State Estimation using Expectation Maximization (EM) Aalgorith $m$ Khan M.A.I., $^a$Imtiaz S.A. &lt;Centre for Safety and Risk Engineering, Memorial University of Newfoundland, St. John's, NL A1B 3X5&gt;, Khan F.I.</td>
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<td>18:10</td>
<td>End of Session</td>
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<td>14:30</td>
<td>0436 Role of Colloidal and Interfacial Science in Bitumen Extraction from Athabasca Oil Sands $^a$Masliyah J.H. &lt;University of Alberta&gt;, Xu Z.</td>
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<td>15:10</td>
<td>0437 Applications for Colloid Chemistry in the Oil Field $^a$Chow R. &lt;InnoTech Alberta Inc&gt;</td>
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<td>15:30</td>
<td>0438 Adding Value to Alberta's Energy Resources-Opportunities and Challenges $^a$DuPlessis D. &lt;Alberta Innovates, 2450, 801-6 Ave. SW, Calgary, AB T2P 3W2&gt;</td>
</tr>
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<td>15:50</td>
<td>0439 Commercialization of the DSU$^a$Tm Process One Miracle at a Time! $^a$Camara N. &lt;Field Upgrading Ltd., Calgary, AB&gt;</td>
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<td>16:10</td>
<td>Coffee Break</td>
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<tr>
<td>16:30</td>
<td>0440 Opportunities for Partial Upgrading of Bitumen $^a$Gray M.R. &lt;Alberta Innovates; Department of Chemical and Materials Engineering, University of Alberta&gt;</td>
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<tr>
<td>16:50</td>
<td>0441 Integrated Solid Waste Management: Ener kem's World-First Waste to Biofuels Facility in Edmonton $^a$Lynch D.C. &lt;Ener kem Inc, 250 Aurora Road NE, Site 306, Edmonton AB T6S 1G9&gt;</td>
</tr>
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17:10 0442  The Global Transformation of the Hydrocarbon Energy Industry: Moving from a Resource-Driven Sector to a Technology-Driven Sector  
Asgarpoor S., Adjaye J.  
<PTAC Petroleum Technology Alliance Canada>

17:30 0443  Path to Deployment: Suncor’s Technology Journey  
*Bunio G.  
<Suncor Energy>

17:50 0444  Collaborating for Innovation-The Alberta-Canada MOU  
Siewe C.  
<CanmetENERGY-Devon, Department of Natural Resources, Devon, AB>

18:10  Concluding remarks by Eric Newall and Eddy Issacs

18:20  End of Session

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Honorary Symposium in Recognition of Sieghard E Wanke for Outstanding Contributions in Chemical Reaction Engineering  
Organizer(s) - Robert Hayes  
Chair(s) - Robert Hayes and Natalia Semagina

14:30 0445  Catalytic Hydrodeoxygenation of Biomass Pyrolysate Derived Bio-Oil: A Combined Theoretical and Experimental Study using Furfural as a Model Compound  
*Mushrif S.H.  
<School of Chemical and Biomedical Engineering, Nanyang Technological University, Singapore>, Banerjee A., Ansari K.B.

14:50 0446  Making Fuels from CO2: Thermocatalytic Conversion of CO2 into Renewable Synthetic Fuels  
*Simakov D.S.A.  
<University of Waterloo>

15:10 0447  Petroleum Coke as a Catalyst Precursor  
Montes V., Hazlett M.J., *Hill J.M.  
<Department of Chemical & Petroleum Engineering, University of Calgary>

15:30 0448  Removal of Nitrogen and Sulfur Compounds from Gas Oil via Selective Adsorption over Functionalized Polymers and Catalytic Hydrate-trating  
*Dalai A.K.  
<Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK S7N 5A9>, Misra P., Badoga S., Adjaye J.

15:50 0449  How to Use Microstructural Deconvolution Techniques to Quantify Multiple Site Types on Ziegler-Natta Catalysts  
*Soares J.B.P.  
<University of Alberta>, Chen K., Mehdiabadi S.

16:10  End of Session

Biotechnology and Biomedical Engineering

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BIO4 Salon 12

BIO4  
Organizer(s) - Todd Hoare, Hyo-Jick Choi, Ravin Narain and Dominic Sauvageau  
Chair(s) - Hyo-Jick Choi and Ravin Narain

Hatch Innovation Award Lecture and  
The Canadian Journal of Chemical Engineering Lectureship Award Lecture presented by Alison McGuigan, University of Toronto

14:30 0450  Engineered Tissue Platforms for Probing Fundamental Tissue Biology and Identifying Novel Therapeutics  
*McGuigan A.P.  
<University of Toronto, Department of Chemical Engineering and Applied Chemistry, University of Toronto, Institute for Biomaterials and Biomedical Engineering>

15:10 0451  Crosslinking of Pressurized Gas Expanded Liquid Polymer Morphologies to Create Macroporous Hydrogel Scaffolds  
$Johnson K.  
<McMaster University>, Muzzin N., Cusack M., Hoare T., Latulippe D.

15:30 0452  Mechanism of Transition to Conduction Block in Cardiac Tissue after a Mechanical Impact  
*Hazim A.  
<Department of Biomedical Engineering, University of Alberta, Edmonton, AB>, Belhamadia Y., Dubiljevic S.

15:50 0453  Contactless Analysis of Proliferating E. Coli on Microfluidic Thin-Films to Develop Non-Invasive Microwave Biosensing Technology  
*Narang R.  
<BioMEMS and Biospired Microfluidic Laboratory, University of Calgary>, ; Porous Media Laboratory, Chemical and Petroleum Engineering Department, University of Calgary>, ; Sanati-Nezhad A., Zarifi M.H., Hejazi S.H., Daneshmand M.

16:10  Coffee Break

16:30 0454  Design of Bioreactor Operating Profiles for the Optimal Production of Polyhydroxybutyrate (PHB) via Model-Based Fed-Batch Strategies  
*Pentagou G., *Kiparissides C.  
<Chemical Process and Energy Resources Institute, CERTH, Department of Chemical Engineering, AUTH, Thessaloniki, Greece>

16:50 0455  Polyhydroxybutyrate Depolymerase from Marinobacter algicola DG983: From Putative to Validated Activity  
Martínez-Tobón D.I.  
<Department of Chemical and Materials Engineering, University of Alberta>, Waters B., Elias A., *Sauvageau D.

17:10 0456  Engineering of Pichia pastoris for the Production of 2R, 3R)-2, 3-Butanediol  
*Yang Z.L.  
<Department of Chemical and Biological Engineering, University of Ottawa, Ottawa, ON K1N 6N5>, Zhang Z.S.

17:30 0457  The Application of a Switchable Solvent to the Extraction of Polyhydroxybutyrate from Methanotrophic Bacteria  
*Lawley M.  
<University of Alberta, Chemical and Materials Engineering>, *Sauvageau D., Stein L.Y.

17:50 0458  A New Design of Polymeric Nanobi Composite-Based Biosensor for Simultaneous Detection of Hypoxanthine, Xanthine and Uric Acid  
*Sen S.  
<Department of Polymer Science & Technology, University of Calcutta, 92 A P C Rd., Kolkata-700009 India>, *Sarkar P.

18:10  End of Session

Chemical Engineering Education

EDU2 Salon 15/16

EDU2  
Organizer(s) - Marnie Jamieson, Suzanne Kresta and Michel Perrier  
Chair(s) - Michel Perrier and Greg Evans

14:30 0459  Contemplations on the Textbook of 2020 by a Textbook Author  
Lucy C.A.  
<Department of Chemistry, Gunning/Lemieux Chemistry Centre, University of Alberta, Edmonton, AB T6G 2G2>

14:50 0460  Developing Digital Tools to Support First-Year Students  
*Gilbert B.  
<University of Calgary>, Musgrove A., Sandblom N.T.A.

15:10 0461  Smart Consol Teaching Apps Use in Fluid Mechanics Class  
*Edali M.  
<Department of Chemical Engineering, University of Waterloo; Department of Chemical Engineering, Almargb University>, Sahem Z., Ben Rajeb F., Elkamel A.

15:30 0462  Student and Instructor Statification and Engagement with Blended Learning in Chemical Engineering Design  
*Jamieson M.V.  
<Department of Chemical and Materials Engineering, Faculty of Engineering, University of Alberta>, *Shaw J.M.

15:50 0463  Empowering Engineering Students in Ethical Risk Management  
*Guntzburger Y  
<CRANO, Polytechnique Montréal>, Pauchant T.C., Tanguy P.A.

16:10  Coffee Break

16:30 0464  Enhancing Soft Skills in Engineering Laboratory Courses  
*Ahmed S.  
<Memorial University of Newfoundland>
Colloids and Interfacial Sciences

**COL3 Saloon 6**

**Organizer(s)** - Edgar Acosta, Janet A.W. Elliott and Hongbo Zeng

**Chair(s)** - Hongbo Zeng and Edgar Acosta

**14:30 0473** Probing the Fouling Mechanism on Pipe Liner Slot in Oil Production by Direct Force Measurements


**14:50 0474** The Dissolution of a Sheared Water Drop in Bitumen Measured using a Novel Microfluidic Platform

Goel S. - Department of Chemical Engineering and Applied Chemistry, University of Toronto, Toronto, ON, Ng S., Acosta E., Ramachandran A.

**15:10 0475** Synergistic Interaction in Emulsions Stabilized by a Mixture of Graphene Oxide and Polymers

Jahandideh H. - Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Bryant S.L., Trifkovic M.

**15:30 0476** Developing a Non-Fouling Hybrid Microfluidic Device for Applications in Circulating Tumour Cell Detections

Qin Y. - Department of Chemical and Biological Engineering, University of Ottawa, 161 Louis Pasteur, Ottawa, ON K1N 6N5, Cao X.

**15:50 0477** Metal Nanoparticles in Biosolids from Municipal Wastewater Treatment Plants

Akhil Ahmad A. - Department of Civil Engineering and Applied Mechanics, McGill University, Montreal, QC H3A 0C3, Ghoshal S.

**16:10 Coffee Break**

**16:30 0478** A Study of Rolling Circle Amplification and its Application in E. coli O157:H7 Detection using a Microfluidic System

Jiang Y. - Department of Chemical and Biological Engineering, University of Ottawa, 161 Louis Pasteur, Ottawa, ON K1N 6N5; Measurement Science and Standards, National Research Council Canada, 100 Sussex Drive, Ottawa, ON K1A 0R6, Zou S., Cao X.

**16:50 0479** Non-Isothermal Vapour-Liquid Phase Diagrams for Binary Mixtures with Interfacial Curvature

Shard N. - Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9, Elliott J.A.W.

**17:10 0480** Polymer Structure and Water States in Salt-Containing Polyampholyte Hydrogels

Li X.D. - Department of Chemical and Materials Engineering, University of Alberta, Elliott J.A.W., Lee B.D., Chung H.-J.
16:50 0489 Differences between C5 Asphaltene and Nanoparticulate Materials in Athabasca Bitumen
Pourmohammadbagher A. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Shaw J.M.

17:10 0490 Design and Construction of a Pilot-Scale Flotation Facility
Lin F. <Natural Resources Canada>, Xu Y., Nelson R.

17:30 0491 The Effect of Air on the Kinetics of Asphaltene Precipitation
Duran J.A. <University of Calgary, Department of Chemical and Petroleum Engineering, 2500 University Dr. NW, Calgary, AB>, Schoeggli F.F., *Yarranton H.W.

17:50 End of Session

Electrochemistry and Electrochemical Engineering

ELC2 Salon 5

ELC2 Organizer(s) - Partha Sarkar
Chair(s) - Partha Sarkar

14:30 0492 The Effect of Iodide Based Ionic Liquids on Electrochemical Performance of Zinc Iodide Batteries
Shakeri Hosseinabad F. <Department of Chemical and Petroleum Engineering>, Yasri N., Fofana D., Roberts E.P.L., Roesler R.

14:50 0493 The Effects of Flow Rate and Temperature on Pitting Corrosion of Industrial Metals in Potash Brine
Coller A.S. <Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK>, Kennell G.F., *Evitts R.W.

15:10 0494 Monitoring the Proton Gradients in an Electrocoagulation Cell by Ratiometric Fluorescent Probes

15:30 0495 Use of Devanathan-Stachurski Electrochemical Permeation Test to Study Diffusion of Hydrogen in API 5L X70 Pipeline Steel
Ladi H. <Materials and Metallurgical Engineering Department, Ferdowsi University of Mashhad, Mashhad, Iran>, Tavakoli M., *Moayed M.H.

15:50 0496 Modified Chemical Activation of Biochar for Electrochemical Capacitive Applications
Dehkoda A.M., Caplin J., *Ellis N. <Department of Chemical and Biological Engineering, The University of British Columbia>

16:10 0497 Decorating Graphene Oxide with Ionic Liquid Nanodroplets: An Approach Leading to Energy Dense, High Voltage Supercapacitors
She Z., Ghosh D., *Pope M.A. <University of Waterloo>

16:30 0498 Electrochemical Fabrication of Nanostructured Pseudo-Capacitive Materials for Supercapacitor
Huang Z., Liu X. <Northeastern University, China>

ENV4 Salad 8

ENV4 Organizer(s) - Bing Chen, Bipro Dhar, Chen B.
Chair(s) - Stanislav Stoyanov and Lindsay Hounjet

16:30 0499 Factorial Design Study of Diluted Bitumen and Conventional Crude Behaviour in Water Environments
Farooqi H. <University of Alberta, Department of Chemical and Materials Engineering, Edmonton, AB>, Natural Resources Canada, CanmetENERGY, Devon, AB>, Kresta S.M., *Dettman H.D.

16:50 0500 Spill Management Research in a Simulated Flowing Water Ecosystem at the Proposed Facility for Oilfield Release Testing and Training (FORTT)
Levy J.S. <InnoTech Alberta>, Wagg B.T.

17:10 0501 Microbial Communities and their Natural Attenuation in Diesel Contaminated Sites in Northern Labrador
Zhu Z., Cai Q., Chen B. <Faculty of Engineering and Applied Science, Memorial University, St. John's, NL A1B 3X5>, Liu B., *Zhang B.

17:30 0502 Sorption of Organic Liquids on Kaolinite and Illite Clays in Industrial Process and Natural Environments
Pourmohammadbagher A. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB>, Shaw J.M.

17:50 End of Session

Micro and Nanofluidics

FLD2 Salon 7

FLD2 Organizer(s) - Neda Nazemifar and David Sinton
Chair(s) - Farshid Mostofi and Prashant Waghamare

Keynote Lecture presented by Sibani Biswal, Rice University

14:30 0503 Microfluidic Visualization for Multiphase Flows in Porous Media
Biswal S.L. <Rice University, Houston, TX USA>

15:10 0504 Flow Visualization and Pressure Calculation of Electrokinetically Driven Flows through Slots in SAGD Process
Ansari S. <Department of Mechanical and Industrial Engineering, University of Alberta, Edmonton, AB>, *Sabbagh R., *Nobes D.S.

15:30 0505 Direct Observation of Liquid to Vapour Transition of Hydrocarbons Confined in Two-Dimensional Nanoporous Media
Jatukaran A. <Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, ON M5S 3G8>, *Mostofi F., *Sinton D.

15:50 0506 Diffusion Measurement using Multiplexed Microfluidics
Doan-Prevost J. <Interface Fluidics>, Bao B., *Ida Haas T.

16:10 Coffee Break

16:30 0507 Microfluidics-Based Measurement of Solubility and Diffusion Coefficient of Propane in Bitumen
Talebi S. <Department of Mechanical and Industrial Engineering, and Institute for Sustainable Energy, University of Toronto, 5 King's College Rd., Toronto, ON M5S 3G8>, Abedini A., Guerrero A., Sinton D.

16:50 0701 Advanced Image Processing Techniques and Modified Fabrication Method for Microfluidic Studies
Mahmoodi M. <Memorial University of Newfoundland>, James L.A.

17:10 0508 Preparation and Characterization of Au/Al2O3-Based Microreactors for Oxidation of Ethanol
Behravesh E.E. <Abo Akademi University, Finland>PAPER WITHDRAWN

17:10 Industry-Academia Roundtable
Discussion on Micro and Nanofluidics

17:50 End of Session

Process Safety and Risk Management

PSM4 Salon 10

PSM4 Organizer(s) - Lianne Lefsrud, Norman Nibber and Gord Winkel
Chair(s) - Gord Winkel and Dhaval Shah

14:30 0509 Practical Application of Bowtie Analysis: Enhancing Traditional PHA
Sneddon J. <Risktec Solutions (Canada) Ltd.>, Ormerod G.

15:00 0510 Risk Ranking Tool for Railway Transport of Dangerous Goods in Canada
15:30 0511 Comparison of the New Canadian PSM Standard CSA Z767 to Existing PSM Standards 
Brulliard G. <GCM Consultants, 9496 boul. du Golf, Montréal, QC H1J 3A1>

16:00 Coffee Break

Process Safety Management Award Lecture to be presented by Paul Amyotte, Dalhousie University

16:30 0512 We Can Do Better A Amyotte P.R. <Department of Process Engineering & Applied Science, Dalhousie University>

17:30 End of Session

Reaction Engineering and Catalysis

RXN3 Salon 11

RXN3
Organizer(s) - Bob Hayes, Natalia Semagina and David Simakov
Chair(s) - Jafar Soltan

16:30 0513 Numerical Model for Crude Glycerol Autothermal Reforming to Hydrogen Rich Syngas Odom O., Salama A., Deedwania A. <Process Systems Engineering, University of Regina, 3737 Wascana Pkwy., Regina, SK S4S 0A2>, 3Ibrahim H.

16:50 0514 Accelerating Reacting Flow Simulations with Detailed Chemistry using Artificial Neural Networks 5Fadid A. <University of Alberta>, Hayes R.E., Votsmeier M.

17:10 0515 Catalytic Reactor for Energy Storage - Proof of Concept 3Lu Y.R. <University of Alberta, Edmonton, AB>, Nkiriltuyk P.

17:30 0516 Heterogeneous Catalysts for Olefin Polymerization: Mathemathical Model for Catalyst Particle Fragmentation 5Fisch A.G. <Universidade Luterana do Brasil (ULBRA), Chemical Engineering Department>, Santos J.H.Z., Secchi A.R., Cardozo N.S.M.

17:50 0517 A New Stoichiometric and Kinetic Model for the Substitution of Polysaccharides with Two Reagents Teerikoski S. <Johan Gadolin Process Chemistry Centre, Laboratory of Industrial Chemistry and Reaction Engineering, Åbo Akademi, FI-20500, Turku/Åbo, Finland>, Salmi T.

18:10 End of Session
Wednesday AM  0536  
CSChE 2017  0549  Wednesday AM  

18:10  End of Session

3-Minute Elevator Pitch Competition for Graduate Students

3MEP2  Salon 3
3-Minute Elevator Pitch Competition Finals
Organizer(s) - Zukui Li  
Chair(s) - Zukui Li
18:20 The finalists from Sunday afternoon’s preliminary round will present their 3-Minute Elevator Pitches.

19:00  End of Session

Wednesday AM  
Plenary

EML  Hall B
Emerging Leaders
Organizer(s) - Shafiq Jaffer, Dominic Sauvageau and Neda Nazemifard  
Chair(s) - Dominic Sauvageau and Neda Nazemifard

Plenary Session - Emerging Leaders in Chemical Engineering

08:15 Introductory Remarks
This prestigious session will aim to highlight the vision and leadership of four early career researchers. They will each present a perspective talk of their own research topic and how it will influence science, engineering and society at large in Canada.

The following have been selected to participate:

08:20 Thomas A. Adams II, McMaster University, “What Should We Do with our Energy? How Chemical Engineers Have the Tools to Answer Society’s Toughest Problems”

08:40  Ya-Huei (Cathy) Chin, University of Toronto, “Heterogeneous Catalytic Strategies for Sustainable Synthesis of Fuels and Chemicals”


09:00  Vikramaditya G. Yadav, University of British Columbia, “Medicine-by-Design: Discovery and Development of a Novel Therapy for Epidermolysis Bullosa Simplex”

09:40  End of Session

Honorary Symposia

HOM3  Salon 9
Honorary Symposium in Recognition of Jacob Masliyah for Outstanding Contributions in Heavy Oil Processing
Organizer(s) - Qingxia (Chad) Liu, Zhenghe Xu, Sean Sanders and Shawn Taylor  
Chair(s) - Jun Long and Sean Sanders

Keynote Lecture presented by Harvey Yarranton, University of Calgary
09:50 0536  Settling of Flocculated Asphaltene and Solids from Diluted Bitumen  
*Yarranton H.W.* <Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB>, Casas Y., Duran J.A., Schoegl F.F.

10:30 0537  Effect of Solids on Dewatering of Naphthenic Bitumen Froth  
*Acosta E.* <University of Toronto, Department of Chemical Engineering and Applied Chemistry>, Quraishi S., Stammitti A., Upadhyaya A., Ng S.

10:50 0538  Diffusion in Bitumen and Heavy Oil + Diluent Mixtures  
*Shaw J.M.* <Department of Chemical and Materials Engineering, University of Alberta>

11:10 0539  Asphaltene-Stabilized Emulsions: An Interfacial Rheology Study  
*Harbottle D.* <School of Chemical and Process Engineering, University of Leeds, Leeds, UK>, Masliyah J.H., Liu Q., Xu Z

11:30 0540  Graphene Oxide and Its Application in Demulsification of Crude Oil-in-Water Emulsion  
*Ren S.* <School of Resources and Environmental Engineering, Jiangxi University of Science and Technology, Ganzhou 341000, China>, *Li J.*

11:50  End of Session

HOS3  Salon 3
Honorary Symposium in Recognition of Sirish Shah for Outstanding Contributions in Systems and Control
Organizer(s) - Bhushan Gopalan and Biao Huang  
Chair(s) - Bhushan Gopalan and Syed Imtiaz

09:50 0541  A Process Control Odyssey  
*Seborg D.E.* <UC-Santa Barbara>

10:10 0542  Performance Index Based on Low Frequency Component of Control Error  
*Ohnishi Y.* <Ehime University, Japan>, Kinoshita T., Yamamoto T.

10:30 0543  Data Analytics for Advanced Control and Monitoring in Steam-Assisted Gravity Drainage Processes (SAGD)  

10:50 0544  Design of a Performance-Driven PID Control System by Specifying a Control Performance Index  
*Kinoshita T.* <Hiroshima University>, Yamamoto T., Shah S.L.

11:10 0545  A Reinforcement Learning Controller that Imitates a Model Predictive Controller  
*Gopaluni R.B.* <Department of Chemical and Biological Engineering, University of British Columbia, Vancouver, BC V6T 1Z3>, Lim S., Tsai Y., Rippon L., Steven S., *Lu Q.*

11:30 0546  Identification and Controller Design for Fractional Order Systems  
*Ahmed S.* <Memorial University of Newfoundland>

11:50  End of Session

Carbon Reduction and Utilization

CCU3  Salon 13/14

CCU3
Organizer(s) - Rajender Gupta, Charles de Lannoy and Arvind Rajendra  
Chair(s) - Nader Mahinpey and Deepak Pudasainie

09:50 0547  Development of a Base Process Model for Assessment of the Carbon Capture of Flue Gases from Coal and Natural Gas  
*Ibadin E.* <Faculty of Engineering, Department of Mechanical Engineering, 10-263 Donadeo Innovation Centre for Engineering, 9211 116 St. NW, University of Alberta, Edmonton, AB T6G 1H9>, *Oyedun A.*, *Kumar A.*

10:10 0548  Development of a Novel Reclaiming Process for Degraded Alkanolamine and Glycol Solvents Used for CO2 Capture Systems  
*Ju H.* <University of Calgary>, *Kundra P.*, *ElMoudir W.*, *Aboudheir A.*, *Mahiney N.*

10:30 0549  Macroscopically Inspired Rapid Molecular Simulation of CO2 Reactive Absorption  
*Qi W.* <University of Guelph, Guelph, ON N1G 2W1>, *Smith W.R.*
10:50 0550 CO₂ Capture Performance Evaluations of Various Amino Acid Ionic Liquids Supported on Porous Microspheres using Two Different Cations Uehara Y. <Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Calgary, AB T2N 1N4>, Karami D., 1*Mahinepy N.

11:10 0551 Determination of Solubility of CO₂ in Ionic Liquids using PC-SAFT Equation of State *Aghaie M. <Memorial University, St. John’s, NL A1B 3X9>, 2Zendehboudi S.

11:30 End of Session

**Chemical Engineering Fundamentals**

**FUN6 Salon 6**

**FUN6**

Organizer(s) - Dimitry Eskin, Petr Nikrytyuk and Vinay Prasad
Chair(s) - Artin Afacan and Miliana Trifkovic

Keynote Lecture presented by Andreas Richter, TU Bergakademie Freiberg


10:30 0553 4-Dimensional Imaging of Emulsion Flow Instabilities Pilapil B.K. <Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB T2N 1N4>, Workman B., Derakhshandezeh M., Jahandideh H., 1*Bryant S.L., 2*Trifkovic M.

10:50 0554 Dynamics and Regeneration of Turbulent Vortices for High-Extent Drag Reduction in Polymer Fluids Zhu L. <Department of Chemical Engineering, McMaster University>, 1*Xi L.

11:10 0555 Drag Reduction of Polymer Solutions at Similar Dynamic Viscosities Mohammadtabar M. <Department of Mechanical Engineering, Schulich School of Engineering, University of Alberta, Edmonton, AB T6G 1H9>, Sanders R.S., 1*Ghaemi S.

11:30 0556 Therma-Viscous Instabilities of Nanoflow Displacements in Porous Media Dastvareh B. <Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Calgary, AB>, Azaiez J.

11:50 End of Session

**FUN7 Salon 7**

**FUN7**

Organizer(s) - Dimitry Eskin, Petr Nikrytyuk and Vinay Prasad
Chair(s) - Vinay Prasad and Dave Sharp

10:30 0557 Transient Process of Radial and Axial Segregation Caused by Differences in Particle Size and Density in a Horizontal Drum *Beauville C. <École Polytechnique, Montreal, QC H3C 3A7>, Vidal D., Chaouki J., 2*Bertrand F.

10:50 0558 Particle Electrostatic Charging Arising from Pneumatic Conveying Taghavivand M. <Department of Chemical and Biological Engineering, University of Ottawa, 161 Louis-Pasteur, Ottawa, ON K1N 6N5>, 1*Sowinski A., 2*Mehraei P.

11:10 0559 Blend Time Measurements in a Confined Impeller Stirred Tank using Image Analysis Jairamdas K. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB, Department of Mechanical Engineering>, Pirito N., Bhatarao A., Machado M.B., 2*Kresta S.M.

11:30 0560 Using Computational Fluid Dynamics (CFD) to Evaluate the Local Mixing Quality in a Slurry Tank Furnished with a Maxblend Impeller *Mishra P.C. <ryerson University>, Mozaffari F.E.

11:50 End of Session

**Conventional and Unconventional Energy Sources**

**ENR5 Salon 1**

**ENR5**

Organizer(s) - Bruce Peachey and Japan Trivedi
Chair(s) - Nobuo Maeda and Bruce Peachey

09:50 0566 Assessment of Natural Gas Supply Chains from Canada to Europe Sakpota K. <Department of Mechanical Engineering, 10-263 Donadeo Innovation Centre for Engineering, 9211 116 St., NW, University of Alberta, Edmonton, AB T6G 1H9>, Oni A.O., 1*Kumar A.

10:10 0567 Accurate Characterization of Absolute Adsorption in Clay Minerals in Relation to Shale Gas from Molecular Perspective Tian Y. <University of Alberta; Chengdu University of Technology, Japan>, 1*Jin Z.

10:30 0568 Connectivity Restoration of Shale Pore-Level Images by Spatial Aggregation of Irregular Nano-Grains Rahmanian M. <University of Calgary>, Mohammadmoradi P., 1*Kantzas A.

10:50 0569 Low Frequency Dielectric Relaxation of Supramolecular Petroleum Fluids Abraham T. <University of Alberta>, Wadhawan H., Goswami A., 1*Thundat T.


11:30 End of Session

**Environmental Engineering and Waste Management / Oil Spill Recovery**

**ENV5 Salon 2**

**ENV5**

Organizer(s) - Bing Chen, Bpro Dhar, Madhumita Ray and Stanislav Stoyanov
Chair(s) - Madjid Mohseni and Bing Chen
11:10 0578 A kinetic Investigation on Homo- and Co-Polymerization of Ethylene with 1-Hexene and 1-Octene using Dimethyldiallyl-(N- tert-butylamido)-(tetramethylocyclopentadienyl)-titanium dichloride, Alkyl Alumina mics and Borate 3Mehdiabadi S., <Chemical and Materials Engineering Department, University of Alberta>, Soares J.B.P.

11:30 0579 Modeling Interactions between Monomer Units of Common Polymer Blends: A Quantum Chemical Density Functional Theory (DFT) Approach Mitra A. <Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB>, Trifkov M., 3Ponrunangam S.

11:50 End of Session

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**Nanotechnology**

**NAN3**

**Salon 8**

Organizer(s) - Hyun-Joong Chung, Anastasia Elias and Zeinab Hosseinidoust
Chair(s) - Anastasia Elias and Adrian Lopera

**09:50 0580** Batch and Continuous Desorption of Contaminants from Single and Multi-Component Waters by Hierarchically Porous Graphene Oxide-Cellulose Nanocrystal Sponges Yousefi N. <Department of Chemical Engineering, McGill University, Montreal, QC>, Wong K., Hosseinidoust Z., Sorensen H., Tufenki N.

**10:10 0581** Preparation and Characterization of a Novel Reverse Osmosis Thin Film Nanocomposite (TFN) Membrane using Dendritic Functionalized Halloysite Nanotubes (HNT) Asempong F. <Department of Chemical and Biological Engineering, University of Ottawa, 161 Louis Pasteur St., Ottawa, ON K1N 6N5>, Akbari S., Emazadeh D., Kruczek B.

**10:30 0582** Synthesis of Sinter-Resistant Gold Catalysts Derived from Au3 Clusters Veeramani R. <110 Science Place, University of Saskatchewan, Saskatoon, SK S7N 5C9>, Scott R.W.J.

**10:50 0583** Nanocomposite Nanofibre for Sustained Release of Chemotherapeutic Agents Saha K. <Department of Polymer Science and Technology, University of Calcutta, Kolkata - 700009, India>, Sarkar B. PAPER WITHDRAWN

11:10 End of Session

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**Process Safety and Risk Management**

**PSM5**

**Salon 10**

Organizer(s) - Lianne Lefsrud, Norman Nibber and Gord Winkel
Chair(s) - George Ormerod and Kathleen Baker

**09:50 0584** A Bibliometric Analysis of the Interdisciplinarity of Microbiologically Influenced Corrosion Research from 2000-2016 Bak N. <Department of Chemical and Materials Engineering, University of Alberta>, Lefsrud L.M., Wolodko J.

**10:20 0585** An Ontology Based Framework for Process Risk Assessment and Management Aziz A., 3Ahmed S. <Memorial University of Newfoundland>, Khan F.I.

**10:50 0586** An Event Based Alarm System Design using Bayesian Network Models Naeema J., Ahmed S. <Memorial University of Newfoundland>

**11:20 0587** PSM Effectiveness in Pipeline Operations Sahraei A. <Enbridge, IEC Standard Technical Committee for Functional Safety IEC61511>

11:50 End of Session

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**Reaction Engineering and Catalysis**

**RXN4**

**Salon 11**

Organizer(s) - Bob Hayes, Natalia Semagina and David Simakov
Chair(s) - David Simakov and Jinwen Chen

Keynote Lecture presented by Faïcal Larachi, Université Laval

**09:50 0588** Opportunities for Process Intensification in Chemical Reaction Engineering using Magnetic Nanoparticles Larachi F. <Department of Chemical Engineering, Laval University, 1065, Ave. de la Médecine, Québec, QC G1V 0A6>

**10:30 0589** Propane Oxidative Dehydrogenation using Consecutive Feed Injections and Fluidizable VO2/Al2O3 and VO2/Fe2O3-VOx Catalysts Rostom S. <University of Western Ontario>, de Lasa H.

**10:50 0590** Simulations of Dimethyl Ether Production by Catalytic Distillation Dar D. <University of Alberta, Edmonton, AB T6G 2G6>, Hayes R.E., Mussone P., Afacan A.

**11:10 0591** Effects of Hydrodynamics on Hydrocarbon Oxidation Wu W.Y. <University of Alberta>
Wednesday AM 0592
Oct 25, 2017

11:30 0592 Development of New Structured Catalyst and Reactor Technologies for Biomass Conversion *Najarnezhadmashhadi A. <Abro Akadem University, Johan Gadolin Process Chemistry Centre (PCC), Laboratory of Industrial Chemistry and Reaction Engineering, 20500 Åbo/Turku, Finland>, Eränen K., Engblom S., Salmi T.

11:50 End of Session

Honorary Symposia

HO4

Honorary Symposium in Recognition of Jacob Masliyah for Outstanding Contributions in Heavy Oil Processing

Organizer(s) - Qingxia (Chad) Liu, Zhenghe Xu, Sean Sanders and Shawn Taylor
Chair(s) - Shawn Taylor and Zhenghe Xu

13:30 0598 Pore-Scale Investigation ofSolvent Based Bitumen Recovery Qi Z. <Department of Mechanical and Industrial Engineering and Institute for Sustainable Energy, University of Toronto, 5 King's College Road, Toronto, ON M5S 3G8>, Abedini A., Sharbatian A., Guerrero A., *Sinton D.


14:10 0600 Multiphase Flows in the Oil Sands Industry and Opportunities for Process Improvements *Sanders R.S. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 2V4>

14:30 0601 Hydrodynamic Interactions involving Drops and Bubbles Manica R. <Department of Chemical and Materials Engineering, University of Alberta>, Liu Q., Xu Z.


15:10 Coffee Break


15:50 0604 Applications of Thermoresponsive Hybrid Polymer in Oil Sands Mining Ng J. <University of Alberta>, *Li Z.


16:30 0606 Enhancement of Oil Sands Extraction using CO2-Responsive Supra-Amphiphiles Lu Y. <University of Alberta>, Sun D., Xu Z.

16:50 0607 Application of Fast Responsive CO2-Switchable Microemulsions in Drill Cuttings Treatment Chen X. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9>, *Xu Z., Sun D.

17:10 End of Session

Systems and Control

SYS4 Salon 4

SYS5

Organizer(s) - Stevan Dubljevic, Zukui Li and Jinfeng Liu
Chair(s) - Jinfeng Liu and Hector Budman

Keynote Lecture presented by James B. Rawlings, University of Wisconsin-Madison

09:50 0593 Achieving High-Level Control Goals with Model Predictive Control Rawlings J.B. <Chemical and Biological Engineering, University of Wisconsin - Madison, USA>

10:30 0594 Using Set-Based Constraints in Iterative Identification and Optimization of Batch Processes Hille R., *Budman H. <University of Waterloo>

10:50 0595 Distributed Output-Feedback Fault Detection and Isolation of Cascade Process Networks Yin X. <Department of Chemical and Materials Engineering, University of Alberta>, *Liu J.

11:10 0596 Two-Stage Adaptive Stochastic Optimization: A Computational Study on Decision Rule Based Methods Rahal S. <Department of Chemical and Materials Engineering, University of Alberta>, *Li Z.

11:30 0597 Optimization of Hydrogen Plant Startup Operating Procedure Garg A. <Department of Chemical Engineering, McMaster University, 1280 Main St. W., Hamilton, ON, L8S 4L8>, *Mhaskar P., Kumar A., Hu G., Flores-Cerrillo J.

11:50 End of Session

Wednesday PM

Carbon Reduction and Utilization

CC4 Salon 13/14

CC4

Organizer(s) - Rajender Gupta, Charles de Lannoy and Arvind Rajendran
Chair(s) - Raj Gupta and Shaikh Razzak

13:30 0612 Ilmenite Oxidation Kinetics for Pressurized Chemical Looping Combustion of Natural Gas Rana S. <University of Ottawa>, Mehrani P., *Macchi A.


14:10 0614 Chemical Looping Combustion of Indian Coal using Natural and Synthetic Oxygen Carriers Dubey A.K., Sarkar P., Saxena V.K., *Samanta A. <Department of Chemical Engineering, IIT (ISM), Dhanbad, 826004, India>PAPER WITHDRAWN

HONOURS SYMPOSIUM

Honorary Symposium in Recognition of Sirish Shah for Outstanding Contributions in Systems and Control

Organizer(s) - Bhushan Gopaluni and Biao Huang
Chair(s) - James Ng and Jinfeng Liu

13:30 0608 An Approach to Real Time Adaptive Optimization in Oil and Gas Well Drilling Ng J. <Pason Systems Corporation>, Khromov S., Lai S.


14:30 0611 A Critical Assessment of Non-Ideal Mixing Phenomena in High-Pressure LDPE Autoclaves: Prediction of Variable Initiator Efficiency and Ethylene Decomposition Pladis P., Baltasas A., *Kiparissides C. <Chemical Process & Energy Resources Institute, CERTH; Department of Chemical Engineering, AUTH, Thessaloniki, Greece>

14:50 End of Session
14:30 0615 Effect of Various Types of Ammonia Supports on the Carbonation Behavior of K$_2$CO$_3$: Comparing Physical Mixing and Incipient Wetness Impregnation Methods Bararpour S.T. <Department of Chemical Engineering, University of Alberta, Calgary, AB T2N 1N4>, Karami D., Mahinpey N.

14:50 0616 Synthesis, Experiments and Kinetics Measurements of Supported Mixed-Metal Oxygen Carriers in a Methane Fuelled CLC System Tijani M.M. <Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Calgary, AB T2N 1N4>, *Kantzas A.

15:10 Coffee Break

15:30 0617 Pore-Level Simulation of CO$_2$ Capillary Trapping *Mohammadmoradi P. <Chemical and Petroleum Engineering, University of Calgary, Calgary, AB T2N 1N4>, &Kantzas A.


16:10 End of Session

Chemical Engineering Fundamentals

FUN8 Salon 6

FUN8 Organizer(s) - Dimitry Eskin, Petr Nikrityuk and Vinay Prasad Chair(s) - Joe Mmbaga and Artin Afacan

13:30 0619 Characterization of Tribocharging Behaviour of Polymer Particles in a Turbulent Flow Tribocharger Li C. <Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK>, >, Yu Z.R., Choi K.S., Zhang L.F.

13:50 0620 Modelling a Biomechanation System by Computational Fluid Dynamic. A First Approach to the Integration of Biochemical Reactions and Transport Phenomena Sadino-Riquelme M.C. <INRIA-Chile, Communication and Information Research and Innovation Center (CIRIC), Avenida Apoquindo 2827, Piso 12, Las Condes, Santiago, Chile>, Jeison D., Hayes R.E., Mmbaga J., Donoso-Bravo A.

14:10 0621 The Weibull Distribution as a New Model for Residence Time Distribution and its Application to a Mass Transfer Operation Li X.T. <BC Research Inc, a Subsidiary of NORAM Engineering and Constructors Ltd>, Gulamhussen A., Kazemi S., Bhattacharya S., McKnight C.A.


14:50 0623 On the CFD Simulation of Wire-Wrapped Sand Screen and the Porous Media around It Razavi F. <Mechanical Engineering, University of Alberta>, Komrakova A.E., Lange C.F.L.

15:10 End of Session

FUND Salon 7

FUND Organizer(s) - Dimitry Eskin, Petr Nikrityuk and Vinay Prasad Chair(s) - Alexandra Komrakova and Vinay Prasad

13:30 0624 Impact of Non-Newtonian Fluid Behavior on Hydrodynamics and Mass Transfer in Spiral-Wound Membrane Modules Fischer N. <Fluid Dynamics of Complex Biosystems, School of Life Sciences Weihenstephan, Technical University of Munich, 85354 Freising, Germany>, Masoudian M., *Germann N.


14:30 0627 Intensification of Fluid Deformation in the Chaotic SMX Static Mixer using Computational Fluid Dynamics Jegatheeswaran S. <Ryan University>, Ein-Mozaffari F., Wu J.


15:10 End of Session

Environmental Engineering and Waste Management / Oil Spill Recovery

ENV6 Salon 5

ENV6 Organizer(s) - Bing Chen, Bipro Dhar, Madhumita Ray and Stanislav Stoyanov Chair(s) - Maen Husein


14:30 0636 Creating a Life Cycle Assessment Framework for Oil and Gas Pipelines Di Lullo G. <Faculty of Engineering, Department of Mechanical Engineering, 10-263 Donadeo Innovation Centre for Engineering, 9211 116 St. NW, University of Alberta, Edmonton, AB T6G 1H9>, Oni A.O., Kumar A.

14:50 0637 Thermal Recycling of Plastic Solid Waste into Liquid Fuel Husein M. <University of Calgary>, Kasumu A., Mehari A., Zakaria M.

15:10 0638 Biochar: A Sustainable Solution for Waste Management in Prince Edward Island Dahal R. <School of Sustainable Design Engineering, University of Prince Edward Island, 550 University Ave., Charlottetown, PE C1A 4P3>, Acharya B.

15:30 End of Session

ENV7 Salon 15/16

Organizer(s) - Bing Chen, Bipro Dhar, Madhumita Ray and Stanislav Stoyanov Chair(s) - Bing Chen and Bipro Dhar


13:50 0640 Advanced Oxidation of Naphthenic Acids in Water by Ozone and Hydrogen Peroxide Al jibouri A.K.H. <Dept. of Chemical Engineering, Ryerson University, 350 Victoria St., Toronto, ON M5B 2K3>, Wu J., Upreti S.R.

14:10 0641 Electro-Fenton Regeneration of Methyl Orange Saturated Carbon Materials Xiao Y. <Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, Calgary, AB T2N 1N4>, Hill J.M.

14:30 0642 Biodegradation of Naphthenic Acids in Microbial Electrolysis Cell Barua S. <Civil and Environmental Engineering, University of Alberta, 9211-116 St. NW, Edmonton, AB T6G 1H9>, Dhar B.

14:50 0176 Coagulation Performance for the Removal of Six Algae and Algal Organic Matter for Drinking Water Treatment Zhao Z.M. <Department of Chemical and Biochemical Engineering, University of Western Ontario, London, ON N6A 5B9>, Gomaa H., Ray M.B.

15:10 Coffee Break

15:30 0644 Investigating Biodegradation of Natural Organic Matter during the Ion Exchange Process for Surface Water Treatment Dezfouliani M. <Department of Chemical and Biological Engineering, University of British Columbia, Vancouver, BC>, Mohseni M.

15:50 0645 Adsorption of Wastewater Contaminants with Magnetic Graphene Foam Grove T. <University of Calgary, Chemical and Petroleum Department>, Sharif F., Roberts E.P.L.

16:10 0646 Growth Kinetics of p-Chloro-m-xylene (PCMX) Tolerant Bacteria and their Biodegradation Brahma B. <Dept. of Chemical and Petroleum Engineering, Pollution Control Lab, Jadavpur University, Kolkata-700032, India>, Sarkar P., Sarkar U. PAPER WITHDRAWN

16:30 End of Session

Macromolecular Sciences and Engineering

POL4 Salon 12

Organizer(s) - Phillip Choi, João Soares and Boxin Zhao Chair(s) - Michael Cunningham and João Soares

13:30 0647 Application of Large Amplitude Oscillatory Shear (LAOS) Method for the Analysis of CNT/MnO2 NW Hybrid Nanocomposites Viscoelastic Behavior Kamkar M. <Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB>, Aliabadian E., Shayeesteh A., Otero I., Sundararaj U.

13:50 0648 Shear Induced Twin-Screw Extrusion for the Production of Modified Pea Starch as a Functional Food Ingredient Ciardullo S.K. <McMaster University, Department of Chemical Engineering>, Thompson M.R., Liu Q., Donner E.

14:10 0649 Electrical Conductivity and Electromagnetic Interference Shielding of Polypropylene Nanocomposite: Synergistic Effect of Carbon Nanotube and Stainless Steel Fiber Shajari Sh. <Department of Mechanical and Manufacturing Engineering, University of Calgary, AB T2N 1N4>, Arjmand M., Sundararaj U., Sudak L.J.


14:50 0651 Responsive Silver-PHEMA-PEGDA Conductive Films for Humidity Sensing with Applications in Smart Food Storage Systems O’lopera-Valle A. <Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB T6G 1H9>, Elias A.

15:10 Coffee Break

15:30 0652 Failure Analysis of Polymeric Materials Riaheinzehad M. <Forensic and Component Services, Materials and Major Components, Kinectrics Inc.>, Rouison D.

15:50 0653 Enhancement of Ionic Conductivity of PEO-PMMI Blends by Tuning Polymer Chain Length Ganjeh-Anzapabi A. <Department of Chemical Engineering, University of Waterloo>, Nasseri R., Moresoli C., Yu A.

16:30 0655 Experimental Comparative Study of Two Ligands in MMA AGET ATRP in Emulsion Reactor Awad M. <Ryerson University, Toronto, ON M5B 2K3>, Duever T., Dhib R.

16:50 0656 Asphaltene Fractionation, Characterization of Fractions and Comparison with Three Physical Models Da Silva M.A. <Department of Chemical and Material Engineering, University of Alberta>, Soares J.B.P.

17:10 End of Session

Nanotechnology

NAN4 Salon 8

Organizer(s) - Hyun-Joong Chung, Anastasia Elias and Zeinab Hosseinidoust Chair(s) - Thanh-Giang La and Amin Pourmohammadbagher

13:30 0657 Ultrasound Assisted Wet Stirred Media Mill of High Concentration Catalysts Li H. <Polytechnique Montreal>, Rostamizadeh M., Mameri K., Boffito D.C., Saadatkhanh N., Rigamonti M.G., Patience G.S.

13:50 0658 Fickian to Single-File Diffusion Transition in Nano-Colloids Pourmohammadbagher M. <Department of Chemical and Material Engineering, University of Alberta, Edmonton, AB>, Pourmohammadbagher A., Shaw J.M.
14:10 0661 How are Safety, Quality and Productivity Related? Hamid D.H. <University of Alberta>, Lefsrud L.M.<br>

14:20 0671 Silicate-Based Nanoparticles for Catalytic Oxy-Cracking of Solid Heavy Waste Hydrocarbons Manasrah A. <Department of Chemical and Petroleum Engineering, University of Calgary, 2500 University Dr. NW, Calgary, AB T2N 1N4>, Nassar N.<br>

14:30 0672 Role of Al₂O₃ Support in Reduction Reaction of NO Oxidation Looping Reactions: A Density Functional Theory Study Manafi Rasi N. <University of Calgary>, Ponnurangam S., Mahinpey N.<br>

14:40 0673 Investigation of Industrial Dehydrogenation Catalyst Performance Analysis in a Fluidized Bed Reactor Aliuddin K. <SABIC Technology & Innovation, Riyadh 11551, Kingdom of Saudi Arabia>, Nawaz Z., Al-Mutairi S.M.<br>

14:50 0674 ALD Over-Coated ZnO on Cu/Al₂O₃ for Catalytic Hydrogenation of CO₂ for Methanol Gao J. <Department of Chemical and Biological Engineering, University of Saskatchewan, Saskatoon, SK S7N 5A9>, Hu Y., Dalai A.K., Wang H.<br>

15:10 Coffee Break
15:30 0683 Optimal Operation and Control Policy of a Solar-Thermal District Heating System Xu X. <University of Alberta, Department of Chemical and Materials Engineering>, Yuan Y., Dubljevic S.

15:50 0684 Simplified Tuning of Model Predictive Control for Industry Forbes M. <Honeywell Process Solutions, 500 Brooksbank Ave., North Vancouver, BC V7J 3S4>, Backstrom J.

16:10 0685 LPV System Identification and Model Predictive Control of an Agro-Hydrological System Mao Y. <Department of Chemical and Materials Engineering, University of Alberta; Key Laboratory of Advanced Process Control for Light Industry, Jiangnan University, China>, Liu S., Nahar J., Liu J., Ding F.

16:30 0686 Adaptive Output Regulation of Uncertain Nonlinear Systems Wang M. <Department of Chemical Engineering, Queen’s University>, Guay M.


17:10 End of Session

Upgrading and Tailings Reduction

UPG3 Salon 2

UPG3
Organizer(s) - Jinwen Chen, William McCaffrey, Richard Nelson and Yuming Xu
Chair(s) - Yuming Xu and Arno de Klerk

13:30 0688 Polymer Flocculation of Oil Sands Tailings: Dynamic Rheological and Microstructural Properties of Floc Formation Govedarica A. <Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB>, Shrivastava S., Workman B., Trifkovic M.

13:50 0689 Application of Geopolymers in Oil Sand Tailings Treatment Xu Y. <CanmetENERGY-Devon, Natural Resources Canada, 1 Oil Patch Dr., Devon, AB T9G 1AR>, Zhou Y.

14:10 0690 Application of a Mathematical Model for Describing the Flocculation Process of Oil Sands Tailings Treatment Vajihnejad V. <University of Alberta, Department of Chemical and Materials Engineering>, Soares J.B.P.

14:30 0691 Nanotechnology in Oil Sands Tailings: Flocculation Mechanism using Surface Modified Nanoparticles Shamim S. <Department of Chemical and Petroleum Engineering, University of Calgary, Calgary, AB>, Govedarica A., Trifkovic M.

14:50 0692 Chitosan-Based Bioflocculant for the Dewatering of Mature Fine Tailings Pennetta de Oliveira L. <University of Alberta>, Gumfekar S., Soares J.B.P.

15:10 Coffee Break

15:30 0693 Nitrogen-Oxides Decomposition: Application to Oil Denitrogenation Prado G.H.C. <University of Alberta>, Yasemi A.-A., Kamal S., Yan Y., de Klerk A.

15:50 0694 Oxidative Ring-Opening of Aromatics as Upgrading Strategy Montoya Sánchez N. <Department of Chemical and Materials Engineering, University of Alberta, 9211 - 116th St., Edmonton, AB T6G 1H9>, de Klerk A.

16:10 0695 Effect of Metal Halides on Thermal Conversion of Athabasca Vacuum Residue Riya R. <University of Alberta, Edmonton, AB T6G 2R3>, Prado G.H.C., de Klerk A.

16:30 0696 Chemical Reactions of H₂O and Heavy Oil during the Process of Steam Drive or SAGD Wei Q. <State Key Laboratory of Heavy Oil Processing, China University of Petroleum-Beijing, 18 Fuxue Road, Beijing, 102249 PR China>, Zhou Y., Zhou W., Ding S.

16:50 End of Session