SPE/IADC INTERNATIONAL DRILLING CONFERENCE AND EXHIBITION

5-7 March 2019

www.spe.org/go/drilling

Conference Preview
people powered

The power of our resources means nothing without the energy of our people. Their focus and expertise make our energy more dependable, more sustainable, and more useful.

We are looking for experienced drilling professionals to join our team.

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Dear Colleague,

The SPE/IADC International Drilling Conference and Exhibition is one of the key annual industry events. It is renowned for excellent technical content and is a great opportunity to make and maintain business connections. Active engagement from the industry is key to both.

The conference covers a variety of subjects, including drill bits, downhole tools, cementing, automation, well control, geomechanics, well placement, drilling dynamics & mechanics, MPD, fluid & waste management, innovative technologies, threaded connections, challenging projects and tubular design.

The 2019 conference will also focus on new forms of collaboration that drive innovation and performance improvement. This will be covered in the panel session on the second day of the conference.

In the last few years, new forms of cooperation and contracting have started to emerge in the industry. These initiatives typically centre around key objectives such as, shared goals and incentives, working as part of a team, integrated project organisation, implementation of digital solutions, standardisation and simplification of processes.

The 2019 conference will take place at The Hague, The Netherlands on 5-7 March. The perfect location for the world’s premier drilling event.

I encourage you and your colleagues to attend this landmark event and share your experiences with other industry professionals.

Visit the website to register your place today: www.spe.org/en/events/drilling-conference/attend/registration/

Looking forward to meeting you in March.

Pierre Kriesels
General Manager, Wells R&D
Shell Global Solutions International

“This is by far the best conference for drilling technology, products, and people!”

2018 Attendee
About the Conference

The SPE/IADC International Drilling Conference and Exhibition accelerates progress in our industry by connecting forward-looking technical presentations to open discussion forums. The technical programme enables E&P professionals to see through today’s challenges and work collaboratively toward solutions that will create a stronger future for an increasingly energy-driven world.

For more than 30 years, the SPE/IADC International Drilling Conference and Exhibition has become established as a unique convergence of people and ideas best placed to advance our scientific understanding of drilling in oil and gas exploration and production. It brings together operator companies, contractor firms and service companies to address challenges and deliver improved performance.

Why Attend

- ACCESS new technologies and insights to navigate the current low-commodity price environment of our business.
- NETWORK with E&P industry leaders and decision-makers.
- GAIN innovative tactics and applicable tools with accompanying training courses.
- INVEST in yourself and make valuable connections.
- ENHANCE your knowledge with thought provoking presentations and interactive ePoster sessions.

Who Attends

- Applications Engineers
- Design Engineers and Supervisors
- Drilling and Completions Engineers
- Executives
- Geologists/Petrophysicists
- Production and Operations Engineers
- Rig Engineers
- R&D Professionals
- Reservoir Engineers.

Registration is now open

We invite you to attend the internationally acclaimed leading drilling conference and hear top oil and gas industry professionals deliver their expertise.

Register before 15 January 2019 and save €100 as an SPE member!


Disciplines

- Multi-disciplinary
- HSE
- Drilling
- Completions
- Management and Information
- Projects Facilities and Construction
- Production and Operations
- Reservoir Description and Dynamics
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Committees

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Pierre Kriesels, Shell Global Solutions International

Advisory Committee
Arindam Bhattacharya, Schlumberger
Mel Clare, Hurricane Energy
Kimberly McHugh, Chevron
David Reid, National Oilwell Varco
David Roodenburg, Huisman Equipment B.V.
Lina Serpa, BP
Oonagh Werngren, Independent

Programme Committee
Marc Bird, Baker Hughes, a GE company
Martijn Bogaerts, Schlumberger
Igor Brucher, Transocean
Dennis Cisneros, Varel International
Crispin Chatar, Schlumberger
John Clegg, Weatherford
Blaine Dow, Schlumberger
William Duffy, Equinor
Michael Dykalski, BOS Solutions
Alfred Eustes, Colorado School of Mines
Danielle Fuselier, Baker Hughes, a GE company
Lisa Grant, Bureau of Safety and Environmental Enforcement (BSEE)

Programme Committee (continued)
Martyn Greensmith, Merlin ERD
Mohammed Hattab, Saudi Arabian Oil Company
Hai Hunt, ConocoPhilips
Ashley Johnson, Schlumberger
Sarah Kern, Helmerich & Payne IDC
Marta Lafuente, National Oilwell Varco
Liam Lines, National Oilwell Varco
Arne Lyngholm, Equinor
Robin Macmillan, National Oilwell Varco
Olawale Oredolapo, Baker Hughes, a GE company
Isabel Poletzky, Halliburton
Thomas Redlinger, Bureau Veritas
Matthew Rhodes, BP Upstream – Global Wells Organisation
Rolv Rømmetveit, eDrilling Solutions
Nishanth Samuel, Marathon
Otto Santos, Consultant
Hermann Spoerker, Saudi Arabian Oil Company
Junichi Sugiura, Scout Downhole Inc
Diego Tellez, Occidental Oil & Gas Corporation
John Thorogood, Drilling Global Consultant LLP
Khaydar Valiullin, Hilong Group
Ryan Weeden, National Oilwell Varco
Goof Zijderveld, GustoMSC BV

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.

About the International Association of Drilling Contractors
The International Association of Drilling Contractors (IADC) is dedicated to enhancing the interests of oil and gas and geothermal drilling contractors worldwide. IADC’s contract drilling members own most of the world’s land and offshore drilling units and drill the vast majority of the wells that produce the planet’s oil and gas. IADC’s membership also includes oil and gas producers, and manufacturers and suppliers of oilfield equipment and services. Founded in 1940, IADC strives to secure responsible standards, practices, legislation and regulations that provide for safe, efficient and environmentally sound global drilling operations.

IADC holds Accredited Observer status at the International Maritime Organisation and the International Seabed Federation, branches of the United Nations. The Association is a leader in developing standards for industry training, most notably its well control training and assessment programme, WellSharp, and rig-floor orientation programme, RigPass.

IADC is headquartered in Houston, with offices and chapters located in all geographies where members are active worldwide. For more information, visit the IADC website at www.iadc.org.
Exhibition and Sponsorship Opportunities Available

The world’s premier drilling event provides an unparalleled platform allowing you to maximise your company’s exposure and highlight your expertise.

Sponsorship allows your organisation to:
• Establish itself as a leading player within the E&P sector
• Align itself with the key issues facing the upstream oil and gas industry
• Associate itself with a leading speaker programme
• Raise its profile through a targeted marketing campaign directed at thousands of oil and gas professionals

Exhibiting
Showcase your products, services and new technologies by exhibiting at the industry’s leading event.

The exhibition will run concurrently with the technical conference and will be the location for all refreshment breaks, delegate lunches and the conference drinks reception.

Being part of this renowned event allows you to:
• Showcase your advanced technologies, key services and expertise
• Personally interact with potential and current customers
• Acquire valuable sales leads and customer feedback

Space Only Rate: EUR 460 per square metre
(minimum booking is 36 sq metre)
Stand Package Rate: EUR 575 per square metre
(minimum booking is 9 sq metres)

Sponsorship opportunities still available:
- Platinum Partner
- Gold Partner
- Silver Partner
- AV Equipment
- Conference Proceedings
- Conference WiFi
- Floor Graphics
- Luncheons
- Mobile Charging Stations
- Welcome Reception

For further information about sponsorship or advertising opportunities at the SPE/IADC International Drilling Conference and Exhibition 2019, contact:

Dean Guest
Sales Manager – Events, Europe & Caspian
Society of Petroleum Engineers
Fourth Floor, West America House,
2 America Square
London EC3N 2LU
United Kingdom
Tel: +44 (0)207 299 3300
Email: dguest@spe.org
## Schedule of Events (As of December 2018)

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<th>Mississippi</th>
<th>Amazon</th>
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<th>Exhibition Area</th>
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<td>1545–1715</td>
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### Sessions
- Opening / Plenary Session
- Panel Session
- Case Study Session
- Special Session
- Multi Discipline
- HSE
- Drilings
- Completions
- Management & Information
- Projects Facilities & Construction
- Production and Operations
- Reservoir Description & Dynamics
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<td>Diversity &amp; Inclusion Session</td>
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<td>Technical Session 14: Directional Drilling</td>
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<td>Technical Session 16: Drilling Dynamics and Mechanics</td>
<td>Technical Session 17: Drilling Automation II</td>
<td>Technical Session 18: Well Cementing and Zonal Isolation</td>
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SPE DSATS/IADC Art Symposium: Digital Twin Drilling – Connecting the Physical and Digital Worlds

DSATS (SPE’s Drilling Systems Automation Technical Section) and ART (IADC’s Advanced Rig Technology Committee) are holding a half-day symposium featuring keynote presentations on the concept and real-world applications of the Digital Twin.

A Digital Twin integrates real-time data with both physics-based and data-driven models (virtual models) of a physical asset to create a dynamic understanding and optimisation of the design, operation, performance, and maintenance of the physical asset.

Four industry-leading keynote speakers will update the drilling and well construction community on latest applications of this technology, raising the awareness for its potential in drilling automation.

The meeting will be followed by a networking reception in which multiple companies will showcase and exhibit their latest work and solutions for Digital Twins in Drilling and Well Construction.

**Session Moderator:** Slim Hbaieb, Schlumberger

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**Monday, 4 March 2019 | 1300 – 1700, followed by a Networking Reception 1700 – 1900**  
Amazon Meeting Room

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**Keynote Speakers:**

Sean A. McKenna  
**IBM**

Sean is a Senior Research Manager at IBM Research in Dublin, Ireland. He has 25 years of experience in developing science-focused engineering solutions for complex problems. Additionally, Sean currently leads a group of scientists and engineers in research and technology that expands Internet of Things (IoT) capabilities through AI and Blockchain. Application areas include infrastructure systems, manufacturing and natural resource management.

Sean is an active member of IBM’s Industry Academy and served as the 2016 Distinguished Lecturer for the International Association of Mathematical Geosciences. Prior to joining IBM in 2012, he was a Senior Scientist in the GeoSciences Group at Sandia National Laboratories in Albuquerque, New Mexico, USA.

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Arun Subramaniyan  
**BHGE Digital**

Arun leads the global data science and analytics team in BHGE Digital. His team focuses on developing deep learning augmented domain analytics across all aspects of the oil and gas industry.

He joined BHGE Digital from GE Global Research in Niskayuna, New York, where he led the development of the Digital Twin framework. The framework has enabled several thousand engineers in the GE to build advanced models efficiently. The assets specific cumulative damage modelling techniques his team pioneered have saved millions of dollars for the several GE businesses.

As a Six Sigma Master Black Belt, he developed advanced techniques and tools for efficiently modelling large scale systems like jet engines and accelerated design time by 3-4X. Arun is prolific researcher with a Ph.D. in Aerospace Engineering from Purdue University with over 50 international publications that have cited more than 500 times. He is a recipient of the Hull Award from GE which honors early career technologist for their outstanding technical impact.
Keynote Speakers:

Olivier Germain
Halliburton

Olivier is the Director of Landmark’s Industry Solutions, based in Houston. He leads a team of worldwide experts that actively respond to customers’ needs and co-create solutions to measurably increase customer performance.

Olivier has 25 years of industry experience. His early career was spent in various countries managing the operations, contracts, staffing, training and safety management of drilling rigs. Since this, Olivier has progressed on to broader roles, including working as an Operations and Regional Manager for multiple business units with a specific focus on drilling and production projects.

He then made the transition into software development and in 2010 Olivier joined Landmark to direct the R&D efforts in drilling, production and economics, before advancing to his current role in 2017.

Olivier holds a Master’s of Science (MSc) from Ecole Centrale Paris, an MBA from the Erasmus School of Management and is a graduate from the ‘Halliburton President Leadership Excellence’ Programme. He holds 6 US patents.
Diversity & Inclusion Session: Closing the Gender Gap in Oil and Gas

The IADC and SPE are committed to delivering a balanced agenda around Diversity and Inclusion that supports member companies as they strive to be leaders in the oil & gas sector. As such, the 2019 International Drilling Conference in The Hague will host a session that allows delegates to explore the challenges facing the industry and hear first-hand, how they can be addressed.

Sponsored by Chevron and NOV, this initiative aims to build on the efforts already being undertaken to attract, develop and retain staff in an ever-changing world. Through a mixture of keynote talks and focused discussion, delegates will gain insight on how to tackle a number of hard-hitting topics including; gender pay gap, how to gain confidence in the work place, work out which way is up, how to bring yourself to the party, how to include men in the conversation, as well as tackling “Power and #MeToo” in the oil and gas industry.

Keynote speakers include Kim McHugh VP Drilling and Completions at Chevron, Katy Heidenreich OGUK author of “The Oil Industry’s Best Kept Secret” and David Reid Chief Marketing Officer at NOV. Additional speakers from BHGE, BP, Equinor, Schlumberger and Serenity in Leadership, will encourage a dialogue that engages an audience from all sectors of the Drilling and Completion Community.

This early evening session, which includes refreshments, is deliberately timed to allow all delegates to contribute to the discussion.

Wednesday, 6 March 2019 | 1715 - 2000

Onyx Meeting Room

**Session Chair:**

Oonagh Werngren MBE

Oonagh is the driving force behind the Diversity and Inclusion session, which takes place at SPE/IADC International Drilling Conference in The Hague. As the first ever female Wells Manager for BP, over 15 years ago, Oonagh developed a keen interest in career opportunities and mentors a broad spectrum from graduates to industry leaders. She is the co-author, along with Katy Heidenreich, of “The Oil Industry’s Best Kept Secret”.

Oonagh is the former President of the Petroleum Exploration Society of Great Britain and Non- Executive Director of ITF, CDA and The Girls’ Network. In the course of her 36-year career, she has held senior leadership positions around the globe for Oil and Gas UK, GDF SUEZ and BP, working previously for ARCO British Ltd and Tricentrol Oil Corporation. Oonagh was awarded an MBE in the 2011 Queen’s Birthday Honours List, for services to the oil and gas industry. Commodore of the Colne Yacht Club since April 2017, she also sits on the Board of an award-winning pub.

**Keynote Speaker:**

Kim McHugh

Chevron

Kim McHugh is the Vice President of Drilling and Completions for Chevron Services Company based in Houston, Texas. She assumed the position in May 2018. Kim is responsible for Global Drilling and Completions which includes HES, Assurance, OC, and planning of drilling operations globally. Prior to the current role, she was the General Manager of Drilling and Completions in Houston. Kim is a second-generation driller growing up in the industry in locations all over the US and internationally. Her career has spanned operations in the Gulf of Mexico, Gulf of Thailand, and onshore US. Kim has worked for Chevron, BP, Unocal, and ARCO in operator roles and as a consultant. She has held various roles in managing both field operations, engineering and global performance. Kim is a graduate of Texas A&M University receiving her BS and MS in petroleum engineering. She lives in Katy, Texas with her husband, Dennis, who also works for Chevron. Kim serves on the board for Dress for Success and the IADC WellSharp Advisory Panel.
**Keynote Speakers:**

Katy Heidenreich  
**Oil & Gas UK**
Katy Heidenreich is Upstream Operations Optimisation Manager at Oil & Gas UK and is responsible for promoting operational excellence and driving initiatives that align with the Maximising Economic Recovery (MER UK) Strategy and increase the competitiveness of the UK Continental Shelf (UKCS).

Katy has spent most of her career in the oil and gas industry working in technical and senior management roles in the UK, Norway and Azerbaijan. Katy joined Oil & Gas UK, the upstream industry’s trade association, after 15 years with Schlumberger Oilfield services. Katy also recently became a published author, releasing a book focusing on the impact women have had on the oil and gas sector, which aims to inspire and encourage the next generation of talented young women to join the industry.

David Reid  
**National Oilwell Varco**
David is the Chief Marketing Officer for NOV, where he develops the global market and strategic engine. David joined Varco International in 1992 and has lived in Scotland, California, and Houston covering roles in service, operations, design, business and product development, leadership, and management. He serves on the NOV and Schlumberger IntelliServ Joint Venture Board and in IADC and SPE leadership positions. David has influenced modern rig and equipment design and the pioneering of drilling automation and oilfield digitisation. Outside of oil and gas, David is a board member for Redeemed, a recovery program for adult women who are survivors of sex trafficking. He has also pioneered a Houston-based organisation of pro-bono, crowdsourced marketing professionals who give of their skills and talents to help focused, efficient, high investment recovery groups, like Redeemed, develop and convey their story.

**Young Professionals’ Luncheon**

Attention Young Professionals! Join us for a special networking lunch and a chance to discuss key industry and career topics with experienced professionals. In this relaxed setting you’ll be able to hear from our Keynote Speaker, Kelly Richardson, Wells Engineering Team Leader, North Sea, BP talk about her experiences as well as have the opportunity to ask her your burning questions! The YP luncheon* will be held from 1230 – 1345 on Wednesday, 6 March at the World Forum. Limited spaces will be available and are based on a first-come, first-served basis. Make sure to secure your place and register online today!

*An SPE Young Professional is an E&P professional under 36 years old

**Keynote Speaker:**

Kelly Richardson  
**BP**
Kelly Richardson is a BP Wells Engineering Team Leader in the North Sea where she is accountable for planning safe, compliant and reliable well activities. With more than 12 years of industry experience Kelly has held a variety of engineering and leadership roles within BP’s Global Wells Organisation, both onshore and offshore, and around the globe in locations such as Angola, Canada and Norway. During this time Kelly has continued to demonstrate strong leadership and technical delivery managing projects in exploration, interventions and well abandonment. Kelly is passionate about embedding new technology and agile ways of working and has piloted several initiatives helping to transform the way BP operates. She continues to be a strong role model, driving her team’s technical and leadership development.
Kelly is a graduate of Durham and Heriot-Watt Universities, holding a Bachelor of Science in Physics and a Master of Science in Petroleum Engineering.
## Technical Programme (As of December 2018)

### Tuesday, 5 March 2019

**O1T Fluids and Waste Management**  
Mississippi

*Session Chairpersons:* Michael Dykalski, **BOS Solutions**; Lisa Grant, (BSEE) Bureau of Safety and Environmental Enforcement

This session will highlight a novel approach to drilling fluid data capture, analysis and prediction applied to enhance drilling performance and optimise waste management.

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| **A Data Driven Approach to Predict Frictional Pressure Losses in Polymer-Based Fluids**  
S. Gul, M.D. Johnson, A. Karimi Vajargah, Z. Ma, B.B. Hoxha, E. van Oort, The University of Texas at Austin | 1030 |

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| **Application of Real-Time Fluids Data to Reduce Uncertainty in Casing-to-Casing Time**  
D.E. Jamison, R. Williams, A. Porter, Halliburton | 1100 |

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| **Effect of Solid Particle Concentration on Drilling Fluid Rheological Behavior and its Impact on Pressure Losses**  
E. Cayeux, A. Leulseged, NORCE | 1130 |

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| **Optimized Cuttings and Slops Management Help Save 250 Days on Six-Well North Sea Program**  
M. Toft, D. Farr, K. Strøm, Halliburton | 1200 |

### O2T Challenging Projects

**Amazon**

*Session Chairpersons:* Danielle Fuselier, **Baker Hughes**, a GE company; Thomas Redlinger, **Bureau Veritas**

This session explores approaches, technology and case studies for the industry’s most challenging applications. The session will review learnings from operators and service companies as they approached challenging programs. Real word case studies will review the impact of machine learning algorithms, equipment design, and well safety.

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<thead>
<tr>
<th>Presentation</th>
<th>194172</th>
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</table>
| **Study of Formation Bonding in the Wells of the Varg Field Based on Ultrasonic and Sonic Wireline Log Data**  
L. Noble, Schlumberger; H. Vindheim, Repsol; A. Govil, G.A. Obando, Schlumberger; J. Haga, Repsol; A. Shams, Heriot Watt University | 1030 |

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<thead>
<tr>
<th>Presentation</th>
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</table>
| **Customized High-Rate Cuttings Reinjection System: Effective Design Maintains Continuous Zero Discharge Operations on Sakhalin Island**  
R. Mahrous, V. Tsoy, R. Ellis, Halliburton | 1130 |

<table>
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<tr>
<th>Presentation</th>
<th>194156</th>
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</table>
| **Managing Shallow Water Flow During Tophole Drilling Operations in the Southern North Sea – A Case Study**  
A.O. Solarin, Maersk Drilling | 1200 |

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<tr>
<th>Presentation</th>
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</table>
| **Well Safety and Performance Gains from MPD in Unconventional High Overpressure Reservoirs in Argentina**  
A.C. Vieira Martins Lage, E. Gurgel do Amaral Arduino, S. de Andrade Loureiro, G. Siqueira Vanni, H. Pereira da Silva Filho, Petrobras | 1200 |
### 03T Threaded Connections for Tubulars

**Yangtze**

**Session Chairpersons:** Hai Hunt, ConocoPhillips Alaska Inc.; Marta Lafuente, NOV

The choice of the right threaded connections during the well design can be a critical element to ensure maximum productivity and maintain well integrity during operations. This session will discuss a series of technologies, analytical evaluation methods and field cases for threaded connections that can be used to evaluate the suitability of a threaded connection for a specific application.

**Presentation**

1030  194147

**Design And Comparison of Two Drill String Solutions that Break Barriers in Extended Reach Drilling**

A. Matveyev, M. Lafuente, A.H. Awad, F. Carrois, NOV Grant Prideco; E. Kvalvaag, M. Frigui, S. Al Blooshi, ADNOC OFFSHORE

1100  194180

**An Analytical Model for Double-Shouldered Connection Strengths**

G. Pettit, Bureau Veritas

1130  194059

**API Connection Leak Equation Extended with Dependence on Axial Force and Backup Pressure**

M.A. Goodman, eWellbore, LLC; R.F. Mitchell, Well Complete, LLC; I.A. Karl, Altus Well Experts Inc.

1200  194146

**On the Sealability of Metal-to-metal Seals with Application to Premium Casing Connections**

D. Ermens, Shell Global Solutions International BV, University of Twente; F. Pérez-Rafols, Luleå University of Technology; D. Van Hoecke, OCAS NV; R.F. Roijmans, E.J. van Riet, Shell Global Solutions International BV; J. Vande Voorde, OCAS NV; A. Almqvist, Luleå University of Technology; M.B. de Rooij, University of Twente; S.M. Roggeband, W. van Haften, Shell Global Solutions International BV; M. Vanderschueren, P. Thibaux, OCAS NV; H.R. Pasaribu, Shell Global Solutions International BV

**ePoster**

194176

**Numerical Modeling and Experimental Validation of Advanced Rotary Shouldered Threaded Connections**

F. Song, M.H. Du, K. Li, Schlumberger

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### 04T Advances in Drill Bit and Downhole Tool Technology and Applications

**Mississippi**

**Session Chairpersons:** Marc Bird, Baker Hughes, a GE company; Ryan Weeden, NOV

This session presents progress in drill bit and downhole tooling technology. Topics cover advances in formation specific cutting technology, simulation of rock-cutter interactions, and bit features eliciting an engineered drilling response and associated case studies. A bit-reamer matching Deepwater case study and open hole caliper monitoring method are included.

**Presentation**

1345  194128

**Self-Adjusting PDC Bits Reduce Drilling Dysfunction, Increase Drilling Efficiency in Gulf of Mexico Well**

W. Rodrigue Jr, R. Callais, A.R. Chowdhury, Baker Hughes, a GE company

1415  194148

**Rock Customized Shaped Cutters Improve Rock Cutting Efficiency**

R. Rahmani, NOV

1445  194150

**Industry's First PDC Bit Gauge Design for Improved Tracking in North American Horizontal Wells**

R.W. Spencer, B.D. Pierce, R.E. Grimes, Baker Hughes, a GE company

1545  194134

**Modelling the 3D Bit-Rock Interaction Helps Designing Better PDC Bits**


1615  194060

**Pilot Bit and Reamer Matching: Realtime Downhole Data Differentiates Hybrid Drill Bit's Suitability with Concentric Reamer in Deepwater, Gulf of Mexico Application**

A. Roy Chowdhury, R. Serrano, W. Rodrigue, Baker Hughes, a GE Company
## Technical Programme

### 1645

**Monitoring of Under-reamer Function Status to Confirm In-Gauge Hole, Technology Validated by Open Hole Calliper: Case Study**  
T.W. Huggett, National Oilwell Varco; M. Alahmad, O. Eatough, Total

### ePoster

**Increased ROP by 18% in Norway and in Other Applications Through Optimizing Cutter Geometry from Laboratory Tests, Numerical Models and Field Tests**  
K.T. Izbinski, J.L. Cardoe, J.A. Bomidi, Baker Hughes, a GE company

**Jar Placement Efficiency on Optimizing Drilling and Cost**  

**Middle East Success Story with World’s First Adaptive Drill Bit and Premium Rotary Steerable Technology**  
D. Rasheed Al Enezi, S.M. Gholoum, Kuwait Oil Company; R. Al-Enezi, A.M. Altashah, KOC; A. Redha, Kuwait Oil Company; M.G. Omar, A. Abdelhamid, Baker Hughes; W. Agawani, Baker Hughes Solutions; M.R. Pandya, Baker Hughes, a GE company; F.G. Valbuena, Baker Hughes

### Presentation

**Prediction of Penetration Rate Ahead of the Bit Through Real-Time Updated Machine Learning Models**  
Y. Li, University of Southern California; R. Samuel, Halliburton

**Advanced Real-time Monitoring Provides Early Detection and Prevention of Costly Well Problems**  
M. Gholami Mayani, R. Rommetveit, S. Helgeland, S. Oedegaard, eDrilling; K. Kjørstad, Equinor ASA

**Building a Rig State Classifier Using Supervised Machine Learning to Support Invisible Lost Time Analysis**  
C.J. Coley, BP

**Deep Learning Model for Classifying Cutting Volume at Shale Shakers in Real-Time Via Video Streaming**  
X. Du, Y. Jin, X. Wu, University of Houston; Y. Liu, X. Wu, O.K. Awan, J. Roth, K. See, N. Tognini, Shell International Exploration and Production; J. Chen, Z. Han, University of Houston

**Managing Drilling Losses in the Permian using Airborne Gravity Full Tensor Gradiometry**  
A.D. Sallee, H.P. Dick, V. Sudhakar, Schlumberger; A. Morgan, S. Payton, Bell Geospace; D. Paddock, Schlumberger

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**OST Innovative Technologies for Measurement, Modeling and Communication**  
Amazon

**Session Chairpersons:** John Clegg, Weatherford; Robin Macmillan, NOV

The ongoing quest for improvement of drilling performance relies more than ever on increasingly sophisticated modelling and machine learning. In turn these rely on the acquisition of large amounts of data, either before operations begin in order to create or improve models of the application, or in real time to refine and calibrate those models. This session explores a number of exciting and innovative techniques in measurement and transmission of data in support of modelling and machine learning.
Technical Programme

1645 194095

**Smart Wired Pipe: Drilling Field Trials**  
J.D. Macpherson, I. Roders, K. Schoenborn, R. Mieting, F. Lopez, Baker Hughes, a GE Company

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194080

**Relocate Monitoring Tasks Ashore with Advanced Data Streaming and Data Assurance**  
P.E. Neri, R. Philo, Energistics Consortium Inc.

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**06T Cementing and Zonal Isolation I Yangtze**

**Session Chairpersons:** Michael Dykalski, BOS Solutions; Diego Tellez, Occidental Oil & Gas Corporation

Long-term zonal isolation and well integrity are paramount goals for the oil & gas industry. To foster the conversation around these industry goals this session will highlight non-routine cement placement techniques, breaking paradigms regarding centralisation technology, new technology for cement evaluation and monitoring of cement integrity, and innovative additives used in cement slurries.

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**Presentation**

1345 194135

**A Novel Mechanical Tool for Annular Cement Verification**  
J.A. De Andrade, S. Fagerås, S. Sangesland, Norwegian University of Science and Technology (NTNU)

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1415 194094

**Myth-Busting Performance Properties of Nonmetallic Rigid Centralizers**  
M.R. Rodrigue, L. Kendziora, D.B. Farley, Weatherford International Ltd.

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1445 194126

**Displacement Efficiency of Reverse Circulation Cement Placement Techniques**  
S. Kragset, H. Skadsem, NORCE Norwegian Research Centre AS/DrillWell; A. Saasen, University of Stavanger/DrillWell

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1545 194186

**Offline Cementing Technique**  

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1615 194159

**Concurrent Real-time Distributed Fiber Optic Sensing of Casing Deformation and Cement Integrity Loss**  
Q. Wu, S.D. Nair, E. van Oort, The University of Texas At Austin; A. Guzik, K. Kishida, Neubrex Co., Ltd

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**ePoster**

194118

**Novel Aromatic Polyamides and its Application in Enhancing the Integrity of Oil Well Cement Sheath**  
E.Q. Contreras, D. Rasner, R.F. Martinez, C.J. Thaemlitz, Aramco Services Company: Aramco Research Center

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194151

**Computation of Surge Pressure Wave Propagation During Cementation Process**  
W. Assaad, Shell Global Solutions International B.V.; D. Di Crescenzo, D.J. Murphy, J.E. Boyd, Shell Exploration & Production Company

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194173

**A Novel Microbially Induced Self-healing Cement/concrete for Underwater Concrete Offshore Structures**  
C. Noshi, J.J. Schubert, Texas A&M University
Technical Programme

Wednesday, 6 March 2019

07T Drilling Automation I
Mississippi

Session Chairpersons: Alfred Eustes, Colorado School of Mines; Olawale Oredolapo, Baker Hughes, a GE company

The automation of various drilling operations is gaining more speed as more complex and challenging wells are drilled. In this session, the automation of directional drilling is presented as well as a presentation of the results of the fourth Worldwide Drillbotics Competition.

<table>
<thead>
<tr>
<th>Presentation</th>
<th>0900</th>
<th>194090</th>
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<tbody>
<tr>
<td>Slide Drilling Guidance System for Directional Drilling Path Optimization</td>
<td>C. Pehlivanturk, J.J. D’Angelo, The University of Texas at Austin; D. Cao, Anadarko Petroleum Corporation; D. Chen, P. Ashok, E. van Oort, The University of Texas at Austin</td>
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<tr>
<th>ePoster</th>
<th>194087</th>
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<tbody>
<tr>
<td>An Active Return Flowline Sensor for Onshore Drilling Rigs</td>
<td>P. Lambie, J.H. Sampaio Jr, Colorado School of Mines</td>
</tr>
</tbody>
</table>

08T Well Control
Amazon

Session Chairpersons: Rolv Rommetveit, eDrilling Solutions; Otto Santos, Louisiana State University

This session will have papers presenting the latest technologies and applications in well control. A demonstration of an automated pressure control system for assisted well control will first be presented. Two papers on well control modelling will be presented; one utilising an advanced gas influx model for interpretation of an incident in the North Sea, and the other on how well control and temperature modelling helped to facilitate safe and effective delivery of a complex and challenging offshore HPHT well.

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<thead>
<tr>
<th>Presentation</th>
<th>0900</th>
<th>194089</th>
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<tbody>
<tr>
<td>Demonstration of Automated Pressure Control System for Assisted Well Control Offshore Norway</td>
<td>A. Knudsen, Spirit Energy; Y. Couturier, J. Hardt, M. Bogan, B. Dow, K.E. Nord-Varhaug, Schlumberger</td>
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<tr>
<td>The Effect of Pipe Rotation on Dynamic Well Control Casing Pressure Using the Dispersed Bubble Model</td>
<td>Z.A. Al Marhoon, University of Oklahoma; B. Akbari, Louisiana State University; H. Al Ramis, Univeristy of Oklahoma</td>
</tr>
</tbody>
</table>
The Geomechanics session will highlight:-Improved methods to assess fracture gradient that take into account 4D seismic data and a 3D geomechanical model,-The deployment of a logging while drilling tool that uses acoustic impedance contrast and ultrasonic amplitude measurements to obtain high-resolution structural, stratigraphic and borehole geometry information and-An integrated geomechanical approach to more accurately predict the fracture gradient for wellbores with different trajectories to mitigate risks of losses for challenging wellbores.

**Presentation**

0900 194154
Assessing Current Fracture Gradient of a High Pressure, High Temperature (HP/HT) Field as a Key Input for its Development and Abandonment
M. Salehabadi, I. Susanto, Shell UK Ltd.; C. Freeman, C. Prin, S. De Gennaro, R. Laird, G. Forsyth, Shell UK Ltd; D. Doornhof, Nederlandse Aardolie Maatschappij B.V.

0930 194074
Determining Wellbore Stability Parameters Using a New LWD High Resolution Ultrasonic Imaging Tool
C.L. Ciuperca, D. Di Tomasso, Weatherford; M. Dawber, PetroAcoustics; J. Tidswell, Angus Energy

1000 194139
An Integrated Geomechanical Approach to Accurately Predicting the Fracture Gradient for Mitigating Drilling Losses of Challenging Wellbores
Z. Fang, N. Zamikhan, R. Tarang, C. On, P. Huver, Brunei Shell Petroleum Co Sdn Bhd

**ePoster**

194105
Prediction of Penetration Rate Ahead of the Bit Through Real-Time Updated Machine Learning Models
Y. Li, University of Southern California; R. Samuel, Halliburton

**Well Safety and Performance Gains from MPD in Unconventional High Overpressure Reservoirs in Argentina**

A.C. Vieira Martins Lage, E. Gurgel do Amaral Arduino, S. de Andrade Loureiro, G. Siqueira Vanni, H. Pereira da Silva Filho, Petrobras

**Managing Shallow Water Flow During Tophole Drilling Operations in the Southern North Sea – A Case Study**

A.O. Solarin, Maersk Drilling

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**10T Well Placement**

**Mississippi**

**Session Chairpersons:** Martyn Greensmith, Merlin ERD; Matthew Rhodes, BP Upstream – Global Wells Organisation

Well Placement encompasses the engineering and services required to spatially place all our well types in the optimal position with respect to current and future value creation. It is paramount that this placement firstly considers HSE with respect to existing wells, geohazards and our understanding of the pore-pressure/fracture gradient regime (well control). With this in mind Well Placement needs to apply a risk based multi-disciplinary approach. This session will cover the optimisation of survey acquisition and advanced quality control of existing systems, and also present the latest thinking with respect to trajectory definition and technology advancement.

**Presentation**

1345 194057
Eliminating Rig Time from MWD Surveying
R. Lowdon, M. Breen, M. Mouyiasis, M. Edmunds, K. Bulychenkov, K. Brovko, Schlumberger

1415 194130
Combined Gyroscopic and Magnetic Surveys Provide Improved Magnetic Survey Data and Enhanced Survey Quality Control
J.L. Weston, A.G. Ledroz, Gyrodata Inc.
Technical Programme

1445 194127
Intelligent Wellbore Path Estimation Using Multiple Integrated MEMS Sensors
H. Liu, R. Shor, S. Park, University of Calgary

1615 194085
Monte Carlo Analysis of Advanced Spline Curves for Wellbore Trajectory Uncertainty Calculations
K.I. McKenna, A.W. Eustes, Colorado School of Mines; M. AbuGhaban, Saudi Aramco; M.P. Shahri, Apache Corporation

1645 194179
Validation of Directional Survey Data Against Positional Uncertainty Models
M. Willerth, S. Maus, Helmerich & Payne Technologies

ePoster
194101
Using High-Resolution MWD Survey Data in Mud Removal Simulations for Effective Cementing Program Design
L.C. Monterrosa, C. Tay, J.M. Salazar, Schlumberger

194067
Challenges and Solutions for Accurate Wellbore Placement in the Barents Sea

194153
Micro-Sonde Well Logging System; a Novel Method for Along-Well Measurements
G. Saelevik, H. Skadsem, S. Kragset, D.J. Gardner, E. Randeberg, NORCE Norwegian Research Centre AS; M. Hjelstuen, SINTEF

11T Understanding Stick Slip and Torsional Dynamics
Mississippi

Session Chairpersons: Pradeepkumar Ashok, University of Texas at Austin, Junichi Sugiura, Scout Downhole Inc

Stick slip and unwanted torsional dynamics continue to cause damage to drill bits, mud motors, and other downhole tools. Significant non-productive time can be prevented through proper understanding, early recognition and mitigation of such torsional dynamics and stick slip. This session presents the latest advances in sensor technologies, modelling and control techniques that help us achieve this goal.

Presentation
1345 194072
High-Frequency at-Bit Measurements Provide New Insights into Torsional Dynamics when Drilling with Steerable Mud Motors in Unconventional Horizontal Wells

1415 194138
A Drill Bit and Drilling Motor with Embedded High-Frequency (1600Hz) Drilling Dynamics Sensors Provide New Insights into Challenging Downhole Drilling Conditions
J. Sugiura, S. Jones, Sanvean Technologies

1445 194071
Real-Time System to Calculate the Maximum Load of High-Frequency Torsional Oscillations Independent of Sensor Positioning
A. Hohl, E.M. Palata, P. Arevalo, Baker Hughes, a GE company

1545 194117
Mitigating and Understanding Stick-Slip in Unconventional Wells

1615 194108
Curing Stick-slip: Eureka
S. Dwars, Shell; M. Lien, Equinor; S. Øydna, MHWirth; T. Baumgartner, Shell

1645 194120
Mitigation Of Multi-frequency Stick/slip
Z. Sun, Q. Gu, Halliburton Energy Services
## Technical Programme

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<tr>
<td><strong>Quenching of Self-Excited Vibrations in Multi Degree-of-Freedom Systems: Application to Stick-Slip Mitigation in Drilling</strong></td>
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<tr>
<td>G. Ramakrishnan, Halliburton</td>
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</table>

### Session Chairpersons: Marta Lafuente, NOV; Thomas Redlinger, Bureau Veritas

Whether it's in Deepwater, HP/HT, Shale or when re-developing mature fields, choosing the right tubulars for a specific environment can be a challenge. This session will examine tubular design methods that can be used for different applications and loadings and it will describe how these design practices can help assuring well integrity.

### Presentation

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<tr>
<td><strong>12T Tubular Design and Applications</strong></td>
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#### 12T Tubular Design and Applications

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<tbody>
<tr>
<td><strong>Slim Well Casing Design for a Deepwater Application using a Fast and Flexible Finite Element Engine</strong></td>
</tr>
<tr>
<td>H. Panayirci, O.L. Houette, S. Brands, M. Paraschiv, Schlumberger; S. French, Energean Oil &amp; Gas</td>
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<tr>
<td><strong>Evaluation of the Elevated Temperature Performance and Degradation Mechanisms of Thread Compounds</strong></td>
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<tr>
<td>D. Ernens, Shell Global Solutions International BV, University of Twente; D. Westerwaal, R.F. Roijmans, E.J. van Riet, Shell Global Solutions International BV; S. Daegling, Shell Global Solutions Germany GmbH; A. Wheatley, Shell International Petroleum Company Ltd.; E. Worthington, Shell Global Solutions Germany GmbH; H. Kramer, Nederlandse Aardolie Maatschappij BV; W. van Haafven, Shell Global Solutions International BV; M.B. de Roolij, University of Twente; H.R. Pasaribu, Shell Global Solutions International BV</td>
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<tr>
<td><strong>Dynamic Stress Analysis of Critical and Cyclic Loads for Production Casing in Horizontal Shale Wells</strong></td>
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<tr>
<td><strong>Frictional Heating of Casing Due to Drill String Rotation – Finite Element and CFD Simulations</strong></td>
</tr>
<tr>
<td>W. Assaad, Shell Global Solutions International B. V.; B. Tarr, Shell International E&amp;P Co.; K. See, Shell Exploration &amp; Production Co</td>
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<tr>
<td><strong>Solid Expandable Strategy Facilitates Cost Effective Sidetracking in Deep Horizontal Wells, Revitalizing Mature Oil Field</strong></td>
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<tr>
<td>C. Cao, CNPC CPET; H.D. Luo, CNPC International (Chad) Co., Ltd.; Q.L. Zhang, B.G. Xu, Y.P. Zhang, T. Jia, Y.L. Yu, H.W. Yin, J.L. Wang, CNPC CPET</td>
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<tr>
<td><strong>Calculating a Tortuosity Index Metric Using Machine Learning Techniques</strong></td>
</tr>
<tr>
<td>C. Noshi, J.J. Schubert, Texas A&amp;M University</td>
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<td><strong>Solid Expandable Strategy Facilitates Cost Effective Sidetracking in Deep Horizontal Wells, Revitalizing Mature Oil Field</strong></td>
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**“It IS the premier drilling conference – the technical papers are the best ones.”**

2018 Attendee
### Technical Programme

**Thursday, 7 March 2019**

#### 0900-1230

**13T Managed Pressure Drilling**  
**Mississippi**

**Session Chairpersons:** Blaine Dow, Schlumberger; Isabel Poletzky, Halliburton

This session gives an overview of the latest technology initiatives to improve implementation of MPD, including: simulation models accounting for the transient temperature profile and its effect in wellbore hydraulics; use of a downhole choke, MPD and Continuous Circulation to improve pressure control; Drilling with Liner, MPD and Continuous Circulation application to solve drilling hazards in an overpressure zone; using a digital twin to improve pressure management; MPD system including pressure, flow and solubility pressure controls to provide better performance in situations such as riser unloading; and, MPD solving challenges and optimizing the drilling process in the Bakken.

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
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</table>
| 0900  | An Integrated Thermal and Multiphase Flow Model for Estimating Transient Temperature Dynamics During Drilling Operations  
A. Fallah, Q. Gu, The University of Texas at Austin; Z. Ma, A. Karimi Vajargah, The University of Texas at Austin, now with Quantum Reservoir Impact; D. Chen, P. Ashok, E. van Oort, The University of Texas at Austin; R. May, Baker Hughes, a GE company |
| 0930  | Verification of Downhole Choke Technology in a Simulator Using Data from a North Sea Well  
M. Kvernland, D. Gorski, M. Sant’ Ana, Heavelock AS; J. Godhavn, Equinor ASA; O.M. Aamo, S. Sangesland, NTNU |
| 1000  | Combination of Drilling With Liner, Managed Pressure Drilling and Continuous Circulation Methods to Mitigate a High Pressure Interval in the Zechstein Group in the North Sea  
| 1100  | Using an Advanced Digital Twin to Improve Downhole Pressure Control  
K. Thoresen, A. Kyllingstad, S. Hovland, A. Hetland, NOV |
| 1130  | A Switching Controller for Mitigating Riser Gas Unloading Hazards in Offshore Drilling  
Q. Gu, A. Fallah, The University of Texas at Austin; A. Ambrus, The University of Texas at Austin, now with Norwegian Research Centre; Z. Ma, The University of Texas at Austin, now with Quantum Reservoir Impact; D. Chen, P. Ashok, E. van Oort, The University of Texas at Austin |
| 1200  | Revitalizing the Bakken With Managed Pressure Drilling  
G.E. Parayno, Schlumberger; S. Peacock, Petro-Hunt; B. Connolly, Schlumberger |

**ePoster**

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<thead>
<tr>
<th>Time</th>
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</table>
| 194097 | Real Time MPD Optimization in Challenging Scenarios  
| 194177 | Understanding Hydraulics and Friction Loss in Extremely Narrow Annuli for Deepwater MPD Operations  
H. Patil, K.M. Deshpande, Weatherford; K.P. Smelker, Shell; P. Naphade, Weatherford |
**Technical Programme**

### 14T Directional Drilling

**Amazon**

**Session Chairpersons:** Ashley Johnson, Schlumberger; John Thorogood, Drilling Global Consultant LLP

The papers of this session show there are multiple opportunities to improve our systems, practices and performance ranging from understanding the rotary steerable market dynamics, verifying weight transfer models to using AI techniques for optimising ROP. Physics-based advisory systems enable improved control of steerable motors. By adopting a multi-faceted approach to refining our tools we can extend the reach of our wells and in so doing extend the life of existing infrastructure. Big data analytics allows us to assess the impact of tortuosity on well quality, but as two papers explain, calculation of tortuosity is anything but straightforward.

<table>
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<tr>
<th>Presentation</th>
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<tbody>
<tr>
<td><strong>Field-verified Modeling Compares Weight Transfer Methods in Horizontal Wells</strong></td>
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<tr>
<td>J. Garcia, S.M. Banks, WWT; J. McCormick, Pegasus Vertex; R. Brosig, Rosehill Resources</td>
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<thead>
<tr>
<th>0930 194099</th>
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<tbody>
<tr>
<td><strong>Unplanned Tortuosity Index: Separating Directional Drilling Performance from Planned Well Geometry</strong></td>
</tr>
<tr>
<td>J. D’Angelo, P. Ashok, E. van Oort, The University of Texas At Austin; M.P. Shahri, T.S. Thetford, B. Nelson, M. Behounek, M.D. White, Apache Corp.</td>
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<table>
<thead>
<tr>
<th>1100 194167</th>
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<tbody>
<tr>
<td><strong>Tortuosity: The Rest of the Hidden Story</strong></td>
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<tr>
<td>R. Samuel, Y. Zhang, Halliburton</td>
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<table>
<thead>
<tr>
<th>1130 194182</th>
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<tbody>
<tr>
<td><strong>Using Big Data to Study the Impact of Wellbore Tortuosity on Drilling, Completions, and Production Performance</strong></td>
</tr>
<tr>
<td>T. Baumgartner, C. Lin, Y. Liu, A. Mendonsa, D. Zimpfer, Shell</td>
</tr>
</tbody>
</table>

### 15T Offshore Drilling

**Yangtze**

**Session Chairpersons:** Igor Brucher, Transocean Inc.; Govert Zijderveld, GustoMSC BV

This session covers some of the latest developments observed in the offshore drilling space. From how Big Data solutions are being utilised to reduce well construction time and cost, how simulators improve the delivery of the actual wells being drilled and how the downturn has influenced maintenance to be more effective offshore. It also includes some interesting and innovative BOP centralisation system and rig modifications to adapt to operate two different types of wellheads simultaneously.

<table>
<thead>
<tr>
<th>Presentation</th>
<th>194109</th>
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</thead>
<tbody>
<tr>
<td><strong>Subsea BOP Tethering System as an Alternative for Mitigating Wellhead Fatigue</strong></td>
<td></td>
</tr>
<tr>
<td>L. Cantinelli Sevillano, C.K. Morooka, University of Campinas; J.T. Lieng, Deep Sea Anchors; S. Sangesland, Norwegian University of Science and Technology</td>
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</tr>
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## Technical Programme

### Thursday, 7 March 2019  1330-1630

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation Details</th>
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<tbody>
<tr>
<td>1000</td>
<td>Awaiting presentation details.</td>
</tr>
</tbody>
</table>
| 1100  | **Advanced Drilling Simulators for Well Control Training: Bringing Together People, Procedures and New Technology**  
| 1130  | Awaiting presentation details. |
| 1200  | **Subsea Xmas Tree and Completion Operations on Two Different Subsea Providers with a Single Rig Using One Common IWOCS System**  
T. Blanckaert, Total EP Congo; C.A. Bottomley, O&G Subsea Products Systems Ltd |
| 1330  | **Creating Open Source Models, Test Cases, and Data for Oilfield Drilling Challenges**  
P.E. Pastusek, ExxonMobil Development Co.; G.S. Payette, ExxonMobil Upstream Research Co.; R.J. Shor, University of Calgary; U.F. Aarsnes, Norce; J. Hedengren, Brigham Young University; S. Menand, DrillScan; J.D. Macpherson, Baker Hughes, a GE company; R.A. Gandikota, MindMesh Inc; M. Behounek, Apache Corp.; R.J. Harmer, Schlumberger; E. Detournay, University of Minnesota; R. Illerhaus, Integrity Directional; Y. Liu, Shell Development Co. |
| 1400  | **Performance Impact of Downhole Data from Wired Drill Pipe and Downhole Sensors**  
M. Giltner, L. Earle, J.B. Willis, D. Tellez, R. Neel, Occidental Petroleum Corporation |

---

**Session Chairpersons:** Liam Lines, NOV; Khaydar Valiullin, Hilong Group

A showcase on how advanced models and high quality data can be applied to understand and overcome typical oilfield drilling challenges. In this session you will hear from companies including ExxonMobil and Shell speak about how they are breaking down the classical boundaries between proprietary models and data using open source structures and creating a novel real-time drill advisor App store to improve accessibility and collaboration. The session will also cover how wired drill pipe and associated downhole sensors brought about significant performance benefits to the drilling campaign of a major E&P company and how machine learning was used by one of the industry’s largest drilling services companies to characterise drillstring vibration allowing for more effective mitigation. The final presentation will show how the torque and drag reduction of axial oscillation tools can be predicted through advancements in modelling techniques.
## Technical Programme

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<tr>
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<tbody>
<tr>
<td>1430</td>
<td>194100</td>
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<tr>
<td>1530</td>
<td>194061</td>
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<tr>
<td><strong>Real-Time Drillstring Vibration Characterization Using Machine Learning</strong></td>
<td>E. Millan, M. Ringer, R. Boualleg, D. Li, Schlumberger</td>
</tr>
<tr>
<td>1600</td>
<td>194133</td>
</tr>
<tr>
<td><strong>Modeling the Effect of Axial Oscillation Tools in Torque and Drag Computations</strong></td>
<td>M. Mahjoub, H.N. Dao, S. Menand, Drillscan</td>
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### ePoster

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<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>194098</td>
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<tr>
<td><strong>Improving Accuracy of Well Depth and ROP</strong></td>
<td>A. Kyllingstad, K. Thoresen, NOV</td>
</tr>
<tr>
<td><strong>Using Simulation to Prevent Non-Productive Time</strong></td>
<td>M. Hutchinson, Leader Drilling International; A. Elliott, M. Carlson, B. Thornton, MSC Software; B. Murray, TerraVici Drilling Solutions</td>
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</table>

### Presentation

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<tr>
<th>Time</th>
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<tr>
<td>1330</td>
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<tr>
<td><strong>Automated Drilling Narratives: A Scalable Workflow To Measure The Effectiveness Of Drilling Procedures</strong></td>
<td>M.K. Hamzah, O. Erge, S. Chambon, Schlumberger Technologies</td>
</tr>
<tr>
<td>1400</td>
<td>194110</td>
</tr>
<tr>
<td><strong>Toward Seamless Interoperability Between Real-time Drilling Management and Control Applications</strong></td>
<td>E. Cayeux, B. Daireaux, N. Saadallah, S. Alyaev, NORCE</td>
</tr>
<tr>
<td>1430</td>
<td>194184</td>
</tr>
<tr>
<td><strong>Change Management Challenges Deploying a Rig Based Drilling Advisory System</strong></td>
<td>M. Behounek, B. Millican, B. Nelson, M.D. Wicks, E. Rintala, M.D. White, T.S. Thetford, Apache Corp.; P. Ashok, D. Ramos, Intellicess Inc.</td>
</tr>
<tr>
<td>1530</td>
<td>194058</td>
</tr>
<tr>
<td><strong>Automated Preprocessing Techniques for High Frequency Downhole Sensor Data</strong></td>
<td>T. Baumgartner, Shell; P. Ashok, E. van Oort, University of Texas at Austin</td>
</tr>
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</table>
## Technical Programme

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>1600</td>
<td>18T Well Cementing and Zonal Isolation</td>
<td>Yangtze</td>
</tr>
<tr>
<td></td>
<td><strong>Session Chairpersons:</strong> Martijn Bogaerts, Schlumberger; Arne Lyngholm, Equinor</td>
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<tr>
<td></td>
<td>As we move to increasingly more complex environments, we face escalating challenges in Cementing and Zonal Isolation. This session addresses innovative cementing solutions and non-cementing alternatives, latest developments on fluid modelling and case studies which all lead to establishing and maintaining proper well integrity.</td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>Effect of Polypropylene Fiber Reinforcement in Cement Sheaths Exposed to Cyclic Fatigue Loading at Wellbore Conditions</td>
<td>S.J. Giesler, J.J. Schubert, Texas A&amp;M University</td>
</tr>
<tr>
<td>1400</td>
<td>Experimental Studies on Cement Sheath Integrity During Pressure Cycling</td>
<td>T. Vralstad, R. Skorpa, B. Werner, SINTEF</td>
</tr>
<tr>
<td>1430</td>
<td>A Laboratory Study Of The Effect Of Casing Pipe Roughness To Cement Plug Integrity</td>
<td>A.N. Corina, Norwegian University of Science and Technology; N.V. Opedal, T. Vralstad, SINTEF; S. Sangesland, Norwegian University of Science and Technology</td>
</tr>
<tr>
<td>1530</td>
<td>Cementing an Irregular Annulus Geometry: Full-Scale Experiments and 3D Simulations</td>
<td>H. Skadsem, S. Kragset, J. Sørbø, NORCE Norwegian Research Centre AS/DrillWell</td>
</tr>
<tr>
<td>1600</td>
<td>Rigless Solutions to Well Intervention with Bismuth and Thermite</td>
<td>P.J. Carragher, J. Fuks, G. McWilliam, BiSN Oil Tools</td>
</tr>
<tr>
<td>1830</td>
<td>Overcoming Challenges in an HPHT Abandonment in the North Sea</td>
<td>A. Rublevskyi, J. Reid, G. Joneja, S. Nafikova, J. Salazar, Schlumberger</td>
</tr>
<tr>
<td>14183</td>
<td>Long-term Oil Well Zonal Isolation Control Using Geopolymers: An Analysis of Shrinkage Behavior</td>
<td>R. Olvera, P. Panchmatia, M. Juenger, The University of Texas at Austin; M. Aldin, Metarock Laboratories; E. van Oort, The University of Texas at Austin</td>
</tr>
</tbody>
</table>

### 18T Well Cementing and Zonal Isolation

**Yangtze**

**Session Chairpersons:** Martijn Bogaerts, Schlumberger; Arne Lyngholm, Equinor

As we move to increasingly more complex environments, we face escalating challenges in Cementing and Zonal Isolation. This session addresses innovative cementing solutions and non-cementing alternatives, latest developments on fluid modelling and case studies which all lead to establishing and maintaining proper well integrity.

- **Presentation**
  - 1330 | Effect of Polypropylene Fiber Reinforcement in Cement Sheaths Exposed to Cyclic Fatigue Loading at Wellbore Conditions | S.J. Giesler, J.J. Schubert, Texas A&M University |
  - 1400 | Experimental Studies on Cement Sheath Integrity During Pressure Cycling | T. Vralstad, R. Skorpa, B. Werner, SINTEF |
General Information

**Badge Collection**
All attendees are required to wear their name badge at all times. Use of a badge by a person not named on the badge is grounds for confiscation. If you lose your conference badge, please return to registration to obtain a replacement.

**Registration Times**
Onsite registration will be available at the registration desk in the World Forum. The desk will remain open throughout the conference for general queries.
Registration will be open at the following times:
- Monday 4 March 1200 – 1300
- Tuesday 5 March 08:00 – 18:30
- Wednesday 6 March 08:00 – 17:45
- Thursday 7 March 08:00 – 13:00

Please be prepared to show photo ID to collect your badge and students will need to show a current, full-time student card.

**Proceedings**
Registered attendees (except students and exhibitors) are entitled to access the technical papers from the SPE/IADC Drilling Conference. Digital Proceedings are delivered through the OnePetro website. From the first day of the conference you will be able to visit www.onepetro.org and enter your access token to download the proceedings. Registration and log-in to OnePetro will be required to redeem your token and can only be used for a single OnePetro account. After redeeming your token you will have continued access to all technical papers for this conference in OnePetro on any compatible device when logged on to your account. Your unique 12digit access code and detailed instructions will be provided in a download card.
You may collect your conference proceedings from the SPE and IADC stands.

**Welcome Reception**
The welcome reception will take place on Tuesday 5 March from 1715 – 1830. The Reception will provide ample opportunity to network with delegates, authors, sponsors, exhibitors, and industry contacts.

**Luncheons**
Networking luncheons are included in select registration categories only. Lunch will be served in the Exhibition Hall at the following times:
- Tuesday, 5 March 12:30 – 13:45
- Wednesday, 6 March 12:30 – 13:45
- Thursday, 7 March 12:30 – 13:30

**Coffee Breaks**
Coffee breaks will take place in the Exhibition Hall at the following times:
- Tuesday, 5 March 10:15 – 10:30, 15:15 – 15:45
- Wednesday, 6 March 10:30 – 11:00, 15:15 – 15:45
- Thursday, 7 March 10:30 – 11:00, 15:00 – 15:30

**Joining Instructions**
Joining Instructions will be sent to all registered attendees approximately four weeks prior to the event. These contain general local and event information which you may find useful. If you have not heard from us one week before to the event, please contact SPE London office by emailing formslondon@spe.org.

**Knowledge Sharing e-Poster Sessions**
A knowledge sharing e-Poster is a short PowerPoint presentation presented to attendees via a laptop and a plasma screen. e-Poster sessions will take place in the Amazon Foyer during coffee breaks on Tuesday, Wednesday and Thursday.

**Audio Visual Copyright**
All SPE sessions are protected by EU copyright laws. Photography and audio-visual recording of any kind are strictly prohibited in the sessions and throughout the exhibition area.

**Visas**
Prior to departure, please ensure that you have current travel documents and if necessary, an entry visa for the Netherlands.
Delegates are advised to check the Netherlands Ministry of Foreign Affairs website for up to date information on visa requirements.
SPE will assist in providing a visa invitation letter upon request in writing after receiving full payment of registration fees. It is the delegate’s responsibility to obtain his or her own visa. SPE cannot issue the visa nor can we guarantee it will be obtained.
Conference Venue
World Forum
Churchillplein 10, 2517 JW, The Hague, The Netherlands
Website: https://worldforum.nl/en
For directions on how to access the conference venue, please visit the World Forum website.

Accommodation
SPE/IADC have secured preferential rates at several hotel properties. For a full comprehensive list of rates and properties, please visit: www.spe.org/en/events/drilling-conference/attend/travel-and-accommodation/
Please note, terms and conditions apply.

Sustainability Statement
The SPE is committed to ensuring that the environmental impact of our exhibitions is kept to a minimum. We aim to make progress in the field of sustainability through reducing energy usage, promoting eco-friendly mobility, reducing water consumption and limiting waste – core values which are also driving our members.

Refunds
Cancellations must be submitted in writing to the SPE Office in London. Cancellations prior to the 4 January 2019 will receive a refund less a EURO 65 handling fee. Cancellations received on or between 4 January 2019 and 5 February 2019 inclusive will receive a 50% refund. For cancellations after 5 February 2019, no refunds will be paid although substitutions can be made.

Event Cancellation
In the unlikely case of cancellation of an event by SPE, SPE shall not accept liability for any consequential loss and shall have no liability to reimburse any other costs that may have been incurred, including transport costs, accommodation etc. SPE encourages delegates to take out travel insurance when making travel and accommodation arrangements.

“Great relevant technical papers, and chances to discuss those topics with authors and other professionals in the industry.”

2018 Attendee
# Registration

Register before 15 January 2019 and save €100 as an SPE member!


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<tr>
<th>Full Registration</th>
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<tr>
<td><strong>SPE or IADC Member</strong></td>
<td>EUR 900 / EUR 1000</td>
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<tr>
<td><strong>Non Member</strong></td>
<td>EUR 1010 / EUR 1120</td>
</tr>
<tr>
<td><strong>Author/Speaker/Committee/Session Chair</strong></td>
<td>EUR 650 / EUR 650</td>
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<tr>
<td><strong>Student</strong> with valid college ID only, does not include luncheons or proceedings</td>
<td>EUR 125 / EUR 170</td>
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<tr>
<td><strong>Exhibition Only</strong> does not include technical sessions, luncheons or proceedings</td>
<td>EUR 110 / EUR 120</td>
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**One-Day Registration**
(Tuesday, Wednesday or Thursday)
One-day registration includes admittance to all conference sessions, technical exhibition, coffee breaks, and a luncheon ticket for the specified day.

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<tr>
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<tr>
<td>**DSATS</td>
<td>Monday, 4th March**</td>
<td>EUR 350</td>
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