Technology
Stakeholder service
Innovation

Producing energy for North Americans
Welcome Message from the Chairpersons

On behalf of the Executive and Program Committees, we are excited to welcome you to the co-located SPE Canada Unconventional Resources and Heavy Oil Technical Conferences.

As the premier Canadian E&P conferences, with technical programs that offer something for everyone, we are confident that you’ll walk away with valuable information that will progress your development and success within your organization.

These conferences bring together operators, researchers, vendors, academia, and industry leaders from around the world to share the latest innovations needed to enhance and unlock heavy oil and unconventional hydrocarbon resources in Canada. As an attendee you have the opportunity to network with these experts and get immediate feedback on the technical content they bring to the conference.

Here are some highlights of the conference program:

- 90+ technical presentations
- Opening Plenary “Entering a New Era: Strategies for Growth in the Digital Age”
- Technical Panel Session “Winning the Unconventional Game”
- Exhibition floor showcasing the latest technologies
- Networking opportunities with E&P experts and leaders throughout the conference

Thank you for attending this year’s co-located conferences. We encourage you to engage speakers with questions and participate in the discussions. We are confident that you will gain new insights and practical solutions that can apply to your work as an E&P professional.

Enjoy the event!

Sincerely,

Ramez Hanna Alla
Chair, SPE Canada Unconventional Resources Conference
Chevron Canada

Rick Stahl
Chair, SPE Canada Heavy Oil Technical Conference
Cona Resources

Mark Anderson
Vice Admiral, SPE Canada Heavy Oil Technical Conference
Devon Energy

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# SPE Canada Unconventional Resources Conference Committee

## Conference Chair
Ramez Hanna Alla  
Chevron Canada

## Executive Committee

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<tr>
<th>Name</th>
<th>Company</th>
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<tr>
<td>Jodi Anhorn</td>
<td>GLJ Petroleum Consultants</td>
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<tr>
<td>Lyle Burke</td>
<td>Devon Energy</td>
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<tr>
<td>Mary Ann Clark</td>
<td>TAQA North Ltd.</td>
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<tr>
<td>Hassan Dehghanpour</td>
<td>University of Alberta</td>
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<tr>
<td>Lee Grant</td>
<td>Birchcliff Energy</td>
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<tr>
<td>Robert Liston</td>
<td>Shell Canada</td>
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<tr>
<td>Trevor Meador</td>
<td>Voltage Wireline</td>
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<tr>
<td>Frank Palmai</td>
<td>Reservoir Engineering Consultant</td>
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<tr>
<td>Maria Pantuso</td>
<td>Repsol Oil &amp; Gas Canada Inc.</td>
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<tr>
<td>Adam Preston</td>
<td>Alberta Energy Regulator</td>
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<td>Murray Reynolds</td>
<td>Ferus Inc.</td>
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## Program Committee

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<thead>
<tr>
<th>Name</th>
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<tr>
<td>Ayoub Ateefa</td>
<td>Whitecap Resources Inc.</td>
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<td>Mehdi Bahonar</td>
<td>Cenovus Energy</td>
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<tr>
<td>Jeremiah Bold</td>
<td>Husky Energy</td>
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<tr>
<td>Taylor Brown</td>
<td>Canadian Natural Resources Ltd.</td>
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<tr>
<td>Tristan Euzen</td>
<td>IFP Technologies (Canada) Inc.</td>
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<tr>
<td>Jim Gouveia</td>
<td>Rose &amp; Associates</td>
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<tr>
<td>Roger Hough</td>
<td>Lowell Consulting</td>
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<tr>
<td>Krista Kaert</td>
<td>Shell Canada</td>
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<tr>
<td>Kyle Klam</td>
<td>Peyto Exploration and Development Corp.</td>
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<tr>
<td>David Langille</td>
<td>Shell Canada</td>
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<td>Rob Lavoie</td>
<td>RPS Energy</td>
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<td>Tim Leshchysyn</td>
<td>FracKnowledge</td>
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<td>Juliana Leung</td>
<td>University of Alberta</td>
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<td>Silviu Livescu</td>
<td>Baker Hughes, a GE company</td>
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<td>Dylan Lougheed</td>
<td>IHS Markit</td>
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<td>Daniel Medd</td>
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<td>Patrick Miller</td>
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<td>Maryam Moghadasi</td>
<td>Energy Navigator</td>
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<td>Paola Paris</td>
<td>Schlumberger</td>
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<td>David Quirk</td>
<td>Trican Well Service</td>
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<td>Raj Rajan</td>
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<tr>
<td>Vijay Shrivastava</td>
<td>Computer Modelling Group</td>
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<tr>
<td>Kiran Somanchi</td>
<td>Shell Canada</td>
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<tr>
<td>Claudio Virues</td>
<td>Alberta Energy Regulator</td>
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</tbody>
</table>
SPE Canada Heavy Oil Technical Conference
Committee

Conference Chair
Rick Stahl
Cona Resources

Conference Vice Chair
Mark Anderson
Devon Energy

Executive Committee

Behnaz Afsahi
Startide Solutions Inc.

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Chevron

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Nexen Energy ULC

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InnoTech Alberta

K.C. Yeung
K C Yeung Canadian Enterprise

Jian-Yang Yuan
MEG Energy

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Ashaw Energy

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Halliburton

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Jeannine Chang
ICE Reservoir Solutions

Keivan Khademi Dehkordi
Rahman Khaledi

Japan Trivedi
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Suncor Energy

Anjani Kumar
Computer Modelling Group

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Bankers Petroleum Ltd.

Vahid Dehdari
ConocoPhillips

Rausan Kumar
Chevron

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Baker Hughes, a GE company

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C-FER Technologies

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Saskatchewan Research Council

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PoreFlow Energy Consultants

Harvey Yarranton
University of Calgary

Sahar Ghannadi
Ashaw Energy

Hossein Rourozieh
Computer Modelling Group

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Pars Energy Solutions Inc.

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University of Calgary

Frank Palmai
Reservoir Engineering Consultant

Litong Zhao
Canadian Natural Resources Ltd.

Berna Hascakir
Texas A&M University

John Person
Halliburton

Amir Hosseini
ConocoPhillips

Raj Rajan
Baker Hughes, a GE company

Nicholas Tumu
Bankers Petroleum Ltd.

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DOB

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JPT
What are we if not **innovative**?

Engineering well done is about **problem solving**.

It starts with the kind of thinking that reframes challenges and results in **ideas** that move beyond the expected. So, we think critically with the belief that **innovation** and **solutions** must be essential partners.

Not either or, but both. In the world of oil and gas projects there is a place for leadership in the realm of engineering. For us, that place starts in the present and takes shape well into the **future**. Scovan looks forward to that place and claims it without apology.

**Forward Engineering**

Not just words; a place of **success**.

---

Supporting our oil and gas community by **Moving Industry Forward**

scovan.ca  403.705.6830
## Schedule of Events (as of 2 March 2018)

| MONDAY, 12 MARCH | 0800–1700 | Training Course: Unconventional Reservoir Production (Rate-Transient) Analysis  
Instructor: Christopher R. Clarkson | Glen 204 |
|-----------------|----------|-----------------------------------------------------------------------------|--------|
|                 | 0800–1700 | Training Course: Multistage Completions, Fracturing, and Refracturing in Shales  
Instructor: W. Aaron Burton, Sergey Kotov | Glen 201 |
|                 | 0800–1700 | Training Course: Overview of SAGD Analytical Models and Their Assumptions and Limitations  
Instructor: Mazda Irani | Glen 206 |
|                 | 0800–1700 | Training Course: In-Situ Recovery Methods and SAGD  
Instructor: K.C. Yeung | Glen 209 |

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<thead>
<tr>
<th>TUESDAY, 13 MARCH</th>
<th>0730–1700</th>
<th>Conference Registration</th>
<th>Macleod Foyer</th>
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<td>0730–0830</td>
<td>Breakfast</td>
<td>Macleod C–D</td>
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<tr>
<td>0730–1830</td>
<td>Exhibition</td>
<td>Macleod C–D</td>
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| 0830–1200        | Opening Plenary Session  
Entering a New Era: Strategies for Growth in the Digital Age | Macleod A–B | |
| 1000–1030        | Coffee Break on Exhibit Floor | Macleod C–D | |
| 1200–1330        | Networking Lunch | Macleod C–D and E 1–4 | |
| 1330–1700        | Unconventional Resources Technical Sessions 1–3 |
|                  | 01 Unconventional EOR/IOR & EGR | Macleod A1–4 |
|                  | 02 Reservoir Characterization & Modeling | Macleod A |
|                  | 03 Slowback, Flowback, Drawdown Management/Optimized Hydraulic Fracturing Systems and Equipment | Macleod B |
| 1330–1700        | Heavy Oil Technical Sessions 1–3 |
|                  | 01 SAGD Improvements | Glen 201–202 |
|                  | 02 Electromagnetic Recovery | Glen 203–204 |
|                  | 03 Enhanced Heavy Oil Recovery Processes | Glen 206 |
| 1500–1530        | Coffee Break on Exhibit Floor; ePosters in Macleod Foyer | Macleod C–D |
| 1700–1830        | Welcome Reception on Exhibit Floor | Macleod C–D |
## Schedule of Events (as of 2 March 2018)

### WEDNESDAY, 14 MARCH

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<thead>
<tr>
<th>Time</th>
<th>Session/Activity</th>
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<tbody>
<tr>
<td>0730–1530</td>
<td>Conference Registration</td>
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<td>0730–0830</td>
<td>Breakfast</td>
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<td>0730–1530</td>
<td>Exhibition</td>
<td>Macleod C–D</td>
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<tr>
<td>0830–1000</td>
<td><strong>Unconventional Resources Technical Sessions 4–6</strong></td>
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<tr>
<td>0830–1200</td>
<td>04 Unconventional Production Optimization</td>
<td>Macleod A1–4</td>
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<tr>
<td>0830–1000</td>
<td>05 Geological Challenges and Petrophysics in Unconventionals</td>
<td>Macleod A</td>
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<tr>
<td>0830–1000</td>
<td>06 Optimal Field Development—Finding the Risk/Reward Balance</td>
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<tr>
<td>1030–1200</td>
<td><strong>Technical Panel Session—Winning the Unconventional Game</strong></td>
<td>Macleod A-B</td>
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<tr>
<td>1030–1200</td>
<td><strong>Heavy Oil Technical Sessions 4–6</strong></td>
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<tr>
<td>1030–1200</td>
<td>07 Thermal Well Integrity and Design</td>
<td>Glen 203–204</td>
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<tr>
<td>1030–1200</td>
<td>08 Thermal Recovery Non-SAGD</td>
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<tr>
<td>1200–1330</td>
<td>Networking Lunch and ePosters</td>
<td>Macleod C–D and E1–4</td>
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<tr>
<td>1230–1800</td>
<td><strong>Young Professionals Workshop—Oil &amp; Gas Competitiveness:</strong></td>
<td>Glen 208–209</td>
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<td>1330–1700</td>
<td><strong>Unconventional Resources Technical Sessions 7–9</strong></td>
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<td>1330–1700</td>
<td>07 Effective Use of Data to Optimize Production in Unconventionals</td>
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<td>1330–1700</td>
<td>08 Tight Oil &amp; Gas Reservoir Performance and Forecasting</td>
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<tr>
<td>1330–1700</td>
<td>09 Case Studies Good, Bad &amp; Ugly</td>
<td>Macleod B</td>
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<tr>
<td>1330–1700</td>
<td><strong>Heavy Oil Technical Sessions 9–12</strong></td>
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<tr>
<td>1330–1700</td>
<td>09 Hybrid or Solvent-Based Processes II</td>
<td>Glen 201–202</td>
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<tr>
<td>1330–1500</td>
<td>10 Production, Operations &amp; Optimization</td>
<td>Glen 203–204</td>
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<tr>
<td>1330–1500</td>
<td>11 Cold Production Techniques</td>
<td>Glen 206</td>
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<tr>
<td>1500–1530</td>
<td>Coffee Break on Exhibit Floor; ePosters in Macleod Foyer</td>
<td>Macleod C–D</td>
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<tr>
<td>1530–1700</td>
<td>12 Reservoir Characterization &amp; Geomechanics</td>
<td>Glen 206</td>
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General Information

Registration
Macleod Foyer
Tuesday, 13 March .................................0730–1700
Wednesday, 14 March ...............................0730–1530

Badge Pick-Up
Badges will be available for pick-up on-site at the registration desk. Photo identification is required.

Exhibition
Macleod C–D
SPE Canada brings together two premier conferences, the SPE Canada Unconventional Resources Conference and the SPE Canada Heavy Oil Technical Conference, with a shared exhibit floor.
Tuesday, 13 March ............................................0730–1830
Wednesday, 14 March .....................................0730–1530

Speaker Check-In
Pacific Room
Speakers are required to check in one hour before their session begins. Session chairs will meet with speakers in their designated session rooms, 30 minutes prior to the start of their session.
Tuesday, 13 March .............................................0730–1630
Wednesday, 14 March .......................................0730–1530

Hot Breakfast
Macleod C–D
Tuesday, 13 March ...........................................0730–0830
Wednesday, 14 March .....................................0730–0830

Sponsored by: Packers Plus.

Coffee Breaks
Macleod C–D (Exhibit Floor)
Tuesday, 13 March .................................1000–1030, 1500–1530
Wednesday, 14 March .................................1000–1030, 1500–1530

Sponsored by: Scovan

Welcome Reception
Macleod C–D (Exhibit Floor)
Tuesday, 13 March .............................................1700–1830

Networking Luncheons
Macleod C–D and E 1–4
Tuesday, 13 March ...........................................1200–1330
Wednesday, 14 March .................................1200–1330

Technical Sessions
URC - Macleod A1–4, Macleod A, Macleod B,
CHOC- Glen 201-202, Glen 203-204, Glen 206
Tuesday, 13 March .............................................1330–1700
Wednesday, 14 March .................................0830–1200 and 1330–1700

Plenary and Panel Sessions
Macleod A–B
Tuesday, 13 March .............................................0830–1200
Wednesday, 14 March ......................................1030–1200

Pre-Conference Training Courses
SPE offered several training courses before the conference. In case you missed the courses, check out the various learning opportunities available in convenient locations around the world. Courses are held in conjunction with SPE conferences, workshops, and at SPE training centers in Calgary and Houston. Register for SPE Training Courses online at www.spe.org/training/courses or send an email to trainingcourses@spe.org.

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Attendance or participation in SPE meetings and other activities constitutes an agreement by the registrant to SPE’s use and distribution of the registrant’s image or voice in promoting future SPE meetings in any way SPE deems appropriate.

Copyright Information
All conference sessions are protected by international copyright laws. Unauthorized photography, video, and audio recording of any kind are strictly prohibited in the sessions and throughout the exhibition area.

About the Society of Petroleum Engineers
The Society of Petroleum Engineers (SPE) is a not-for-profit professional association whose more than 158,000 members in 143 countries are engaged in oil and gas exploration and production. SPE is a key resource for technical knowledge providing publications, events, training courses, and online resources at www.spe.org.

Calgary Emergency Information
Emergency Services: 911 (City of Calgary only) Fire, Police, Ambulance, Hazardous Materials Spills
Non-Emergency Ambulance: +1.403.261.4000
Non-Emergency Police Service: +1.403.266.1234
Opening Plenary Session

Tuesday, 13 March 2018
0830–1200 | Macleod A–B

Welcome and Opening Remarks by Conference Chairs
Ramez Hanna Alla, Chevron Canada
Rick Stahl, Cona Resources

Plenary Session
Entering a New Era: Strategies for Growth in the Digital Age

The acquisition, digitization and analysis of data have revolutionized how the world conducts business. Companies that have capitalized on this technology have changed how the world interacts, and in doing so, have grown to be the largest companies in the world, outpacing energy companies. How can the oil and gas industry utilize these technologies to lower costs, drive innovation and create a more sustainable business model in the face of lower commodity prices?

Currently, visionary companies are investigating and implementing ideas to improve operations through the use of data analytics and engineered completions to lower costs and improve efficiency.

In this session, five leaders will share their visions on the direction they are taking their companies and industry. You’ll hear how they are integrating data analytics, ethical oil, crypto currencies and how they are attracting the next generation to propel the industry forward.

Session Moderator

Deborah Yedlin
Business Columnist, Calgary Herald

Keynote Presentations:

0845 – Peter Tertzakian
0900 – Patrick Carlson
0915 – Robert Cox
0930 – Kevin Krausert
0945 – Nav Dhunay
1000 – 1030 Coffee Break
1030 – 1200 Panel Session

Keynote Speakers and Panelists

Peter Tertzakian
Chief Energy Economist,
ARC Financial Corp.

Patrick Carlson
Founder and Former CEO,
Seven Generations

Robert Cox
Senior Vice President
Operations, TriCan

Kevin Krausert
CEO, Beaver Drillingcial Corp.

Nav Dhunay
Co-Founder and CEO,
Imaginea.io

Jim Gibson, Founder and CEO,
JAGYYC and Co-Founder,
Rainforest Alberta
Panel Session

Wednesday, 14 March 2018
1030–1200 | Macleod A–B

Technical Panel Session: Winning the Unconventional Game

Is smart or engineered completions really a thing? Does a geometric design provide the best economic outcome in full field development? This panel will pair technical expertise with economists to contrast the different approaches applied to achieving profitable unconventional reservoir development. Discussion will be centered on well completions including fracture design, well spacing, reservoir properties, technology pads and how it all rolls up to impact the bottom line. Join the conversation by engaging and sharing current trends from across the WCSB, and comparison to the approach of our partners south of the border.

Moderator:
Chad Lemke, Vice-President, GLJ Consultants

Panelists:
Jerry Kohut, Kaybob Duvernay UP&O Manager, Chevron Canada
Tara Jungwirth, Decision Analyst, Chevron Canada
Derek Wheatley, Managing Director, Co-Head of Tudor, Pickering, Holt & Co. Canada
Dave Deline, Completions & Technology Effectiveness Team Lead, Shell Canada

Young Professional Workshop

Oil & Gas Competitiveness: From the Canadian Energy Landscape to Your Own Career Separate Registration Required.

Wednesday, 14 March 2018
1230–1800 | Glen Room 208–209

Join us at the Young Professionals Workshop to listen to and discuss the influencing factors impacting Canada’s energy competitiveness; perspectives on how Canadian producers are adapting to a changing continental energy landscape; and the effects on your career as a young professional in the energy industry.

Featuring two keynote presentations, our speakers will expose you to a wealth of knowledge and experience from the perspectives of the CEO of one of Canada’s largest energy companies and an executive leadership coach and former member of the Canadian National Basketball Team.

Speakers:
Alex Pourbaix, President and CEO, Cenovus Energy
Ken Larson, Executive Coach and President, Champion Performance Systems Inc.

SPE Members Give Back

On behalf of Conference Speakers and Program Committees, SPE Canada is pleased to make a donation of CAD 1000 to the Mustard Seed in Calgary. This registered Canadian charity is a place where adults experiencing poverty and homelessness have their basic needs met, are growing hope and are supported toward sustainable life change and integration into the broader community. This donation has been made at the request of the program committee, in lieu of speaker and committee gifts.

For more information about the charity, visit: https://theseed.ca/
### TUESDAY, 13 MARCH 2018

#### 01 UR - Unconventional EOR/IOR & EGR

Session Chairpersons:

**Vijay Kumar Shrivastava**, Computer Modelling Group Ltd.

**Larry Frederick**, Schooner Consulting Inc.

<table>
<thead>
<tr>
<th>Time</th>
<th>Paper ID</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>1330–1400</td>
<td>189829</td>
<td>Enhancing Oil Recovery by Adding Surfactants in Fracturing Water: A Montney Case Study</td>
<td>H. Yarveicy, A. Habibi, S. Pegov, A. Zolfaghari, H. Dehghanpour, University of Alberta</td>
</tr>
<tr>
<td>1430–1500</td>
<td>189785</td>
<td>A Parametric Study on the Applicability of Miscible Gases Based EOR Techniques in Unconventional Liquids Rich Reservoirs</td>
<td>D.K. Alfarge, M. Wei, B. Bai, Missouri University of Science and Tech</td>
</tr>
<tr>
<td>1530–1600</td>
<td>189784</td>
<td>Breaking a Paradigm: Can Oil Recovery From Shales Be Larger Than Oil Recovery From Conventional Reservoirs? The Answer Is Yes!</td>
<td>A.R. Fragoso Amaya, University of Calgary; K. Selvan, Nexen Inc.; R. Aguilera, University of Calgary</td>
</tr>
<tr>
<td>1600–1630</td>
<td>189805</td>
<td>Dual-Permeability Matrix-Fracture Corefloods for Studying Gas Flooding in Tight Oil Reservoirs</td>
<td>P. Luo, K.D. Knorr, P.P. Nakutnyy, Saskatchewan Research Council; S. Li, University of Calgary</td>
</tr>
<tr>
<td>1630–1700</td>
<td>189788</td>
<td>Enhanced Recovery by Injection of Nitrogen and Carbon Dioxide Mixtures in Tight Reservoirs: A Combination of Partial Pressure Reduction and Competitive Adsorption</td>
<td>C. Santiago, A. Kantzas, University of Calgary</td>
</tr>
</tbody>
</table>

#### 02 UR- Reservoir Characterization & Modeling

Session Chairpersons:

**Dylan Lougheed**, IHS Markit

**Claudio Virues**, Alberta Energy Regulator

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<th>Paper ID</th>
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<th>Authors</th>
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<tr>
<td>1330–1400</td>
<td>189826</td>
<td>DFIT Analysis in Low Leakoff Formations: A Duvernay Case Study</td>
<td>B. Zanganeh, M.K. MacKay, C.R. Clarkson, University of Calgary; J.R. Jones, NSI Fracturing LLC</td>
</tr>
<tr>
<td>1400–1430</td>
<td>189807</td>
<td>Characterization of Reservoir Quality in Tight Rocks Using Drill Cutting: Examples from the Montney Formation (Alberta, Canada)</td>
<td>A. Ghanizadeh, B. Rashidi, C.R. Clarkson, N. Sidhu, J.J. Hobbs, Z. Yang, C. Song, University of Calgary; S. Hazell, R.M. Bustin, University of British Columbia</td>
</tr>
<tr>
<td>1430–1500</td>
<td>189814</td>
<td>Pressure-Transient Behavior of a Horizontal Well with a Finite-Conductivity Fracture within a Fractal Reservoir</td>
<td>A.R. Valdes Perez, T.A. Blasingame, Texas A&amp;M University; L. Larsen, Kappa Engineering</td>
</tr>
</tbody>
</table>
# SPE Canada Heavy Oil Technical Conference

## Technical Program

(as of 2 March 2018)

### TUESDAY, 13 MARCH 2018

1330–1700 | Glen 201–202

#### 01 HO - SAGD Improvements

**Session Chairpersons:**
- Thomas Grant Harding, Nexen Energy ULC
- Norman P Freitag, Saskatchewan Research Council

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<td>1400–1430</td>
<td>189760</td>
<td>Screening Surfactants for Application in SAGD—Including a Steam-Phase Coreflood Test</td>
<td>R.G. Jonasson, M. Imran, K.D. Knorr, Saskatchewan Research Council</td>
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<td>1530–1600</td>
<td>189743</td>
<td>Experience with Two Wellheads SAGD Production Wells: Most Controllable and Efficient SAGD Technology Today. Alishachinskoe Heavy Oil Field in Tatarstan, Russia</td>
<td>M. Nukhaev, K. Rymarenko, Baker Hughes, a GE company; A. Lutfullin, M. Amerhanov, Tatneft</td>
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1330–1700 | Glen 203–204

#### 02 HO - Electromagnetic Recovery

**Session Chairpersons:**
- Sandeep Solanki, Laricina Energy
- Sahar Ghannadi, Ashaw Energy

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<td>1330–1400</td>
<td>189752</td>
<td>An Innovative Dielectric Constant Measurement Method to Determine the Ideal Surfactant Candidate to Enhance Heavy Oil Recovery</td>
<td>B. Hascakir, M. Alshaikh, G. Huff, Texas A&amp;M University</td>
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<td>1400–1430</td>
<td>189771</td>
<td>Equilibrium Analysis of Desiccated Zone Growth during Radio-Frequency Heating</td>
<td>M. Irani, Ashaw Energy; A. Saeedfar, Carbon Management Canada</td>
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<td>1430–1500</td>
<td>189724</td>
<td>Electrical Heating—Doing the Same Thing Over and Over Again ...</td>
<td>S.S. Farouq Ali, B. Bayesteheparvin, University of Calgary</td>
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<td>1530–1600</td>
<td>189764</td>
<td>Numerical Simulation of Dielectric Heating in a Heavy Oil Reservoir Using a Shaped Dipole Antenna</td>
<td>C. Ovalles, G. Dieckmann, J. Dunlavey, Chevron ETC; M. Okoniewski, D. Pasalic, P. Vaca, Acceleware Ltd.</td>
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<td>1600–1630</td>
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<td>Factors Affecting Electromagnetic Wave Penetration in Heavy Oil Reservoirs</td>
<td>B. Hascakir, M.K. Morte, E.M. Bloom, G.H. Huff, Texas A&amp;M University; J.C. Dean, Litezon LLC</td>
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<td>1630–1700</td>
<td>189714</td>
<td>Critical Considerations for Analysis of RF-Thermal Recovery of Heavy Petroleum</td>
<td>A. Saeedfar, D. Lawton, CMC Research Institutes</td>
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### TUESDAY, 13 MARCH 2018

**1330-1700 | Macleod B**

**03 UR - Slowback, Flowback, Drawdown Management/Optimized Hydraulic Fracturing Systems and Equipment**

**Session Chairpersons:**
- **David Quirk**, Trican Well Service Ltd.
- **Juliana Leung**, University of Alberta

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<td>189812</td>
<td><strong>A New Simple Analytic Equation for Estimating Asymmetric Growth of Stimulated Reservoir Volume in Anisotropic Shales</strong></td>
<td>R. Aguilera, Q. Li, University of Calgary</td>
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<td>1430–1500</td>
<td>189822</td>
<td><strong>Horizontal Well Productivity Enhancement through Drawdown Management Approach in Vaca Muerta Shale</strong></td>
<td>D. Rojas, YPF S.A.; A. Lerza, Chevron Corporation</td>
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<td>1530–1600</td>
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<td><strong>Engineered Diversion: Using Well Heterogeneity as an Advantage to Designing Stage Specific Diverter Strategies</strong></td>
<td>K. Wutherich, S. Srinivasan, L. Ramsey, W.M. Katon, R. Downie, Drill2Frac</td>
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<td>1600–1630</td>
<td>189793</td>
<td><strong>Quantifying Reservoir Permeability in Shale Reservoirs Using After-Closure Analysis of DFIT by Considering Natural Fractures, Fissures, and Microfractures: Field Application</strong></td>
<td>Z. Chen, X. Liao, University of Petroleum China Beijing; H. Sun, The University of Texas at Austin; W. Yu, L. Zuo, Texas A&amp;M University; K. Wu, S. Wang, J. Li, University of Calgary</td>
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### WEDNESDAY, 14 MARCH 2018

**0830–1000 | Macleod A1–4**

**04 UR - Unconventional Production Optimization**

**Session Chairpersons:**
- **Silviu Livescu**, Baker Hughes, a GE company
- **Robert Liston**, Shell Canada Ltd.

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<td>189790</td>
<td><strong>Need for Speed: Data Analytics Coupled to Reservoir Characterization Fast Tracks Well Completion Optimization</strong></td>
<td>P. Pankaj, Schlumberger; S.I. Geetan, R.M. MacDonald, EP Energy; P. Shukla, A. Sharma, T.C. Judd, S. Mensaria, Schlumberger</td>
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## TUESDAY, 13 MARCH 2018

### 03 HO - Enhanced Heavy Oil Recovery Processes

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<td>189716</td>
<td>Shallow Horizontal Well Cyclic Steam Stimulation in Clastic Unconsolidated Unconventional Reservoir in Kuwait—A Case Study</td>
<td>S. Al-Ballam, D.C. Pandey, Kuwait Oil Company</td>
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<td>Heavy Oil Recovery Mechanisms by Surfactant, Polymer and SP in a Non-Linear System</td>
<td>F. Guerrero, A. Kantzas, University of Calgary; J.L. Bryan, Perm Inc</td>
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<td>1430–1500</td>
<td>189767</td>
<td>Cold Solvent Process for Heavy Oil Recovery</td>
<td>A. Sood, S.C. Gupta, Cenovus Energy</td>
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<td>1600–1630</td>
<td>189774</td>
<td>Nanoparticle Stabilized Solvent-Based Emulsion for Enhanced Heavy Oil Recovery</td>
<td>G. Kumar, A. Kakati, E. Mani, J.S. Sangwai, Indian Institute of Technology Madras</td>
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<td>1630–1700</td>
<td>189745</td>
<td>Designing Surfactant-Polymer Processes for Heavy Oil Reservoirs: Case Studies</td>
<td>D. Rousseau, S. Bekri, J. Boujel, IFP Energies nouvelles; G. Degre, S. Hocine, Solvay; E. Delamaide, IFP Technologies</td>
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## WEDNESDAY, 14 MARCH 2018

### 04 HO - Hybrid or Solvent-Based Processes I

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<td>0900–0930</td>
<td>189717</td>
<td>A New PVT Apparatus for Automatic Measurement of Foamy Oil Generation and Stability</td>
<td>P. Luo, S. Li, K.D. Knorr, P.P. Nakutnyy, Saskatchewan Research Council</td>
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<td>0930–1000</td>
<td>189756</td>
<td>Christina Lake Early Rise Rate Solvent Aided Process Pilot</td>
<td>Z. Chen, Consultant, B. Seib, A. Ben-zvi, T. Robinson, Cenovus Energy</td>
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<td>General Analytical Model for Thermal-Solvent Assisted Gravity Drainage Recovery Processes</td>
<td>H. Motahhari, R.R. Khaledi, Imperial Oil</td>
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**WEDNESDAY, 14 MARCH 2018**

**0830–1000 | Macleod A**

**05 UR - Geological Challenges and Petrophysics in Unconventionals**

Session Chairpersons:
Tristan Euzen, IFP Canada
Jodi Anhorn, GLJ Petroleum Consultants Ltd.

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<td>Empirical and Numerical Investigation of the Effects of Hydraulic Fracturing Injection Rate on the Magnitude Distribution of Induced Seismicity Events</td>
<td>A. Amini, E. Eberhardt, University of British Columbia</td>
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**0830–1000 | Macleod B**

**06 UR - Optimal Field Development—Finding the Risk/Reward Balance**

Session Chairpersons:
Trevor J Meador, Voltage Wireline Inc
Mary Ann Clark, TAQA North Ltd.

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<td>Interventional Distributed Fiber Optics: Design and Case Studies</td>
<td>M. Steen, STEP Energy Services; A. McMurray, Darcy Partners</td>
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<td>0930–1000</td>
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<td>Learnings From Permanent FiberOptic Monitoring: Encana Swan Pilot</td>
<td>J. Zhang, Encana Corporation</td>
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**1330–1700 | Macleod A1–4**

**07 UR - Effective Use of Data to Optimize Production in Unconventionals**

Session Chairpersons:
Patrick Miller, Repsol Oil & Gas Canada Inc.
Hassan Dehghanpour, University of Alberta

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<td>1330–1400</td>
<td>189808</td>
<td>Data-Based Smart Model for Real Time Liquid Loading Diagnostics in Marcellus Shale via Machine Learning</td>
<td>A. Ansari, E. Fathi, F. Belyadi, A. Takbiri-Borujeni, H. Belyadi, West Virginia University</td>
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<td>189831</td>
<td>The Impact of the Net Stress on Gas Recovery from the Marcellus Shale</td>
<td>M.N. El Sgher, K. Aminian, S. Ameri, West Virginia University</td>
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<td>Simulation Study for Scale Management during Shale Gas Production</td>
<td>E.J. Mackay, X. Wang, Heriot-Watt University</td>
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<td>Managing Interwellbore Communication at Shell Fox Creek; Sharing the Continuous Improvement Journey</td>
<td>G. Ayling, Shell Canada</td>
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<td>Operational and Design Lessons Learned: Multi-Well Fiber Optics in Kaybob Duvernay</td>
<td>L.J. Chrusch, B. Sinex, Chevron Canada Resources</td>
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### WEDNESDAY, 14 MARCH 2018

#### 0830–1000 | Glen 203–204

**05 HO - Drilling and Completions**  
**Session Chairpersons:**  
Nick Tumu, Bankers Petroleum Ltd  
Ronald A Behrens, Chevron ETC

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<td>0830–0900</td>
<td>An Experimental Investigation into Sand Control Failure Due to Steam Breakthrough in SAGD Wells</td>
<td>V. Fattahpour, M. Mahmoudi, C. Sutton, RGL Reservoir Management Inc.; M. Roostaei, O. Kotb, C. Wang, A. Nouri, University of Alberta; B. Fermaniuk, Regent Control Systems Ltd.</td>
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#### 0830–1000 | Glen 206

**06 HO - Data Analytics**  
**Session Chairpersons:**  
Mridul Kumar, Chevron ETC  
Eric Delamaide, IFP Technologies Canada Inc.

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<td>A Benchmarking Study of a Novel “Data Physics” Technology for Steamflood and SAGD Modeling: Comparison to Conventional Reservoir Simulation</td>
<td>Y. Zhao, P. Sarma, Tachyus</td>
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<td>0900–0930</td>
<td>Three Approaches to Predicting ESP Pump Failures during SAGD Operations</td>
<td>L. Fedenczuk, Gambit Consulting Ltd.; J.K. Graham, T. Pehlke, Suncor Energy Inc.</td>
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<td>0930–1000</td>
<td>A Cluster-Based Approach for Visualizing and Quantifying the Uncertainty in the Impacts of Uncertain Shale Barrier Configurations on SAGD Production</td>
<td>J. Zheng, J.Y. Leung, University of Alberta; R.P. Sawatzky, J.M. Alvarez, InnoTech Alberta</td>
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#### 1030–1200 | Glen 203–204

**07 HO - Thermal Well Integrity and Design**  
**Session Chairpersons:**  
Uliana Romanova, Baker Hughes, a GE company  
Spencer Paul Taubner, Noetic Engineering 2008 Inc.

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<td>1030–1100</td>
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<td>Impact of Slow and Fast Warm-up Rates on Cement Sheath Integrity in SAGD Wells—Using Dynamic Flow Simulators for Early Time Analysis</td>
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<td>1100–1130</td>
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<td>Vacuum Insulated Tubing Trial</td>
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<td>1130–1200</td>
<td>Invited Presenter</td>
<td>Reducing Infill Well Start-up Time and Cost by Combining LWD Resistivity Data with a Flexible Completion Design</td>
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### 08 UR - Tight Oil & Gas Reservoir Performance and Forecasting

**Session Chairpersons:**
- Frank J Palmai, Reservoir Engineering Consultant
- Adam Preston, Alberta Energy Regulator

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<td>189786</td>
<td>Stochastic Modeling and Assisted History-Matching Using Multiple Techniques of Multi-Phase Flowback from Multi-Fractured Horizontal Tight Oil Wells</td>
<td>J. Williams-Kovacs, University of Calgary/TAQA North Ltd.; C.R. Clarkson, University of Calgary</td>
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<td>1430–1500</td>
<td>189823</td>
<td>Machine Learning Applied to Optimize Duvernay Well Performance</td>
<td>B. Bowie, Apache Corporation</td>
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<td>Predicting Economic Value in Unexplored Regions of an Unconventional Liquids Rich Play</td>
<td>J. Yip, P. Miller, T. Branson, Repsol Oil &amp; Gas Canada Inc</td>
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<td>A Markov-Chain-Based Method to Characterize Anomalous Diffusion Phenomenon in Unconventional Reservoir</td>
<td>S. Liu, H. Li, P.P. Valko, Texas A&amp;M University</td>
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<td>1630–1700</td>
<td>189806</td>
<td>Wettability and Capillary Imbibition in Shales; Analytical and Data-Driven Analysis</td>
<td>P. Mohammadmoradi, A. Kantzas, University of Calgary</td>
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### 09 UR - Case Studies Good, Bad & Ugly

**Session Chairpersons:**
- Lyle H Burke, Devon Energy
- David Langille, Shell Canada

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<td>Case Study of Time-Based Stress Shadow Influences on New Well Fracture Propagation Patterns in the Montney</td>
<td>N. Peterson, Lithic Energy Solutions; B. Hilidek, M. Ng, R. Hughes, Packers Plus Energy Services; A. Ouenes, Y. Aimene, A. Khodabakhshnejad, X. Li, FracGeo LLC</td>
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<td>Eagle Ford and Pimienta Shales in Mexico: A Case Study</td>
<td>M.M. Cruz Luque, R. Aguilera, University of Calgary</td>
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## SPE Canada Heavy Oil Technical Conference

### Technical Program (as of 2 March 2018)

### WEDNESDAY, 14 MARCH 2018

**1030–1200 | Glen 206**

**08 HO - Thermal Recovery Non-SAGD**

**Session Chairpersons:**
- Mazda Irani, Ashaw Energy
- Amin Badamchizadeh, Devon Energy

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<td>1030–1100</td>
<td>189726</td>
<td>Field-Scale Modelling of Hybrid Steam and Combustion In-Situ Recovery Process for Oil Sands Using Dynamic Gridding</td>
<td>M. Yang, Z. Chen, University of Calgary; T.G. Harding, Nexen Energy ULC</td>
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<td>1130–1200</td>
<td>189757</td>
<td>3-D Physical Modeling of Hybrid Steam and Oxygen Injection for In-Situ Recovery of Oil Sands</td>
<td>E. Rios, T.G. Harding, Nexen Energy ULC; R.G. Moore, S.A. Mehta, University of Calgary</td>
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### 1330–1700 | Glen 201-202

**09 HO - Hybrid or Solvent-Based Processes II**

**Session Chairpersons:**
- John Ivory, Consultant
- Banafsheh Goudarzi, University of Calgary

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<td>1330–1400</td>
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<td>Measurement of Non-Equilibrium Solvent Release from Heavy Oil during Pressure Depletion</td>
<td>J.L. Bryan, PERM Inc; A. Kantzas, J.B. Butron, University of Calgary; E. Nickel, Petroleum Technology Research Centre</td>
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<td>1630–1700</td>
<td>189744</td>
<td>Generalized Approach to Predict k-values of Hydrocarbon Solvent/Bitumen Mixtures</td>
<td>B. Azinfar, A. Haddadnia, M. Zirrahi, H. Hassanzadeh, J. Abedi, University of Calgary</td>
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**Did you Know?**

This year the SPE Canadian Educational Foundation (SPECEF) awarded a total of CAD 53,000 in scholarships to 21 post secondary students enrolled in an Engineering or Science program in Canada. Each student received CAD 2500, with the exception of the Stephan V. Benediktson scholarship winner who received CAD 3000. The scholarship application process will open again in the fall of 2018.

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## 10 HO - Production, Operations & Optimization

**Session Chairpersons:**
Darren Worth, C-FER Technologies  
Danial Kaviani, Suncor Energy

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<td>Liner Deployed Inflow Control Devices (ICD) Production Results in MacKay River SAGD Wells</td>
<td>O. Becerra, B.J. Kearl, PetroChinaCanada; F. Zaini, M. Melo, G.E. Woiceshyn, Schlumberger Canada Ltd.</td>
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<td>Study of Temperature and Pressure Fall-off during Shut-In and Slow-down for SAGD Wells with Top Water</td>
<td>Y. Wang, A. Ferrise, Y. Huang, Nexen Energy ULC.</td>
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<td>1430–1500</td>
<td>Steps Toward Designing the Optimum Outflow Control Device for SAGD Using Computational Fluid Dynamics Simulation</td>
<td>L. Li, Y. Ma, C.F. Lange, University of Alberta; M. Mahmoudi, V. Fattahpour, RGL Reservoir Management</td>
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<td>1600–1630</td>
<td>Evaluation of Inflow Control Device Performance Using Computational Fluid Dynamics</td>
<td>C.F. Lange, M. Miersma, L. Li, University of Alberta; M. Mahmoudi, V. Fattahpour, RGL Reservoir Management</td>
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<td>1630–1700</td>
<td>Case Study: Enhancing PCP Performance Through The Complex Failure Analysis Of More Than 200 Wells</td>
<td>Z. Nurkas, Manul LLP; B. Ubaidollauly, Buzachi Operating Ltd</td>
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## SPE Canada Heavy Oil Technical Conference

**Technical Program**  
(as of 2 March 2018)

### WEDNESDAY, 14 MARCH 2018

**1330–1500 | Glen 206**

#### 11 HO - Cold Production Techniques

**Session Chairpersons:**
- Apostolos Kantzas, University of Calgary
- Jeannine Chang, ICE Reservoir Solutions

- **1330–1400**  189734  
  **Direction of Wormhole Growth Under Anisotropic Stress**  
  K. Oldakowski, R.P. Sawatzky, InnoTech Alberta

- **1400–1430**  189730  
  **Practical Reservoir Management Strategy to Optimize Waterflooded Pools with Minimum Capital Employed**  

- **1430–1500**  189749  
  **Wormhole Stability Under Post CHOPS Conditions**  
  K. Oldakowski, R.P. Sawatzky, InnoTech Alberta

---

**1530–1700 | Glen 206**

#### 12 HO – Reservoir Characterization & Geomechanics

**Session Chairpersons:**
- Harris Naseer, Poreflow Energy Consultants
- Japan J Trivedi, University of Alberta

- **1530–1600**  189751  
  **The Influence of Discontinuities on Geomechanical Analysis of the Joslyn SAGD Steam Release Incident**  
  A. Khani, 4–110–62, NREF/CNRL, University of Alberta; A. Rangriz Shokri, R.J. Chalaturnyk, University of Alberta

- **1600–1630**  189758  
  **Unique Infill Configuration to Unlock Additional Barrels in the Boscan Heavy Oil Water Injection Project**  
  M. Kumar, R. Kumar, N. Atalay, A. Arbelaez, R.J. Nava, C.S. Lolley, D.A. Socorro, K. Gonzalez, Chevron Corp.; M. Pernalete, PDVSA

- **1630–1700**  189733  
  **Effects of Rock Mechanical Properties and Deformational Behavior on Caprock Integrity in Thermal Operations**  
  Q. Li, J.A. Rivero, Schlumberger Canada Ltd.
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SPE/CHOA Slugging It Out Conference
17 April 2018 | Calgary, Alberta, Canada

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18–19 September 2018 | Calgary, Alberta, Canada

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