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PROGRAM BOOK

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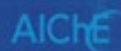


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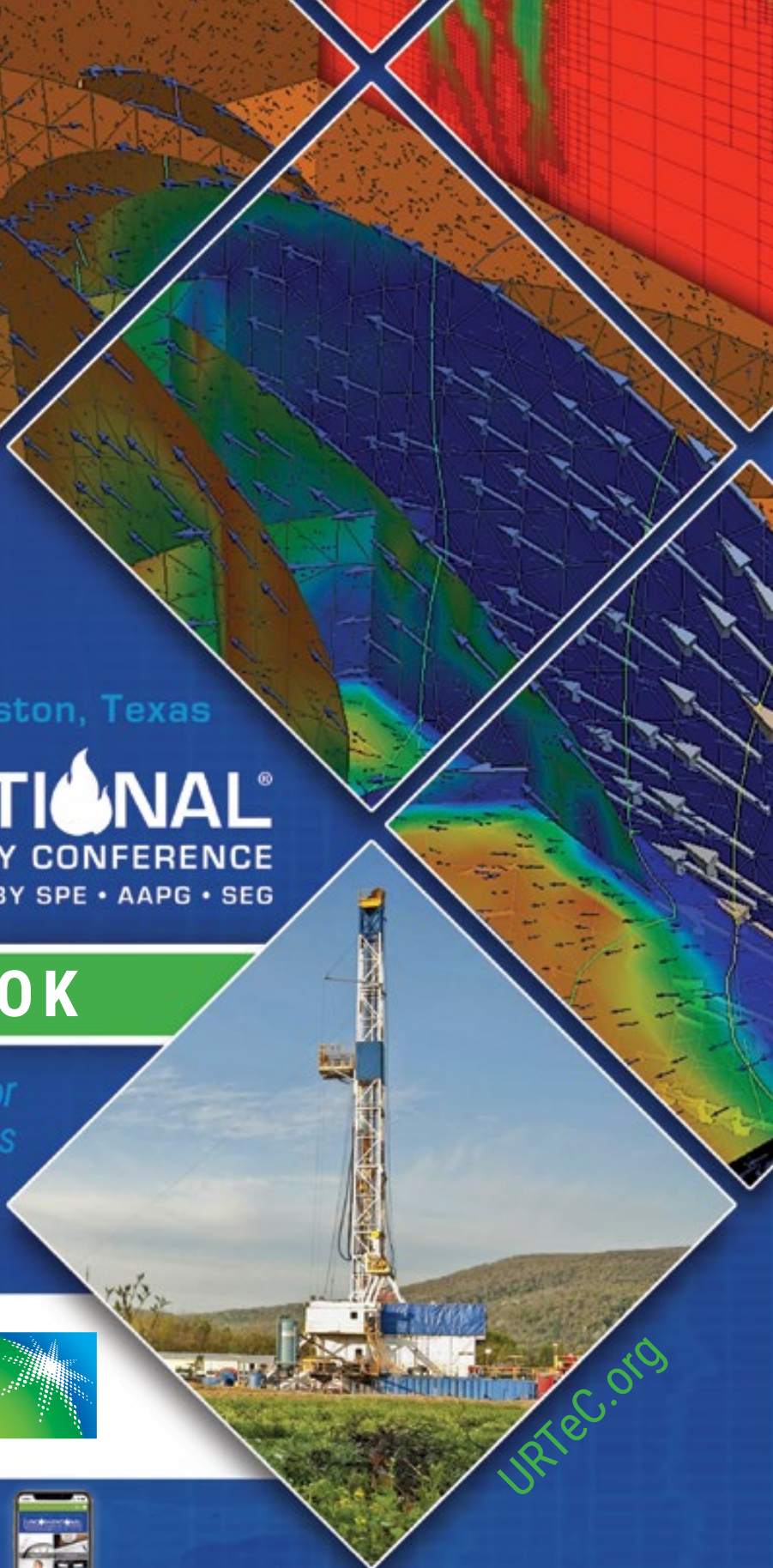
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Year two

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NEW IN ANAHEIM: BUSINESS OF APPLIED GEOPHYSICS PLENARY SESSIONS

Geophysical Return on Investment for Unconventionals

Wednesday PM, 17 October 2018

Geophysics in the oil and gas industry has a long and well-documented history of value in conventional exploration, development and production. Unconventional resources now being developed have different geology, reservoir dynamics, and operational challenges. This has motivated the geophysical profession to adapt and develop new applications to meet the cost, timing, and subsurface information needs of unconventional operators.

This plenary session brings together leaders from large and small operating companies, service providers, and consultants who will discuss the business opportunities and challenges of the economic application of geophysics to unconventional development.

OTHER BUSINESS OF APPLIED PLENARY SESSIONS INCLUDE:

- SOUTHERN GULF OF MEXICO: CHALLENGES AND OPPORTUNITIES
- DIGITAL TRANSFORMATION: BUSINESS OPPORTUNITIES AND CHALLENGES
- OPERATING IN A REGULATORY INDUSTRY
- IMPACTING SOCIETY: FRONTIERS FOR GEOPHYSICISTS

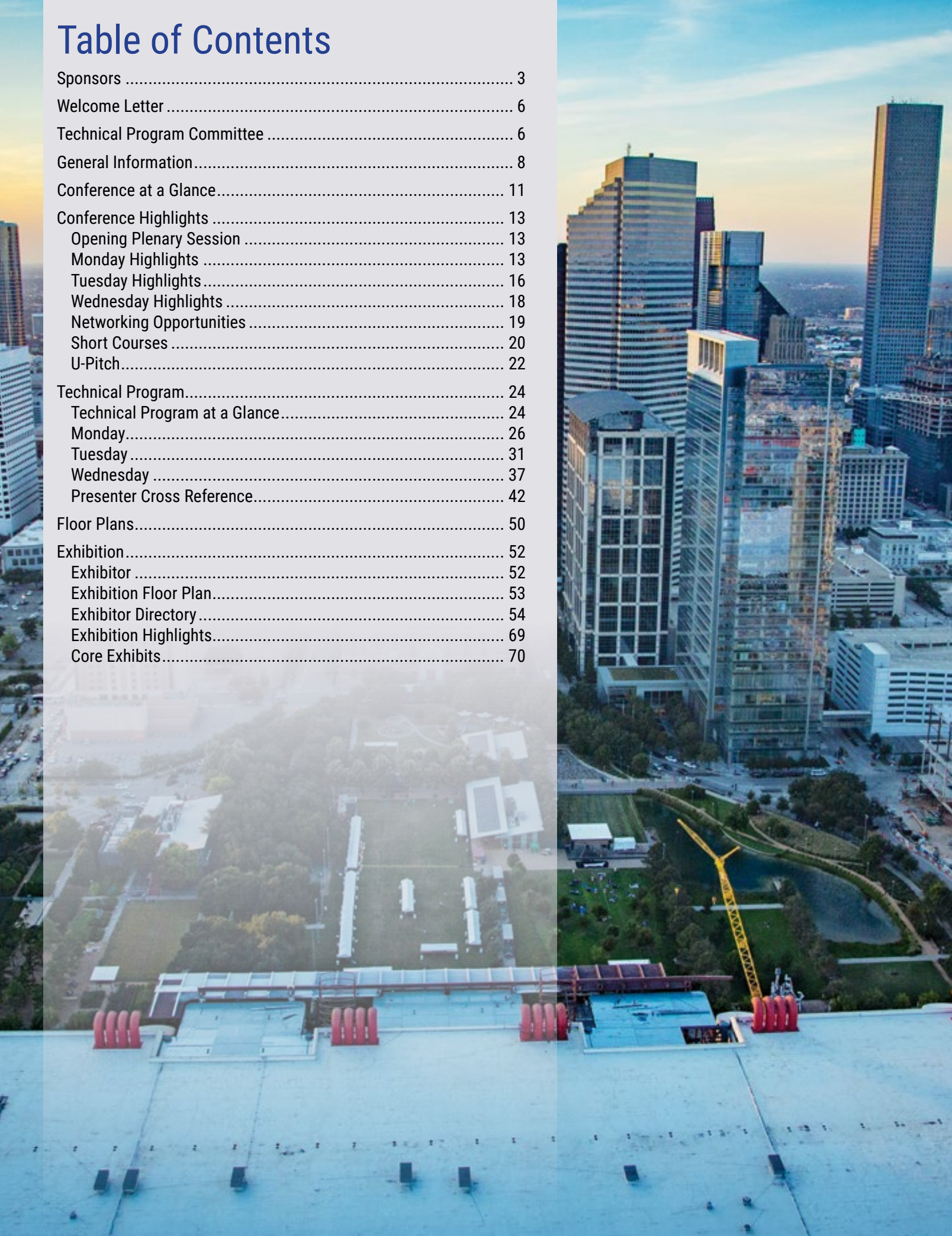
Find out more at seg.org/am/bags. Plan on attending these extraordinary sessions when you register for the Annual Meeting.



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Welcome to URTeC 2018

Dear Colleague,

On behalf of the 2018 Unconventional Resources Technology Conference (URTeC), its Sponsoring and Endorsing Organizations, and our Technical Program Committee, we welcome you to the sixth edition of URTeC, the preeminent global collaboration event in unconventional resources.

This year, The Honorable Steve Winberg, Assistant Secretary for Fossil Energy at the Department of Energy, will open our Plenary Session with an address on technology collaboration. Following this, our Plenary Panel will discuss "The Shale Revolution: Getting Down to Business" featuring Vicki Hollub, President and Chief Executive Officer of Occidental Petroleum, Scott Tinker, Director of the Bureau of Economic Geology and State Geologist for Texas, and Bob Brackett, Senior Analyst at Bernstein Research.

With 300+ technical papers, this year's offering also includes the Operator's Forum, several special sessions, topical breakfasts and luncheons, and panels to highlight recent and emerging technologies in unconventional resources. Topics include collaboration between geology, geophysics, geochemistry, petrophysics, drilling engineering, production engineering, well stimulation, reservoir engineering, HSE, and material science.

Our Exhibition Hall features some 150 companies with the latest in technology to help you safely produce more for less with an eye to environmental stewardship. In addition, the Exhibition Hall will feature selected technical presentations, the core museum, and new this year, the U-Pitch forum to connect technology entrepreneurs with potential partners and investors.

The Sponsoring Organizations – the Society of Petroleum Engineers (SPE), the American Association of Petroleum Geologists (AAPG), and the Society of Exploration Geophysicists (SEG), along with the nine endorsing organizations recognize and appreciate that the economic climate over the past few years has greatly affected the exploration and exploitation of unconventional resources, but their potential contribution has never been higher. The technologies developed today to explore and exploit unconventional resources will define the hydrocarbon extraction industry of tomorrow.

On behalf of the organizing societies (SPE, AAPG, and SEG), our endorsing organizations (AIChE, AIST, ARMA, ASCE, ASME, SME, SPEE, SPWLA, TMS), and the Technical Program Committee, we are pleased to have you participate in URTeC 2018.

Sincerely,
Technical Program Co-Chairs

Technical Program Co-Chairs



Jay Stratton
SPE Co-Chair
Ultra Petroleum



Doug Valleau
AAPG Co-Chair
Strategia Innovation



Shawn Maxwell
SEG Co-Chair
Independent Consultant



Technical Program Committee

Theme Chairs

Robert Hull, *Pioneer Natural Resources*, Theme 01: Operators' Forum – Case Studies in Unconventional Reservoir Development: Impacts and Economics

Tom Layman, *Parsley Energy*, Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels

Stephanie Perry, *Anadarko Petroleum Corporation*, Theme 03: Advanced Formation Evaluation of Unconventional Reservoirs

Thaimar Ramirez, *Occidental Petroleum*, Theme 03: Advanced Formation Evaluation of Unconventional Reservoirs

Gang Han, *Aramco Services*, Theme 04: Geomechanics in Unconventionals: From Mechanical Properties to Hydraulic Fracturing

Robert Hurt, *Pioneer Natural Resources*, Theme 04: Geomechanics in Unconventionals: From Mechanical Properties to Hydraulic Fracturing

Craig Cipolla, *Hess Corporation*, Theme 05: Unconventional Fluid Flow Physics and Simulation

Vincent Artus, *KAPPA Engineering*, Theme 05: Unconventional Fluid Flow Physics and Simulation

Scott Singleton, *Independence Resources Management*, Theme 06: Seismic Applications to Optimize Development of Unconventional Reservoirs

David Langton, *Devon*, Theme 07: Novel and Emerging Technologies

Joe Frantz Jr., *Range Resources*, Theme 07: Novel and Emerging Technologies

Eric Michael, *ConocoPhillips*, Theme 08: Understanding Petroleum System Chemistry From Source Rocks to Produced Hydrocarbons

George Koperna, *Advanced Resources International, Inc.*, Theme 09: EOR Applications for Unconventional Reservoirs

Andronikos Demarchos, *Range Resources*, Theme 10: Production Engineering, Operations, and Facilities in Unconventional Development

David Fulford, *Apache*, Theme 11: Reserves Estimation and Production Forecasting

Luis Baez, *Shell*, Theme 12: Emerging Unconventional Plays

Kent Perry, *GTI*, Theme 13: Stakeholder Management and Social Performance (HSSE)

Jennifer Miskimins, *Colorado School of Mines*, Theme 14: Completions and Drilling Optimization and Best Practices

Kumar Ramurthy, *Halliburton*, Theme 14: Completions and Drilling Optimization and Best Practices

Subcommittee Chairs

David Langton, *Devon*, Panel Sessions

Dilhan Ilk, *DeGolyer and MacNaughton*, Exhibit Hall Technical Sessions

Luis Baez, *Shell*, Special Sessions

Randall (Randy) Pharis, *XTO Energy*, Topical Breakfasts and Luncheons

Rick Walker, *BHP*, Mobile App and Manuscript Downloads

Skip Rhodes, *Pioneer Natural Resources*, Plenary Session

Tom Blasingame, *Texas A&M University*, Plenary Session

Committee Members

Usman Ahmed, *WellDog*

Johannes Alvarez, *Chevron*

Isaac Aviles, *Schlumberger*

Mohammed Badri, *Schlumberger*

Troy Beserra, *Anadarko Petroleum Corporation*

Srimoyee Bhattacharya, *Shell*

Andrey Bogdan, *BJ Services*

Philippe Charlez, *Total*

Cody Comiskey, *Anadarko Petroleum Corporation*

Tyler Conner, *Devon*

John Curtis, *GeoMark Research, Ltd.*

Johan Daal, *Devon*

Deepak Devegowda, *University of Oklahoma*

Brian Driskill, *Shell*

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Brendan Elliott, *Devon*

Pedram Fanailoo, *DNV GL*

Matías Fernandez-Badessich, *VON GONTEN CO*

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Barry Fish, *Nanoseis*

Neil Fishman, *PetroLogic Solutions, LLC*

Rick Fritz, *Council Oak Resources, LLC*

Rob Fulks, *Weatherford*

Jean Gavalda, *Total*

Lee Geiser, *Petrolink*

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Matt Honarpour, *BHP*

Susan Howes, *Subsurface Consultants & Associates, LLC*

David Hume, *Core Lab*

David Jones, *Chesapeake Energy*

Hosein Kalaei, *ConocoPhillips*

Katy Keller, *Shell*

Basak Kurtoglu, *Quantum Energy Partners*

Alejandro Lerza, *Chevron*

Bryce Levett, *DNV GL*

Baosheng Liang, *Chevron*

North America Upstream

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Theo Mallinson, *Aramco Services*

Mohan Manohar, *Noble Energy*

Alexsandra Martinez, *DeGolyer and MacNaughton*

Srikanta Mishra, *Battelle*

Mehdi Mokhtari, *University of Louisiana at Lafayette*

Andrew Munoz, *Newfield*

Susan Nash, *AAPG*

Hadi Nasrabadi, *Texas A&M University*

Sam Noynaert, *Texas A&M University*

Tomasz Ochmanski, *Geo-data Consulting LLC*

Robin Pearson, *Chesapeake Energy*

Leo Pirela, *VPLUS Energy LLC*

Bobby Poe, *Retired (formerly Schlumberger)*

Yogashri Pradhan, *Texas Oil and Gas Institute*

Kyle Richter, *Occidental Petroleum*

John Ritter, *Occidental Petroleum*

Randy Roadifer, *Amplify Energy, Inc.*

Mehrnoosh Saneifar, *BHP*

Sathish Sankaran, *Anadarko Petroleum Corporation*

Stuart Scott, *Petroleum ETC*

Autumn Shannon, *Marathon Oil*

Livia Sivila, *EnerVest*

Steve Sonnenberg, *Colorado School of Mines*

Mel Sorrell, *Covey Park Energy, LLC*

Hao Sun, *Chevron*

John Thompson, *Anderson Thompson Reservoir Strategies*

Azra Tutuncu, *Colorado School of Mines*

Olivia Woodruff, *Kimmeridge Energy*

Kan Wu, *Texas A&M University*

Katerina Yared, *Gaia Petrophysics LLC*

Andrew Yarotsky, *BHP*

Wei Yu, *Texas A&M University*

General Information

On-site Registration

Location: Grand Ballroom Lobby, Level 3
Saturday 12:00p–5:00p
Sunday..... 9:00a–5:00p
Monday..... 6:30a–5:30p
Tuesday 6:30a–5:30p
Wednesday 6:30a–1:00p

URTeC Speaker Center

Location: Room 350 D/E
Sunday..... 12:00p–5:00p
Monday..... 7:00a–5:30p
Tuesday 7:00a–5:30p
Wednesday 7:00a–4:00p

FedEx Office

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The FedEx Office Print and Ship Center is located on the Mezzanine Level 2 of the George R. Brown Convention Center. The prime location for all of your packing and shipping to signage, copying, and last-minute office supplies.

Lost and Found

Items found during the conference should be turned in to URTeC Show Management personnel, located in Registration. If your lost items have not been turned in, you can leave contact information at Registration.

Restaurants

Five unique restaurants are housed at the George R. Brown Convention Center. All restaurants are located on Level 1 and can be accessed from Avenida de las Americas or by taking the escalators down to Level 1. From Italian to BBQ, and sandwiches and salads to Cajun seafood, these restaurants should delight every attendee. Visit:
www.grbhouston.com/attendees/attendees-amenities/restaurants/

Luggage Check

Location: Meeting Area Lobby/Outside Room 360
Wednesday 7:00a–5:30p

No-Electronic Capturing Policy

Capturing or photographing contents of Exhibit Displays, Technical Sessions, or Exhibit Hall Technical Sessions is strictly prohibited.

No Smoking Policy

Smoking is prohibited in the George R. Brown Convention Center.

Social Media

Make sure to follow URTeC on Facebook, Twitter, LinkedIn, and YouTube to stay connected and to get the latest updates on what's happening during the event.

Download the URTeC Events App!

Available for both iOS and Android devices, the URTeC Events App provides you with all the vital conference information in the palm of your hand. Download for free today!

Code of Conduct

URTeC is dedicated to providing a harassment-free conference experience for everyone, regardless of gender, sexual orientation, disability, physical appearance, body size, race, or religion. We do not tolerate harassment of conference participants in any form.

- All communication, whether casual or formal, should be appropriate for a professional audience including people of many different backgrounds.
- Be careful in the words that you choose. Remember that sexist, racist, and other exclusionary jokes are offensive and have no place in a professional setting. Excessive swearing and offensive jokes are not appropriate at URTeC.
- Sexual language, imagery, and innuendo are not appropriate for any conference venue, including talks.
- Harassment includes offensive communication related to gender, sexual orientation, disability, physical appearance, body size, race, religion, sexual images in public spaces, deliberate intimidation, stalking, following, harassing photography or recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome sexual attention.
- Be kind to others. Do not insult or put down other attendees. Behave professionally.
- Exhibitors are also subject to the anti-harassment policy and are required to conduct themselves in a manner consistent with the professional and business purposes of the show.
- Personnel and/or models contracted to assist in an exhibitor's booth are required to wear appropriate attire. In particular, exhibitors should not use sexualized images, activities, or other material, and booth staff should not use sexualized clothing/uniforms/costumes, or otherwise create a sexualized environment.
- URTeC reserves the right to make a final determination regarding what is acceptable and may remove persons from the exhibition floor that are not in compliance.

If a participant engages in behavior that violates this code of conduct, URTeC reserves the right to take any action deemed appropriate, including warning the offender(s) or expelling the offender(s) from the conference with no refund.

Reporting

If you have any questions or concerns, please notify a badged URTeC staff member or call +1 800 898 2274. You can also communicate with us anonymously at www.urtec.org/carereport

General Information

Getting Around Houston

Public Transportation

Taxis

\$6 Cab Fare Anywhere Downtown. The City of Houston has authorized a flat taxi fare of \$6 for all trips in the downtown area. This \$6 fare will apply anywhere within the Central Business District, bounded by Interstate 45, Interstate 10 and U.S. 59. No surcharges will apply to the fare, which can accommodate multiple riders under the \$6 total rate.

METRORail System

METRORail offers convenient and accessible service within the heart of the city between downtown Houston and several of Houston's top destinations and districts. You can purchase a day pass for use on METRORail and METRO buses for just \$3 a day. Visit ridemetro.org for more route and fare information.

METROBus System

METRO also offers bus service throughout Houston. Local service runs mostly on city streets, stopping at every other corner along its route. One-way fare is \$1.25. Visit ridemetro.org for more route and fare information.

Greenlink Buses

Free transportation in Downtown Houston! Multiple buses operate in Downtown Houston Monday through Friday, 6:30a to 6:30p, about 7-10 minutes apart. This Green route spans 2.5 miles with 18 stops at popular downtown destinations including GreenStreet, George R. Brown Convention Center, Discovery Green, Main Street Square, City Hall and the Central Library. There is also an Orange route that operates Thursday through the weekend and serves the historic district, ballparks and the Theater District. Both route maps can be found at ridemetro.org.

Hotel

Aloft Houston Downtown

820 Fannin Street, Houston, TX 77002
+1 713 225 0200

Four Seasons Hotel

1300 Lamar Street, Houston, TX 77010
+1 713 650-1300

Holiday Inn

1616 Main Street, Houston, TX 77002
+1 713 658 8888

Homewood Suites by Hilton Houston Downtown & Hampton Inn Houston Downtown

710 Crawford Street, Houston, TX 77002
+1 713 224 0710 (Homewood)
+1 713 224 0011 (Hampton)

Hilton Americas-Houston

1600 Lamar Street, Houston, TX 77010
+1 713 739 8000

Safety and Security

First Aid

Located directly behind On-Site Registration in the Grand Ballroom Lobby, Level 3

Saturday9:00a–5:00p

Sunday.....9:00a–6:00p

Monday.....9:00a–7:00p

Tuesday8:00a–6:00p

Wednesday8:00a–4:00p

Security and Emergencies

Please report security issues or emergencies to one of the following:

- Security Officers located inside Registration and/or Exhibit Hall entrance doors
- AAPG Staff person located at Registration in Grand Ballroom Lobby
- Kendra McColloch, URTEC Meeting Planner at +1 918 284 5451

Badges

Badges must be worn at all times while attending the conference. For your safety, remove your name badge once you exit the convention center.

Hotels

You are encouraged to review the safety and security information provided at your hotel.

Unattended Items

For your safety, please do not leave items unattended. Items left unattended may be stolen, confiscated, and/or destroyed. To report lost or stolen items, please visit with URTEC Show Management personnel located in Registration.

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Conference at a Glance

Subject to change. Download the URTeC Events App for updates.

Saturday

- 8:00a–5:00p Short Course 2: Toward Understanding Unconventional Reservoir Characterization (AAPG)
- 8:00a–5:00p Short Course 3 (Day One): DFIT – The Unconventional Well Test: Theory, Design, and Interpretation (SPE)
- 8:00a–5:00p Short Course 4 (Day One): Forecasting Well Production Data in Unconventional Resources (SPE)
- 8:00a–5:00p Short Course 5 (Day One): Production Forecasts and Reserves Estimates in Unconventional Resources (SPE)
- 8:00a–5:00p Short Course 6 (Day One): Using Project Resource Analysis to Manage Your Business (SPE)
- 8:00a–5:00p Short Course 7 (Day One): Applied Concepts in Naturally Fractured Reservoirs (AAPG)
- 9:00a–4:00p Short Course 1: Artificial Lift for Shale Plays (ASME)
- 12:00p–5:00p Registration

Sunday

- 8:00a–5:00p Short Course 3 (Day Two): DFIT – The Unconventional Well Test: Theory, Design, and Interpretation (SPE)
- 8:00a–5:00p Short Course 4 (Day Two): Forecasting Well Production Data in Unconventional Resources (SPE)
- 8:00a–5:00p Short Course 5 (Day Two): Production Forecasts and Reserves Estimates in Unconventional Resources (SPE)
- 8:00a–5:00p Short Course 6 (Day Two): Using Project Resource Analysis to Manage Your Business (SPE)
- 8:00a–5:00p Short Course 7 (Day Two): Applied Concepts in Naturally Fractured Reservoirs (AAPG)
- 8:00a–5:00p Short Course 9: Applications of Organic Petrography in the North American Shale Petroleum Systems (AAPG)
- 9:00a–4:00p Short Course 11: Shale Play Production Facilities (ASME)
- 9:00a–5:00p Registration

Monday

- 6:30a–5:30p Registration
- 10:00a–7:00p Exhibition
- 8:30a–10:00a Opening Plenary Session
- 10:00a–11:00a Breakfast Bites with Exhibitors
- 10:30a–12:15p Technical Sessions – Exhibit Hall
- 10:30a–12:15p Special Session: University Lands Special Session I
- 10:45a–12:05p Technical Sessions – Session Rooms
- 10:45a–12:05p Panel Session: Impact of Prior Depletion on Completion Efficiency and Well Performance
- 10:45a–12:05p Panel Session: National Labs – Leveraging Basic Science to Advance Subsurface Understanding
- 12:05p–1:15p Topical Luncheon: Resource Characterization R&D: Understanding Subsurface Characteristics to Inform Development, *Elena Melchert* 
- 12:05p–1:15p Topical Luncheon: Energy, Poverty, and Carbon: Seeking the Radical Middle, *Scott W. Tinker* 
- 1:45p–5:35p Technical Sessions – Session Rooms
- 1:45p–5:10p Technical Sessions – Exhibit Hall
- 3:00p–4:00p Refreshment Break
- 3:50p–5:35p Panel Session: Technologies That Will Make a Difference in Unconventional Reservoir E&P
- 3:50p–5:35p Special Session: University Lands Special Session II
- 5:00p–7:00p Opening Reception

Tuesday

- 6:30a–5:30p Registration
- 7:00a–8:15a Topical Breakfast: Industry Poised for Growth or Prudence, *R. T. Dukes* 
- 7:00a–8:15a Topical Breakfast: Sedimentary Records From Another World: Exploring Gale Crater Basin With the Curiosity Rover, *Kirsten Siebach* 
- 8:25a–12:15p Technical Sessions – Session Rooms
- 8:25a–12:15p Special Session: Hydraulic Fracture Test Site I (HFTS)
- 9:00a–6:00p Exhibition
- 9:40a–11:25p Technical Sessions – Exhibit Hall
- 10:00a–11:00a Refreshment Break
- 12:05p–1:15p Topical Luncheon: The Role of Unconventional Reservoirs in Sustainable Energy Solutions – “Recycling” Petroleum Basins, *Denise M. Cox* 
- 12:05p–1:15p Topical Luncheon: Lessons Learned From Three Unconventional Resource Plays: Denver-Julesburg, Delaware, and Anadarko Basins, *John Ford* 
- 1:45p–3:05p Panel Session: Induced Seismicity – Perspectives and Challenges
- 1:45p–5:35p Technical Sessions – Session Rooms
- 1:45p–4:45p Technical Sessions – Exhibit Hall
- 3:00p–4:00p Refreshment Break
- 5:00p–6:00p Networking Reception

Wednesday

- 6:30a–1:00p Registration
- 7:00a–8:15a Topical Breakfast: The History of the World (Through the Eyes of a Petroleum Engineer), *D. Nathan Meehan* 
- 7:00a–8:15a Topical Breakfast: Inconvenient Facts – How Rising Temperatures and Increasing CO₂ Are Benefitting the Planet and the Human Condition, *Greg Wrightstone* 
- 8:25a–12:15p Technical Sessions – Session Rooms
- 9:00a–1:00p Exhibition
- 9:40a–12:00p Technical Sessions – Exhibit Hall
- 9:40a–12:15p Special Session: Hydraulic Fracture Test Site II (HFTS)
- 10:00a–11:00a Refreshment Break
- 12:05p–1:15p Topical Luncheon: The Unconventional Revolution in Geophysics: How Geophysics Adds Value to Resource Plays, *Nancy House* 
- 12:05p–1:15p Topical Luncheon: SEC and PRMS Proved Reserves: Why Differences Still Exist, *John Lee* 
- 1:45p–3:30p Technical Sessions – Session Rooms
- 1:45p–3:30p Special Session: American Rock Mechanics Association (ARMA): Principles, Simulation, and Practice



Purchase your Topical Breakfast and Luncheon tickets at the time of registration. Tickets are limited and required for admission.

The background of the entire page is a photograph of a crowded conference hall. In the foreground, a large circular graphic with a white border is superimposed over the image. The interior of this circle is tinted green, while the rest of the image has a blue tint. Inside the green circle, there is a list of conference highlights. Above the list, a large poster featuring several horses is visible. The overall scene depicts a busy, professional gathering.

CONFERENCE HIGHLIGHTS

Opening Plenary Session

Monday Highlights

Tuesday Highlights

Wednesday Highlights

Networking Opportunities

Short Courses

U-Pitch

Monday Conference Highlights

Opening Plenary Session

The Shale Revolution – Getting Down to Business

Time: 8:30a–10:00a

Location: Grand Ballroom A/B

Fee: Included with registration

Moderator: Tom Blasingame, Petroleum Engineering, Texas A&M University; Skip Rhodes, Director, Unconventional Resources, Pioneer Natural Resources



Join us as we begin the conference with thought-provoking insights and dialog at the Opening Plenary Session. Three leaders will share their diverse perspectives on the current shale revolution, and a moderated question and answer session will follow.

Steve Winberg, Assistant Secretary, United States Department of Energy, Department of Fossil Fuel, will give opening remarks.

Re-Invent, Re-Tool, Re-Imagine: Finding Success in the Resources Arena

Vicki A. Hollub, *President and Chief Executive Officer, Occidental Petroleum Corporation*



How do you advance a U.S. business with a historically conventional/EOR position to a successful Unconventional Resources player? What do you do to build on that? First, you need to Re-Invent your business to meet the challenges of the energy industry, and society as a whole. Then, Re-Tool to face

the challenges of the present and improve opportunities for all stakeholders. Finally, building on that platform, to Re-Imagine your business, through responsible stewardship and safe operations, while leveraging the fundamental human desires to improve, explore, and evolve. This talk will focus on these three components as they relate to the unconventional resources business.

Enigmatic Shale

Scott W. Tinker, *Director, Bureau of Economic Geology, State Geologist of Texas; Professor, Edwin Allday Endowed Chair in Subsurface Geology, Jackson School of Geosciences, The University of Texas at Austin*



Production from shale reservoirs in the United States and Canada has changed the global energy landscape, yet shale reservoirs remain enigmatic. Industry analysts debate whether shale producers lose money or make money, but few would argue that the North American economy has benefited significantly from shale production. Studies show that ultimately

recoverable resources of shale are massive, yet ultimate production from shale given current technology represents less than 10% of the resource in place. Environmental impacts from shale development are real, yet CO₂ emissions in the U.S. have decreased faster than those of any major nation on Earth, thanks largely to shale gas replacing coal in power generation. The politics of shale are complex, with some governments, NGOs, and industries

in strong support and others in strong resistance. The complex interplay of these paradoxical realities underscores the challenges inherent in predicting the global future of shale.

What the Investor Community Wants from the Unconventional Fracocene

Bob Brackett, *Senior Analyst, Bernstein Research*



Geologists have adopted the term “Anthropocene” to denote the current geologic epoch in which the Earth’s geology, biology, and climate are significantly influenced by the human species. By analogy, we are also living in the “Fracocene” – an epoch in which the global energy economy

is being significantly influenced by oil and gas production from North American longlateral horizontal wells hosting massive hydraulic fractures into low-permeability reservoirs. This resource represents the largest, most responsive, and thus most cyclical segment of the market. The lion’s share of this resource has been delivered by the publicly-traded E&P sector. Institutional investors can put money to work in any sector in the market in exchange for a fair (or better!) risk-adjusted return on the capital they offer. Is the E&P industry delivering what investors want? A scorecard of the ‘Fracocene’ grades the industry in regards to returns on capital, returns of capital, growth, technology, longevity, discipline, and riskiness. This scorecard goes a long way in explaining the actual and potential relative returns arising from our industry and its perception by investors.

Panel Sessions

Panel Session: Impact of Prior Depletion on Completion Efficiency and Well Performance

Time: 10:45a–12:05p

Location: Room 310

Fee: Included with registration

Moderator: Tuba Firincioglu, Manager Reservoir Studies, NITEC LLC

In unconventional exploration, operators typically drill and produce a single “Parent” well to hold acreage and follow up with development infill drilling once the acreage is secure. This strategy results in reservoir depletion around the parent well by the time infill drilling commences. Performance of the infill wells can vary significantly as a result and the challenge operators face is ensuring infill wells are comparable to the parent. To achieve this goal, innovative completion strategies need to be considered to mitigate the depletion effect of the parent or other production from an offset operator. This panel will focus on strategies for improving infill well performance and will consider how these issues vary from basin to basin.

Panelists:

- **Richard Cao**, Reservoir Engineer, Shell
- **Garth Stotts**, Vice President Development, Paramount Resources
- **Steve Geetan**, Reservoir Development Manager, Alta Mesa

Monday Conference Highlights

Panel Session: National Labs – Leveraging Basic Science to Advance Subsurface Understanding

Time: 10:45a–12:05p

Location: Room 342

Fee: Included with registration

Moderator: Tom Spalding, Vice President Geoscience, Pioneer Natural Resources

The federal government has been the primary sponsor of basic research in the United States for many decades. Its sponsorship has included industry, universities, government laboratories, and federally funded research and development corporations (FFRDCs) such as its 17 National Laboratories. Federal investments at the National Laboratories have produced unique capabilities, such as the nation's most powerful computers, synchrotron light sources and high flux neutron sources (for studying materials and physical processes), and other unique characterization capabilities. These signature facilities and the deep subject matter expertise within these organizations are being used to investigate a wide array of important problems involving computing, materials, and energy systems. This panel will explore the intersections between basic research capabilities at the National Laboratories and industry-relevant problems, with emphasis on oil and gas. It is intended to provoke thought and further explore how the unique tools of American science can be brought to bear on real world problems.

Panelists:

- **Yarom Polsky**, Oak Ridge National Laboratory
- **Rajesh Pawar**, Los Alamos National Laboratory
- **Tim Kneafsey**, Lawrence Berkeley National Laboratory
- **Grant Bromhal**, National Energy Technology Laboratory

Panel Session: Technologies That Will Make a Difference in Unconventional Reservoir E&P

Time: 3:50p–5:25p

Location: Room 342

Fee: Included with registration

Moderator: Greg Leveille, Chief Technology Officer, ConocoPhillips

This panel, which is comprised of senior technology leaders from three large unconventional-focused operators and a major service provider, will share insights about technologies likely to materially improve results in unconventional reservoirs. The panelists will address questions about how far along industry is in perfecting the most impactful “traditional” unconventional reservoir technologies and what new technologies could be “gamechangers.” They will also discuss the probable impact of the digital/data analytics revolution on unconventional exploration, development, and production operations. The panelists will focus their comments on industry trends and developments, mentioning work their companies are doing only as a way of providing examples to illustrate broader points. Audience members will have a chance to ask questions and participate in the discussion.

Panelists:

- **Chris Cheatwood**, Executive Vice President and Chief Technology Officer, Pioneer Natural Resources
- **Chris Spies**, Vice President of Geoscience and Technology, Concho
- **Yanni Charalambous**, Vice President and Chief Information Officer, Occidental Petroleum
- **Hege Kverneland**, Corporate Vice President and Chief Technology Officer, National Oilwell Varco (NOV)

Special Sessions

Special Session: University Lands I

Time: 10:30a–12:15p

Location: Exhibit Hall Station C

Session Chairs: David Fulford and Meilin Du

University Lands (UL) manages the surface and mineral interests of 2.1 million acres of land across nineteen counties in West Texas for the benefit of the Permanent University Fund (PUF). The PUF is one of the largest university endowments in the United States and benefits more than twenty educational and health institutions across both The University of Texas System and Texas A&M University System. These sessions will cover technical work in reservoir, completions, and production engineering to evaluate the current unconventional development on University Lands and best practices recommended for unconventional wells in the Permian Basin.

- **Wolfcamp Geologic Reservoir Modeling Challenges:** Brian J. Casey
- **Lessons Learned From Existing Horizontal Fractured Wells in Midland Basin of University Lands (UL): Rate Transient Analysis vs. Completion and Field Development Optimization:** Jane Zhu, James K. Forrest, Hongjie Xiong, Yogashri U. Pradhan
- **Additional Applications of Optimal Artificial Lift Strategies in the Permian Basin:** Yogashri U. Pradhan, Hongjie Xiong, James K. Forrest, Jane Zhu
- **Additional Applications on Determining Optimal Lateral Lengths and Trajectories on University Lands' Midland and Delaware Basins:** Yogashri U. Pradhan, Hongjie Xiong

Special Session: University Lands II

Time: 3:50p–5:35p

Location: Room 351

Session Chairs: Yogashri Pradhan and Jeff Spath

- **The Value of Regional Context:** Brian J. Casey
- **The Effect of Initial Conditions and Fluid PVT Properties on Unconventional Oil and Gas Recoveries in the Wolfcamp Formation in the Midland Basin:** James K. Forrest, Jane Zhu, Hongjie Xiong, Yogashri U. Pradhan
- **A Practical Way to Prepare Physical-Based Type Well Performance Curves for Unconventional Reservoirs in the Permian Basin:** Hongjie Xiong
- **Evaluating Underperforming Wells on Permian Basin University Lands:** Yogashri U. Pradhan, Jeff Spath, Hongjie Xiong, Jane Zhu, James K. Forrest

Monday Conference Highlights

Topical Luncheons

Energy, Poverty, and Carbon: Seeking the Radical Middle

Time: 12:05p–1:15p

Location: Room 361

Fee: \$60.00

Scott W. Tinker, *Director, Bureau of Economic Geology, State Geologist of Texas; Professor, Edwin Allday Endowed Chair in Subsurface Geology, Jackson School of Geosciences, The University of Texas at Austin*



Energy fuels the economic engine of the world. Access to secure energy—affordable, available, reliable, and sustainable—is not only vital for economic health, but also to lift the world from poverty, and to invest in the environment. Are carbon policy and poverty mutually exclusive, or does there exist an energy “radical middle” that can address the challenges of carbon and poverty, and still preserve a healthy economy? To avoid the often-negative unintended consequences of well-intended government policy requires a culture of fact-based, transparent, and accessible energy education, as well as open, objective, and honest dialog around such things as scale and density; emissions, land use, and water; resource extraction and development; economics and policy; and more. Through such dialog, compromise and convergence on regional workable solutions might be possible.

Resource Characterization R&D: Understanding Subsurface Characteristics to Inform Development

Time: 12:05p–1:15p

Location: Room 360

Fee: \$60.00

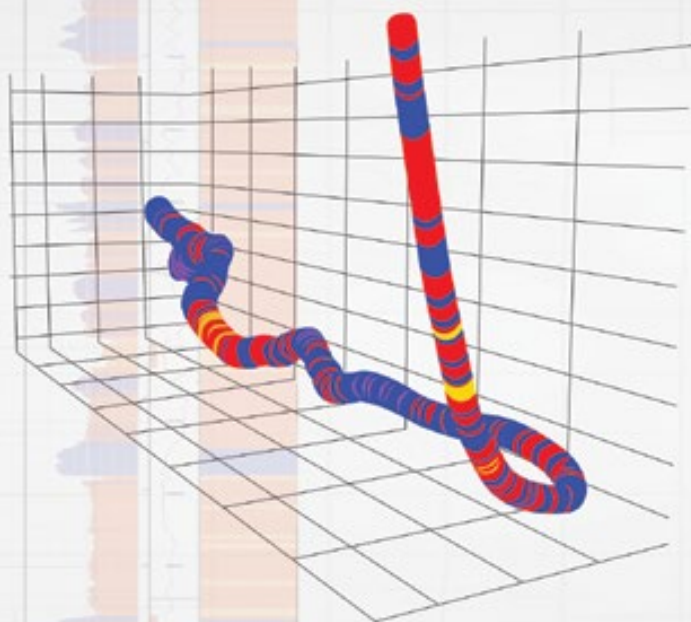
Elena Melchert, *Director of Upstream R&D, Office of Oil and Natural Gas, Department of Energy*



Rapid growth in unconventional oil and gas (UOG) production presents new opportunities and challenges within the domestic energy landscape, and positions the United States towards addressing the goal of U.S. energy dominance. The U.S. Department of Energy, through collaboration with industry, academia, state, and local governments, has identified the

fact that some basins are more mature in producing unconventional oil and gas, while other basins are less developed. Because of different geological (e.g. reservoir characteristics), environmental (e.g. water use and disposal), and social constraints (e.g. infrastructure development), basins have different regional issues and in response, DOE has been building a research portfolio that characterizes basin-specific UOG development. DOE is developing a series of field laboratories in different basins, including the Appalachian Basin, Permian Basin, and Western Gulf Coast Basin to improve understanding of regional development while improving technologies and best practices to optimize recovery. Successful basin-level characterization can determine optimal completion techniques, allowing for the development/deployment of technologies that increase hydrocarbon production while reducing environmental impacts and ensuring the public good.

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Tuesday Conference Highlights

Topical Breakfasts

Industry Poised for Growth or Prudence

Time: 7:00a–8:15a
Location: Room 361
Fee: \$40.00

R.T. Dukes, *Research Director, Wood Mackenzie*



Production growth is here to stay in the U.S., but just how much. We'll look at what operators have the capacity to achieve from an asset and corporate perspective. A market that was once surprised by U.S. volumes is now dependent on its growth. Will U.S. operators deliver?

Sedimentary Records from Another World: Exploring Gale Crater Basin with the Curiosity Rover

Time: 7:00a–8:15a
Location: Room 360
Fee: \$40.00

Kirsten Siebach, *Assistant Professor in the Rice University Department of Earth, Environmental, and Planetary Sciences*



Since landing on the floor of Gale crater in August 2012, the Mars Science Laboratory *Curiosity* rover has explored more than 300 m (980 ft) of basin-fill stratigraphy primarily consisting of fluvio-deltaic deposits and lacustrine mudstones. *Curiosity's* findings have revolutionized our understanding of Mars: the planet had more igneous diversity

than predicted, long-lived liquid water in rivers and lakes at the surface, environments that would have been habitable for life, multiple episodes of diagenetic fluids, and multiple cycles of crater fill and erosion. This talk will present the developing story of the history of the Gale crater basin, and the basin analysis work that has allowed us to begin to describe source-to-sink processes by separating effects from source rock diversity, sediment transport, and diagenetic influences for multiple sedimentary cycles.

Special Sessions

Special Session: Hydraulic Fracture Test Site I (HFTS)

Day: Tuesday
Time: 8:30a–12:15p
Location: Room 322
Session Chairs: Kent Perry

The HFTS is a field-based hydraulic fracturing research experiment performed in the West Texas Permian (Midland) basin. The HFTS includes \$25 million of hydraulic fracturing research that is “piggy-backing” on 11 horizontal wells fractured with more than 400 treatments in the upper and middle Wolfcamp formations.

As part of the HFTS experiment and in addition to the comprehensive field data that was obtained, approximately 600 feet of core was obtained by drilling a one-of-a-kind core well through the created hydraulic fractures at the test site. Phenomenal quality core was obtained. Based on observations of the acquired core, the understanding of hydraulic fracture propagation, proppant placement, and effectiveness is challenging current thinking. In situ reservoir pressure measurements during production, via permanent pressure modules, will aid in understating fracture connectivity and conductivity over time.

- **Hydraulic Fracture Test Site – Project Overview and Summary of Results:** James Courtier, Jordan Ciezobka
- **Hydraulic Fractures in Core From Stimulated Reservoirs: Core Fracture Description of the HFTS Slant Core, Reagan County, Midland Basin, Texas:** Julia F. Gale, Sara J. Elliott, Stephen E. Laubach
- **Assessment of In Situ Proppant Placement in SRV Using Through-Fracture Core Sampling at HFTS:** Deboryam Maity, Jordan Ciezobka, Sarah Eisenlord
- **Analysis and Distribution of Proppant Recovered From Fracture Faces in the HFTS Slant Core Drilled Through a Stimulated Reservoir:** Sara J. Elliott, Julia F. Gale
- **Natural and Hydraulic Fracture Density Prediction and Identification of Controllers:** Joe Wicker, Whitney Campbell, James Courtier
- **Inter-well Communication Study of UWC and MWC Wells in the HFTS:** Tanner Wood, Richard Leonard, Chad Senters, Chris Squires
- **Well Interference Diagnosis Through Integrated Analysis of Chemical Tracer and Pressure Interference Tests:** Ashish Kumar, Puneet Seth, Kaustubh Shrivastava, Ripudaman Manchanda, Mukul Sharma

Tuesday Conference Highlights

Panel Sessions

Panel Session: Induced Seismicity – Perspectives and Challenges

Time: 1:45p–3:05p

Location: Room 342

Fee: Included with registration

Moderators: Cody Comiskey, Hal Macartney

Induced Seismicity – Perspectives and Challenges:

The topic of induced seismicity continues to expand as researchers, regulators, government, and industry work on a wide array of topics that relate to it. This panel will focus on the state of affairs in Induced Seismicity as related to wastewater disposal, hydraulic reservoir stimulation, and other oilfield activities. Previous panels on this topic at URTEC have focused on perspectives from regulators, industry, and academia. This panel will include some of those same key themes but expanded to include a very critical component – public perspective.

This panel session will undoubtedly be a great chance to listen and learn about the current status of induced seismicity.

Panelists:

- **Doug Klepacki**, Manager of Geophysics, Cimarex. Michael will talk about Cimarex's response and philosophy in monitoring for seismicity.
- **Aaron Velasco**, Texas State Seismologist. Aaron will discuss Texas' new statewide network TexNet, proactive steps to detect seismicity, and the state's philosophy and response.
- **Anna Kuchment**, Science Writer and Reporter, Dallas Morning News. Anna will discuss impact and concerns from the public's perspective, and how to improve communication on the issue.

Topical Luncheons

The Role of Unconventional Reservoirs in Sustainable Energy Solutions – “Recycling” Petroleum Basins

Time: 12:05p–1:15p

Location: Room 361

Fee: \$60.00

Denise M. Cox, *President, Storm Energy Ltd.;*
2018-19 President, AAPG



In petroleum systems, sustainability can be viewed in terms of a petroleum basin's diverse resource and potential to be productive indefinitely dependent on the geology and application of technology. Technical teams provide the best understanding of the subsurface to reduce project risk, optimize

appraisal and development, and investigate re-development options to maximize recovery of reserves. An understanding of the subsurface in mature basins provides options for development to take advantage of existing infrastructure, access to sources of water, and locations for water disposal to minimize both the surface and carbon footprint of projects. New play concepts and redevelopment projects also positively impact the economy and social programs of local communities through employment, support of local businesses, and improvements to community infrastructure. By communicating the environmental, economic, and social contributions of unconventional reservoir projects along with the technical aspects of development we can better advocate for the role the petroleum industry plays in sustainable energy solutions.

Lessons Learned From Three Unconventional Resource Plays: Denver-Julesburg, Delaware, and Anadarko Basins

Time: 12:05p–1:15p

Location: Room 360

Fee: \$60.00

John Ford, *Regional Vice President, Newfield Exploration*



Managing operations in three separate oil-based unconventional resource plays have provided a number of learnings over the last decade. This discussion will compare and contrast common themes to drive value and mitigate risks in development of resources in the Denver-Julesburg, Delaware, and Anadarko Basins.

Re-think
your
Pyrolysis

Booth# 2625

Wildcat
technologies

HAWK Pyrolysis & TOC Instrument
HAWK-PAM Petroleum Assessment
Laboratory and Wellsite

Wednesday Conference Highlights

Topical Breakfasts

Inconvenient Facts – How Rising Temperatures and Increasing CO₂ are Benefitting the Planet and the Human Condition

Time: 7:00a–8:15a

Location: Room 361

Fee: \$40.00

Greg Wrightstone, *Silver Crown Productions*



The “consensus” opinion that human-caused warming is leading to significant and devastating climate catastrophes is confronted by a science-based review of the actual “climate apocalypse” predictions. The facts and data reveal that many of the predicted climate calamities such as drought,

desertification, and forest fires, to name a few, are in long-term decline instead of increase. Rather than an Earth spiraling into a man-made climate catastrophe we see that the planet and human life are prospering greatly from increasing CO₂ and rising temperature leading to increases in soil moisture, vegetation, and crop production along with a large decrease in temperature and climate-related deaths.

The History of the World (Through the Eyes of a Petroleum Engineer)

Time: 7:00a–8:15a

Location: Room 360

Fee: \$40.00

D. Nathan Meehan, *President of Gaffney, Cline & Associates*



The 2016 SPE President presents a rapid-fire history of humanity through its technology and energy and then turns to the future, addressing topics of sustainability and social license to operate.

Special Sessions

Special Session: Hydraulic Fracture Test Site II (HFTS)

Time: 9:40a–12:15p

Location: Exhibit Hall Station C

Session Chairs: Kent Perry and James Courtier

The HFTS is a field-based hydraulic fracturing research experiment performed in the West Texas Permian (Midland) basin. The HFTS includes \$25 million of hydraulic fracturing research that is “piggy-backing” on 11 horizontal wells fractured with more than 400 treatments in the upper and middle Wolfcamp formations.

As part of the HFTS experiment and in addition to the comprehensive field data that was obtained, approximately 600 feet of core was obtained by drilling a one-of-a-kind core well through the created hydraulic fractures at the test site. Phenomenal quality core was obtained. Based on observations of the acquired core, the understanding of hydraulic fracture propagation, proppant placement, and effectiveness is challenging current thinking. In situ reservoir pressure

measurements during production, via permanent pressure modules, will aid in understating fracture connectivity and conductivity over time.

- **Downhole Microseismic Mapping of More Than 400 Fracturing Stages on a Multiwell Pad at the Hydraulic Fracturing Test Site (HFTS): Discussion of Operational Challenges and Analytic Results:** Neil A. Stegent, Cody Candler
- **Using Stage Level Microseismic Analysis to Correlate and Ground Truth Cored Hydraulic Fractures:** James Courtier, Ryan Fairfield, Tammy Campbell, Shawn Lee
- **Using Stage Level Microseismic Analysis to Gain Insight Into Fracture Efficiency and Completion Effectiveness:** Joe Wicker, James Courtier, Tammy Campbell, Shawn Lee, Ryan Fairfield, Stacy Trowbridge
- **Surface Seismic Monitoring of Hydraulic Fracturing Test Site (HFTS) in the Midland Basin, Texas:** Abhash Kumar, Kevin Chao, Richard W. Hammack, William Harbert
- **Microseismicity Analysis for HFTS Pad and Correlation with Completion Parameters:** Debotyam Maity
- **Environmental Monitoring of the Hydraulic Fracture Test Site (HFTS):** Sarah Eisenlord, Tom Hayes

Special Session: American Rock Mechanics Association (ARMA): Principles, Simulation, and Practice

Time: 1:45p–3:30p

Location: Room 342

Session Chair: John McLennan

ARMA is the American Rock Mechanics Association. Membership enfranchises specialization in all forms of surface and subsurface rock engineering – from tunneling to mine design to hydraulic fracturing to subsidence and compaction assessment. Membership is international, with members from 37 nations.

This session provides new insights from four senior researchers and practitioners. The theme of the session is application of rock mechanics principles, measurements, and simulations to characterize, comprehend, and exploit in-situ mechanical properties, discontinuities, stresses, and treatment parameters. These premier practitioners offer perspectives from national laboratories, industry, and academia.

- **The EGS Collab Project: A Field Stimulation Study in Crystalline Rock to Validate Models:** Douglas Blankenship, Sandia National Laboratories; Timothy Kneafsey, Lawrence Berkeley National Laboratory
- **Completion Engineer for a Day: How Geology and Geomechanics Can Influence Completion Designs in Unconventionals:** Neal Nagel, OilField Geomechanics
- **Modeling of Hydraulic Fracture Height Growth Through Weak Interfaces:** Xiaowei Weng, Pressure Pumping and Chemistry Product Group, Schlumberger
- **The Formation and Properties of Complex Fracture Networks in Shales:** Mukul M. Sharma, Department of Petroleum and Geosystems Engineering, University of Texas at Austin

Wednesday Conference Highlights

Topical Luncheons

The Unconventional Revolution in Geophysics: How Geophysics Adds Value to Resource Plays

Time: 12:05p–1:15p

Location: Room 360

Fee: \$60.00

Nancy House, *President 2017-18, SEG*



3-D seismic imaging revolutionized hydrocarbon exploration by providing a robust picture of the subsurface. Higher prices enabled expensive technologies and investments in the development of previously uneconomic deposits. The balance between development and the market value of the resource is critical. Recent advances in 3-D seismic allow interpreters to map areas of higher productivity, and identify bypassed reserves. MicroSeismic mapping has made completion more efficient and safer. Geophysical data is now an accepted early development tool of successful oil and gas companies.

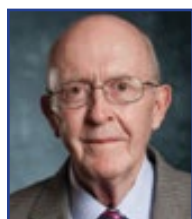
SEC and PRMS Proved Reserves: Why Differences Still Exist

Time: 12:05p–1:15p

Location: Room 361

Fee: \$60.00

John Lee, *DVG Endowed Chair and Professor of Petroleum Engineering, Texas A&M University*



After the modernization of the SEC's reserves reporting requirements in late 2008, many expected that SEC and PRMS would broadly classify, characterize, and estimate reserves in a broadly consistent way, except for some obvious differences such as prices and costs used in evaluations and some potential interpretation issues. This expectation has not necessarily been realized. We have found that public reports of proved reserves based on PRMS and on SEC definitions sometimes differ by substantial amounts. This presentation examines root causes of these reported differences and the implications of the differences.

Networking Opportunities

Breakfast Bites With Exhibitors

Make your way to the Exhibit Hall following the Opening Plenary Session to meet with exhibitors. Grab a quick breakfast snack and cup of coffee before heading to technical sessions.

Day: Monday

Time: 10:00a–11:00a

Location: Exhibit Hall B3

Daily Refreshment Breaks

Break away from the technical sessions. Talk with exhibitors, catch up on email, and grab a beverage and refuel.

Days: Monday–Wednesday

Times: 3:00p–4:00p (Monday and Tuesday)

10:00a–11:00a (Tuesday and Wednesday)

Location: Exhibit Hall B3

Opening Reception

Find time to unwind at the Opening Reception. Mix it up with exhibitors in a sold-out exhibit hall and network with your industry peers while enjoying a beverage and hors d'oeuvres.

Day: Monday

Time: 5:00p–7:00p

Location: Exhibit Hall B3

Networking Reception

Take this opportunity to wrap up your day and relax with a drink and light snack, while visiting with exhibitors.

Day: Tuesday

Time: 5:00p–6:00p

Location: Exhibit Hall B3



Short Courses

Pre-Conference	Title	Instructor(s)
1	Artificial Lift for Shale Plays (ASME)	John Martinez (Production Associates)
2	Toward Understanding Unconventional Reservoir Characterization (AAPG)	Mamdouh A. Shebl (Chevron, Katy, Texas)
3	DFIT – The Unconventional Well Test: Theory, Design, and Interpretation (SPE)	David Craig, Ph.D., PE (Reservoir Development Consulting, Denver, Colorado)
4	Forecasting Well Production Data in Unconventional Resources (SPE)	Dilhan Ilk (DeGolyer and MacNaughton, Dallas, Texas)
5	Production Forecasts and Reserves Estimates in Unconventional Resources (SPE)	John Lee (Texas A&M University, College Station, Texas)
6	Using Project Resource Analysis to Manage Your Business (SPE)	Creties Jenkins (Rose and Associates, Santa Barbara, California) and Mark McLane (Rose and Associates, Santa Barbara, California)
7	Applied Concepts in Naturally Fractured Reservoirs (AAPG)	John C. Lorenz (FractureStudies LLC, Edgewood, New Mexico) and Scott P. Cooper (FractureStudies LLC, Edgewood, New Mexico)
Cancelled 8	Basic Seismic Interpretation (SEG)	Don Herron (Independent Geophysical Consultant, Sugar Land, Texas) and Bob Wegner (Independent Geophysical Consultant, Houston, Texas)
9	Applications of Organic Petrography in the North American Shale Petroleum Systems (AAPG)	Paul Hackley (U.S. Geological Survey, Reston, Virginia) and Brian Cardott (Oklahoma Geological Survey, Norman, Oklahoma)
Cancelled 10	Business Fundamentals for Petroleum Geophysicists (SEG)	Bill Abrel (Chevron, San Ramon, California)
11	Shale Play Production Facilities (ASME)	Stuart L. Scott (PetroleumETC)

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Days/Times	Fees	Locations
Saturday 9:00a–4:00p	\$600 Professionals/ \$150 Students	Level 3, Room 342A
Saturday 8:00a–5:00p	\$795 Professionals/ \$150 Students	Level 3, Room 342D
Saturday–Sunday 8:00a–5:00p	\$1,400 Members/ \$1,800 Non-Members/\$500 Student	Level 3, Room 352D
Saturday–Sunday 8:00a–5:00p	\$1,400 Members/ \$1,800 Non-Members/\$500 Student	Level 3, Room 352E
Saturday–Sunday 8:00a–5:00p	\$1,400 Members/ \$1,800 Non-Members/\$500 Student	Level 3, Room 352F
Saturday–Sunday 8:00a–5:00p	\$1,400 Members/ \$1,800 Non-Members/\$500 Student	Level 3, Room 352A
Saturday–Sunday 8:00a–5:00p	\$1,395 Professionals/ \$500 Students	Level 3, Room 342E
Saturday–Sunday 8:00a–5:00p	\$1,145 Professionals/ \$300 Students	N/A
Sunday 8:00a–5:00p	\$795 Professionals/ \$150 Students	Level 3, Room 342D
Sunday 8:00a–5:00p	\$685 Professionals/ \$150 Students	N/A
Sunday 9:00a–4:00p	\$600 Professionals/ \$150 Students	Level 3, Room 342A



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Location: Exhibit Hall B3

U-Pitch connects entrepreneurs and innovative ideas with investors and potential partners. Join us at the U-Pitch Pavilion on the Exhibit Floor at this year's URTeC, to experience exciting presentations on new technologies, analytics, data sources, tools, chemicals, equipment, and more. All are welcome to visit the U-Pitch Forum and enjoy the talks.

U-Pitch 2018 Schedule*

Time	Monday	Tuesday	Wednesday
8:30a	Quorum Software: Reserves PRMS Analytics	Shale IOR: Revitalize Shale Assets	Mexico Round 3.3 – Overview of Mexico's energy reform
9:00a	Halliburton: Deep Neural Network Computing Environment	3GG – software to support the “oval office” to improve the management of Projects, Plays and Prospects	Ubiquitous communications with LTE in the Permian, Eagle Ford, Bakken, Scoop & Stack and beyond
	Why has the Digital Oilfield failed? Too expensive, too difficult to use and it does not cover everything. ECSecondSight™ is your answer.	Batelle: Soy-based surfactant for oil and gas	Halliburton: Deep Neural Network Computing Environment
10:00a	Freedom Tank Technologies: New technology for preventing tank fires	STIPumpCard - The most accurate and reliable pump jack simulation software on the market	Mozambique Natural Gas Opportunities
	OpsLock: Modernizing QHSE in the Industrial Environment	Bong Ju Lee: Waterless fracturing technology	Texas A&M Texarkana - Optimizing Risk Assessment / Supply Chain for integrated upstream and midstream
11:00a	Apellix: Industrial robotics and working drones to safely perform tasks in hazardous environments	FracGeo's Applied Industrial Research Consortium on Geomechanical and Hydraulic fracture Modeling of Interfaces	LNG Opportunities
	Petrabytes / RankMyLand: Integrated subsurface models to connect, visualize, and analyze oil and gas data	Intellicess: Reducing Drilling Costs Using Rig-Based AI	Bolivia Opportunities: LNG and Blocks
12:00p	DeepCast: Digital Forecasting	Self-service Machine Learning platform for digital well planning workflows	Mexico Round 3.3 – Overview of Mexico's reform and accomplishments
	ECIS: Ubiquitous communications with LTE in the Permian, Eagle Ford, Bakken, Scoop & Stack and beyond	PetroCubic: Connecting petroleum projects with skilled industry experts	
1:00p	Katz Water Technologies: Economically Purifying & Recycling Produced Water Onsite	Interface Fluidics: Reservoir characterization and fluid analysis on a proprietary nanofluidic technology platform	
	KAIA: VT testing prototype for unconventional reservoirs. A laboratory-based system for measuring pressure and observing fluid characteristics.	Cordax: Safe logging while tripping for open-hole logs plus ZoneTuner completions optimizer	
2:00p	Pi-CO ₂ : Low Cost Aqueous CO ₂ Capture for EOR	Daedalus: Using Reservoir Simulation to Reduce Risk and Improve Deal Value	
	NeuDax: The First Artificial Intelligence Platform for Developing Unconventional O&G Resources	WellLogData: A SAAS interpretation package for Oil and Gas, preloaded with well header, completion and log data. Quick results.	
3:00p	University of Louisiana Lafayette -- Tuscaloosa Marine Shale	Quorum Software: Reserves estimates	
	MicroStrat: Integrating Seismic, Logs and Biostrat to develop lower-risk, high-return projects	Haimo: New multiphase flowmeter - high quality data at a lower cost	
4:00p	Non-Linear Seismic: Direct Reservoir Imaging Technology	Infrastrucutre Networks	
	DrillingInfo: New Integrated Analytics	Eliis: Paleoscan next generation software for 2-D and 3-D seismic interpretation	

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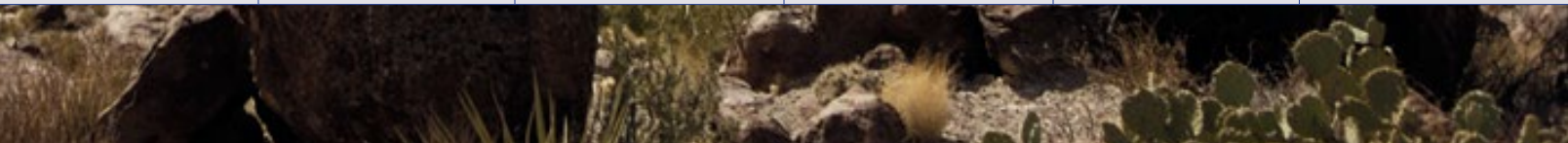
LookBeyond.org

Technical Program at a Glance

	Room 310	Room 320	Room 322	Room 330	Room 332
Monday Morning	Opening Plenary				
	Panel: Impact of Prior Depletion on Completion Efficiency and Well Performance	Theme 04: Geomechanics and Pore Pressure	Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods I	Theme 07: Augmented Intelligence for Reservoir Characterization and Performance Prediction	Theme 12: International Emerging Plays
Monday Afternoon	Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I	Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)	Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II	Operators' Forum – Completion Optimization	Theme 11: Reserves, Economics, and Field Studies I
Tuesday Morning	Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels II	Theme 04: Geomechanics – Hydraulic Fracture Simulation I	Hydraulic Fracture Test Site (HFTS) Special Session I	Operators' Forum – Performance Prediction and Reservoir Characteristics	Theme 07: Nanoparticles, Chemistry, and Machine Learning: Tools for Enhancing Oil Recovery
					Theme 07: From Machine Learning to CT Scanning – Novel Approaches to Old Problems
Tuesday Afternoon	Theme 09: Chemical EOR and Novel Techniques	Theme 04: Fracture Monitoring and Diagnostics	Theme 03: NMR and Electrical Measurements	Operators' Forum – Well Spacing and Field Development	Theme 13: Water Management
		Theme 04: From Perforation to Performance: Geomechanical Applications			
Wednesday Morning	Theme 09: Gas Injection Projects	Theme 04: Beyond Brittleness: Geomechanical Characterization I	Theme 03: Physical Properties of Low-Permeability Rocks	Operators' Forum – Operating in the Permian	Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind
Wednesday Afternoon	Theme 12: Emerging Plays in North America	Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs II	Theme 08: Produced Fluid Geochemical Surveillance – Drained Rock Volume		Theme 07: Surveillance of Unconventional Production and Rock Physics



Room 340	Room 342	Room 351	Exhibit Hall Station A	Exhibit Hall Station B	Exhibit Hall Station C
Session – Grand Ballroom A/B					
Theme 14: Drilling and Completions Optimization I	Panel: National Labs – Leveraging Basic Science to Advance Subsurface Understanding	Theme 08: Geochemistry – Reservoir Characterization	Theme 13: Stakeholder Management and Social Performance (HSSE)	Theme 11: Reserves, Economics, and Field Studies II	University Lands Special Session I
Theme 05: Fracturing Fluid, Fracture, and Matrix Interactions	Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs I	Theme 08: Inorganic Geochemistry of Unconventional Plays/Fluid Rock Interactions	Theme 09: EOR Applications for Unconventional Reservoirs	Theme 14: Drilling and Completions Optimization IV	Theme 04: Beyond Brittleness: Geomechanical Characterization II
	Panel: Technologies That Will Make a Difference in Unconventional Reservoir E&P	University Lands Special Session II	Theme 05: Unconventional Well Productivity		
Theme 05: Transient Analysis, History Matching, and Reservoir Modeling	Theme 06: Geophysics in the Permian Basin	Theme 11: Well Spacing Optimization	Theme 04: Geomechanics: From Lab To Field	Theme 05: Nanoscale PVT and IOR	Theme 10: Completion to Reservoir Optimization and Diagnostics
Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes	Panel: Induced Seismicity – Perspectives and Challenges	Theme 14: Drilling and Completions Optimization II	Theme 06: The Use of Geophysical Technologies in Unconventional Plays	Theme 05: Well Scale Modeling and Simulation	Theme 08: Geochemistry Applications to Unconventionals
		Theme 14: Drilling and Completions Optimization III	Theme 11: Decline Curve Analysis and Reservoir Models II	Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels III	
Theme 05: Permeability Measurement and Modeling	Theme 06: Geophysical Reservoir Characterization in Unconventional Plays	Theme 11: Decline Curve Analysis and Reservoir Models I	Theme 03: Quantification and Evaluation of Reservoir Quality in Unconventional Reservoirs	Theme 04: Geomechanics – Hydraulic Fracture Simulation II	Hydraulic Fracture Test Site (HFTS) Special Session II
Theme 05: Fluid Flow – Fracture Simulation and Geomechanics	American Rock Mechanics Association (ARMA): Principles, Simulation, and Practice	Theme 07: Advanced Materials and Chemistry	Exhibit Hall Closed		



Monday Technical Program

*Denotes a presenter other than the first author.

Opening Plenary Session

Opening Plenary Session: The Shale Revolution – Getting Down to Business

Grand Ballroom A/B

Moderators: Tom Blasingame and Skip Rhodes

8:30 **Introductory Remarks**

8:35 **Steve Winberg**, Assistant Secretary, United States Department of Energy

8:45 **Vicki A. Hollub**, President and Chief Executive Officer, Occidental Petroleum Corporation: Re-Invent, Re-Tool, Re-Imagine: Finding Success in the Resources Arena

9:00 **Scott W. Tinker**, Director, Bureau of Economic Geology, State Geologist of Texas, Professor, Edwin Allday Endowed Chair in Subsurface Geology, Jackson School of Geosciences, The University of Texas at Austin: Enigmatic Shale

9:15 **Bob Brackett**, Senior Analyst, Bernstein Research: What the Investor Community Wants from the Unconventional Fracocene

9:30 **Moderated Discussion**

Morning Technical Sessions Session Rooms

Panel Session: Impact of Prior Depletion on Completion Efficiency and Well Performance

Room 310

Moderator: Tuba Firincioglu, Manager Reservoir Studies, NITEC LLC
See page 13 for more information

10:45 **Introductory Remarks**

10:50 **Richard Cao**, Reservoir Engineer, Shell

11:00 **Garth Stotts**, Vice President Development, Paramount Resources

11:10 **Steve Geetan**, Reservoir Development Manager, Alta Mesa

11:20 **Moderated Panel Discussion**

11:45 **Audience Q&A**

Theme 04: Geomechanics and Pore Pressure

Room 320

Co-Chairs: Y. Feng and M. Mokhtari

10:45 **Introductory Remarks**

10:50 **Novel Pore Pressure Prediction Technique for Unconventional Resources**: D. Yale¹, V. Swami², A. Perez³ (1. Yale Geomechanics Consulting; 2. CGG Services; 3. CGG) 2901731

11:15 **Using Traditional Methods to Predict Pore Pressure in Devonian Black Shale Basins of North East British Columbia**: S. Green (Ikon Science) 2904084

11:40 **Impact of Pore Pressure Depletion on Stress Reorientation and its Implications on the Growth of Child Well Fractures**: S. Agrawal, M. Sharma (The University of Texas at Austin) 2875375

Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods I

Room 322

Co-Chairs: B. Driskill, A. McMullen, and L. Sivila

10:45 **Introductory Remarks**

10:50 **Montney Key Drivers: An Integration of Multidisciplinary Data Analytics in a Low-Permeability Reservoir**:

K. Hermanson, M. Kwan, B. Papau (RS Energy Group) 2887170

11:15 **Porosity and Organic Content Analysis, Bone Spring and Wolfcamp Formations**: J. D. Walls¹, T. Rider¹, B. Driskill², M. Durand² (1. Ingrain - a Halliburton Service; 2. Shell Exploration and Production) 2888683

11:40 **A Water Saturation Interpretation Model for Organic-Rich Shale Reservoir: A Case Study of North Sumatra Basin**: M. N. Akbar¹, B. Milad^{*2} (1. LEMIGAS-Indonesia Research and Development Centre for Oil and Gas Technology and University of Miskolc; 2. University of Oklahoma) 2879229

Theme 07: Augmented Intelligence for Reservoir Characterization and Performance Prediction

Room 330

Co-Chairs: L. Geiser and S. Sankaran

10:45 **Introductory Remarks**

10:50 **Spider Bots: Database Enhancing and Indexing Scripts to Efficiently Convert Raw Well Data Into Valuable Knowledge**: G. S. Saini¹, H. Chan¹, P. Ashok^{*1}, E. van Oort¹, M. Behounek², T. Thetford², M. Shahri² (1. The University of Texas at Austin; 2. Apache Corporation) 2902181

11:15 **Integrated Workflow for the Definition of a Type Well Using Probabilistic Methods**: D. S. Jones (Chesapeake Energy) 2903053

11:40 **Toward a Management Science for Unconventional Wells: A Methodological Approach**: R. R. Batsell¹, S. Paranj², J. S. Mintz^{*3} (1. Rice University; 2. Anadarko; 3. Apache) 2879379

Theme 12: International Emerging Plays

Room 332

Co-Chairs: L. Baez and T. Ochmanski

10:45 **Introductory Remarks**

10:50 **Emerging Shale Oil Plays in Hypersaline Lacustrine Qianjiang Formation, Jiangnan Basin, Central China**: M. Li¹, X. Ma¹², T. Cao¹, G. Tao¹, Z. Li¹, Q. Jiang¹, S. Wu³ (1. China State Key Laboratory of Shale Oil and Shale Gas Resources and Effective Development, Sinopec Petroleum Exploration and Production Research Institute; 2. China University of Petroleum (Beijing); 3. Sinopec Jiangnan Oilfield Company) 2898296

11:15 **Unconventional Reservoir Development in Egypt's Western Desert: Lessons Learned from the First Appraisal Wells**: M. Salah¹, M. Ibrahim² (1. Shell; 2. Apache) 2902739

Theme 14: Drilling and Completions Optimization I

Room 340

Co-Chairs: G. Gullickson and J. Miskimins

10:45 **Introductory Remarks**

10:50 **Mechanism Study of Casing Deformation in Multistage Hydraulic Fracturing Shale Reservoir**: F. Yin^{1,2}, S. Yang³, Z. Xu^{*1}, L. Han³, X. Wu¹ (1. University of Oklahoma; 2. Chengdu University of Technology; 3. Tubular Goods Research Institute of CNPC) 2896020

11:15 **Optimization and Drilling of Horizontal Wells using a Bayesian Network**: J. F. Fierstien, H. Winkler, P. Strauss, A. Klovov (Factor Technology) 2902891

11:40 **TST3D: Automated Structural Interpretation in Horizontal Wellbores**: T. Zhang¹, D. McCormick¹, A. Nandlal², M. LeFranc¹ (1. Schlumberger-Doll Research; 2. Schlumberger) 2889444

Monday Technical Program

*Denotes a presenter other than the first author.

Panel Session: National Labs – Leveraging Basic Science to Advance Subsurface Understanding

Room 342

Moderator: Tom Spalding, Vice President Geoscience, Pioneer Natural Resources

See page 14 for more information

10:45 **Introductory Remarks**

10:50 **Yarom Polsky**, Oak Ridge National Laboratory

10:58 **Rajesh Pawar**, Los Alamos National Laboratory

11:06 **Tim Kneafsey**, Lawrence Berkeley National Laboratory

11:14 **Grant Bromhal**, National Energy Technology Laboratory

11:22 **Moderated Panel Discussion**

11:45 **Audience Q&A**

Theme 08: Geochemistry – Reservoir Characterization

Room 351

Co-Chairs: C. Bradshaw and J. Curtis

10:45 **Introductory Remarks**

10:50 **Reliable Solid Organic Matter Thermal Maturity**

Assessment Using Surface Enhanced Raman

Spectroscopy and Case Studies: C. Jiang, L. Gao, S. Wu, J. Shaw, A. Bishop, Y. Tang* (Power Environmental Energy Research Institute) 2881369

11:15 **Integrated Inorganic and Organic Geochemistry**

Approach in the Petroleum Systems Analysis of Permian

Shale Plays: C. Gong (Apache Corporation) 2901944

11:40 **Geochemical Characterization of the Eagle Ford Formation**

in Northeast Mexico: S. Ortega-Lucach, L. Gutierrez-Caminero, R. Torres-Vargas, G. Murillo-Muñetón (Instituto Mexicano del Petróleo) 2887535

Exhibit Hall

Theme 13: Stakeholder Management and Social Performance (HSSE)

Exhibit Hall Station A

Co-Chairs: P. Fanailoo and K. Perry

10:30 **Introductory Remarks**

10:35 **Using Drone Magnetic and LiDAR Surveys to Locate Unmarked, Abandoned Wells Prior to Unconventional Oil and Gas Development:** R. W. Hammack, G. Veloski, J. Sams (U.S. Dept. of Energy) 2891559

11:00 **Advanced Characterization and Novel Waste**

Management for Drill Cuttings From Marcellus Shale

Energy Development: M. Y. Stuckman^{1,2}, H. M. Edenborn¹, C. L. Lopano¹, J. A. Hakala^{*1} (1. DOE-National Energy Technology Lab; 2. AECOM) 2883168

11:25 **Estimating Carbon Intensity of Unconventional Plays:**

D. N. Meehan (Gaffney, Cline & Associates and Baker Hughes, A GE Company) 2888730

Theme 11: Reserves, Economics, and Field Studies II

Exhibit Hall Station B

Co-Chairs: H. Kalaei and B. Liang

10:30 **Introductory Remarks**

10:35 **Mapping the Barnett Shale Gas With Probabilistic**

Physics-Based Decline Curve Models and the

Development of a Localized Prior Distribution:

R. Wanderley de Holanda, E. Gildin, P. P. Valko (Texas A&M University) 2902792

11:00 **The Use of the Bimodal Production Decline Curve for**

the Analysis of Hydraulically Fractured Shale/Tight Gas Reservoirs: C. Doughty¹, G. J. Mordidis^{*1,2} (1. LBNL; 2. Texas A&M University) 2903145

11:25 **Hindcasting Production Forecasts in Four Shale Gas Basins Using a Physics-based Approach:** F. Male¹, M. Marder² (1. University of Texas at Austin; 2. University of Texas at Austin) 2902818

11:50 **Montney Versus North America – Completions Comparison:** K. Ogilvy, B. Papau, M. Kwan (RS Energy Group) 2902679

University Lands Special Session I

Exhibit Hall Station C

Co-Chairs: M. Du and D. Fulford

See page 14 for more information

10:30 **Introductory Remarks**

10:35 **Wolfcamp Geologic Reservoir Modeling Challenges:**

B. J. Casey (Texas Oil and Gas Institute and University Lands) 2901856

11:00 **Additional Applications of Optimal Artificial Lift**

Strategies in the Permian Basin: Y. U. Pradhan, H. Xiong, J. K. Forrest, J. Zhu (Texas Oil and Gas Institute) 2902293

11:25 **Additional Applications on Determining Optimal Lateral**

Lengths and Trajectories on University Lands' Midland and Delaware Basins: Y. U. Pradhan, H. Xiong (Texas Oil and Gas Institute) 2902309

Afternoon Technical Sessions Session Rooms

Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I

Room 310

Co-Chairs: T. Beserra, K. Dianiska, and S. Simmons

1:45 **Introductory Remarks**

1:50 **An Integrated View of the Petrology, Sedimentology, and Sequence Stratigraphy of the Wolfcamp Formation, Delaware Basin, Texas:** M. Thompson¹, P. Desjardins², J. Pickering¹, B. Driskill² (1. Shell International Exploration and Production Company; 2. Shell Exploration and Production Company) 2901513

2:15 **Outcrop and Subsurface Geology Applied to Drilling, Sweet Spot and Target Zone Detection of Resource Shales: The Woodford Shale Example:** R. M. Slatt (University of Oklahoma and Institute of Reservoir Characterization) 2893838

2:40 **Geological Facies Prediction Using Computed Tomography in a Machine Learning and Deep Learning Environment:** U. Odi, T. Nguyen (Devon Energy Corporation) 2901881

3:05 **Refreshment Break**

3:55 **Recent-Pleistocene Immature Mudrocks of Anoxic Basins of Venezuela and West Africa: Analogs for Unconventional Shale Oil/Gas Reservoirs?:** U. Hammes¹, M. Grammer², J. Gregg² (1. Texas A&M University; 2. Oklahoma State University) 2902917

4:20 **Integration of Core Fracture and Lithofacies Descriptions in the Wolfcamp Shale: Implications for Mechanical Stratigraphy and Deformation History:** A. Salem¹, J. Solum¹, S. Naruk¹, D. Minisini¹, P. Desjardins², J. Hnat² (1. Shell International Exploration and Production Company; 2. Shell Exploration & Production Co.) 2889846

4:45 **Integrated Geocellular Static Model for Geomechanical and Dynamic Simulations in the Vaca Muerta Formation:** F. A. Lozano, J. P. Palacio, V. Lazzari, C. Bernhardt, D. E. Hryb, F. González Tomassini (YPF) 2873516

Monday Technical Program

*Denotes a presenter other than the first author.

- 5:10 **Advanced Downhole Measurements and 3-D Model-based Geosteering Improves Wellbore Placement in the Permian Basin:** C. Viens (Nabors) 2902533

Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)

Room 320

Co-Chairs: D. Haddad and R. Hurt

- 1:45 **Introductory Remarks**
- 1:50 **3-D Anisotropic Damage Mechanics for Modeling Interaction Between Hydraulic and Natural Fracture Planes in a Layered Rock – Application to Eagle Ford and Wolfcamp:** Y. Aimene², C. Hammerquist², J. Nairn¹, A. Ouenes² (1. Oregon State University; 2. FracGeo LLC) 2902985
- 2:15 **Origin, Detection, Involvement in Hydraulic Stimulation, and Consequences for Field Development of Large-scale Structural Lineaments in the Marcellus and Duvernay Plays:** B. Stephenson¹, E. Galan¹, M. Fay¹, A. Savitski², T. Bai² (1. Shell Canada; 2. SEPCO) 2902874
- 2:40 **A Method of Fracture Prediction Across Multiple Stratigraphic Horizons in the Midland Basin, Texas, USA:** C. Pollock¹, C. Seiler²³, M. Valcárcel², E. Macaulay² (1. Pioneer Natural Resources; 2. Midland Valley Exploration Ltd.; 3. Geoscience Australia) 2878217
- 3:05 **Refreshment Break**
- 3:55 **Can Seismic Inversion Be Used for Geomechanics? A Casing Deformation Example:** J. J. Meyer, J. Gallop, A. Chen, S. Reynolds, S. Mildren (Ikon Science) 2902950
- 4:20 **Intensive Natural Fracture Study of Elk Hills Monterey Formation to Better Understand Production Variability:** R. Gales¹, R. Sobczyk^{*1}, N. Harvey² (1. California Resources Corporation; 2. Harvey Rock Physics) 2904317
- 4:45 **Reservoir Geomechanic Heterogeneity Index (RGHI): Concept, Methodology, and Application:** J. Zhou, S. Mandal, F. Chen, M. Quest, D. Hume (Core Laboratories) 2902828
- 5:10 **Polygonal Fault System in the Paleogene of the Magallanes Foreland Basin, Southern Chile:** J. A. Pinto, D. Gonzalez, P. Mella, A. Gonzalez (ENAP Magallanes) 2903108

Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II

Room 322

Co-Chairs: T. Conner and T. Ramirez

- 1:45 **Introductory Remarks**
- 1:50 **Developing Predictive Power in the Permian: Leveraging Advanced Petrophysics to Deliver Cash to the Business:** A. Blount, T. Croft, M. Durand, B. Driskill, A. McMullen (Shell) 2903087
- 2:15 **Integrated Reservoir Characterization Aids Target Selection, Production Fluid Prediction, and Completions Optimization in the Southern Delaware Basin Resource Plays:** T. Tittlemier², J. Speight², S. Satterfield², C. Hager², I. Easow¹, B. Chiniwala¹, A. Martocchia¹ (1. Geolog Americas; 2. Trey Resources) 2902718
- 2:40 **Integrated Rock Characterization of a Shale Gas Field in the Horn River Basin, Canada:** T. Teklu¹, D. Park^{1,2}, H. Jung^{1,2}, J. L. Miskimins^{*1} (1. Colorado School of Mines; 2. KOGAS) 2880467
- 3:05 **Refreshment Break**

- 3:55 **Quantifying Nanoporosity: Insights Revealed by Parallel and Multiscale Analyses:** A. C. Reynolds¹, S. A. Kelly¹, R. J. Bonnie¹, J. J. Howard², R. L. Krumm² (1. ConocoPhillips; 2. Premier Oil Field Laboratories) 2898355
- 4:20 **Quantifying the Mechanisms Contributing to Surface Relaxation of Protons in Organic Pores of Organic-Rich Mudrocks:** S. Tandon, Z. Heidari (The University of Texas at Austin) 2902730
- 4:45 **Development of Raman Spectroscopy as a Thermal Maturity Proxy in Unconventional Resource Assessment:** G. Myers¹, K. Kehoe¹, P. Hackley² (1. WellDog; 2. USGS) 2903536
- 5:10 **Spatial Characterization of Organic Matter Maturity by Raman Microscope Mapping:** E. G. Krukowski, J. J. Howard (Premier Oilfield Laboratories) 2896773

Operators' Forum – Completion Optimization

Room 330

Co-Chairs: L. Baez, A. Bogdan, and M. Fernandez-Badessich

- 1:45 **Introductory Remarks**
- 1:50 **New Mexico Delaware Basin Horizontal Well Heel Frac and Refrac Program and Hydraulic Fracture Diagnostics:** M. Han^{*}, I. Tanakov^{*}, E. Bunker^{*}, T. Vulgamore (Occidental Oil and Gas) 2888446
- 2:40 **Optimization of Completion and Well Spacing for Development of Multi-stacked Reservoirs Using Integration of Data Analytics, Geomechanics, and Reservoir Flow Modeling:** K. Min, V. Sen, L. Ji, R. Sullivan (Anadarko Petroleum Corp) 2897656
- 3:05 **Refreshment Break**
- 3:55 **Accelerated Stimulation Optimization via Permanent and Continuous Production Monitoring Using Fiber Optic:** G. A. Ugueto^{*}, P. Huckabee^{*}, M. Wojtaszek^{*}, A. Reynolds (Shell) 2901897
- 4:45 **Multivariate Study of Utica: Marrying the Rock to the Completion:** A. Trumbo^{*}, J. Bowman^{*}, L. Lasecki^{*} (Chesapeake Energy) 2845332

Theme 11: Reserves, Economics, and Field Studies I

Room 332

Co-Chairs: U. Ahmed, S. Howes, and A. Shannon

- 1:45 **Introductory Remarks**
- 1:50 **Unconventional Field Development Optimization – Fit for Strategy Designs to Realize Your Corporate Goals:** R. Howrsh, D. Anderson (Anderson Thompson Reservoir Strategies) 2902910
- 2:15 **Is GOR Truly Affecting Recovery? A Multi-variate Case Study in the Delaware Basin:** R. Dutta, S. Dawson, M. Maler (Drillinginfo) 2903134
- 2:40 **A New Look at Reserves Estimation of Unconventional Gas Reservoirs:** M. H. Ibrahim, O. Mahmoud^{*}, C. Pieprzica (Apache Corporation) 2903130
- 3:05 **Refreshment Break**
- 3:55 **Global Competitiveness of the U.S. Tight Oil Cost Curve:** R. G. Clarke (Wood Mackenzie) 2875019
- 4:20 **Reserve Estimation With Unified Production Analysis:** M. Mehana (University of Oklahoma) 2901909
- 4:45 **New Analysis of EUR Probability Plots Yields Better Uncertainty Assessment and Better Type Wells:** R. Freeborn (3esi-Enersight) 2892021
- 5:10 **The Value of Building a Multiscale, Regional Geomodel for Reserves Assessment of the Midland Basin:** R. Dommissie, L. Sivila, H. Hamlin, F. Male (University of Texas at Austin) 2902841

Monday Technical Program

*Denotes a presenter other than the first author.

Theme 05: Fracturing Fluid, Fracture, and Matrix Interactions

Room 340

Co-Chairs: C. Cipolla and R. Roadifer

1:45 Introductory Remarks

- 1:50 **Modeling and Experimental Investigation of Fluid-Related Damage to Hydraulic Fractures:** P. Abivin¹, R. Prabhu¹, D. Khvostichenko¹, C. Hilliard², C. Nelson³, T. Kuo³, Y. Li³, P. Shukla¹, S. Makarychev-Mikhailov¹ (1. Schlumberger; 2. The Dow Chemical Company; 3. The Dow Chemical Company) 2899497
- 2:15 **Impact of Natural Fractures Beyond the Hydraulic Fracture Complexity in Unconventional Reservoirs – A Permian Case Study:** P. Pankaj, J. Li (Schlumberger) 2874839
- 2:40 **Near Fracture Capillary End Effect on Shale Gas/Oil Production:** R. Elputranto, I. Akkutlu (Texas A&M University) 2902627
- 3:05 **Refreshment Break**
- 3:55 **Theoretical Investigation of Water Blocking in Unconventional Reservoirs Due to Spontaneous Imbibition and Water Adsorption:** L. Deng, M. J. King (Texas A&M University) 2875353
- 4:20 **Diagnosing Fracture-Wellbore Connectivity Using Chemical Tracer Flowback Data:** A. Kumar, M. Sharma (University of Texas at Austin) 2902023
- 4:45 **Impact of Authigenic Surface Roughness on Water Invasion and Flowback in Fractured Media: A Micromodel Study:** A. Mehmani¹, S. A. Kelly², C. Torres-Verdin¹, M. Balhoff¹ (1. The University of Texas at Austin; 2. ConocoPhillips) 2871486
- 5:10 **Effects of Hydraulic Fracturing Fluid Chemistry on Shale Matrix Permeability:** A. A. Alalli², Q. Li^{1,2}, A. Jew¹, A. Kohli¹, J. Bargar¹, M. Zoback², A. Kovscek² (1. SLAC National Accelerator Laboratory; 2. Stanford University) 2881314

Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs I

Room 342

Co-Chairs: J. Alvarez and J. Gujral

1:45 Introductory Remarks

- 1:50 **Flowback in Shale Wells: Proppant Transport and Distribution in the Wellbore:** K. Putri², H. Lu¹, C. Kwok¹ (1. Schlumberger; 2. Colorado School of Mines) 2887450
- 2:15 **Evaluating the Loss in Fracture Volume During Flowback and Its Relationship to Choke-size: Fastback Versus Slowback:** H. Dehghanpour¹, Y. Fu^{*1}, S. Motealleh², C. Lopez² (1. University of Alberta; 2. BP America) 2903105
- 2:40 **Defining the Optimal Drawdown Strategy in the Vaca Muerta Formation:** A. A. Lerza¹, B. Liang¹, D. Rojas² (1. Chevron; 2. YPF) 2880115

Panel Session: Technologies That Will Make a Difference in Unconventional Reservoir E&P

Room 342

Moderator: Greg Leveille, Chief Technology Officer, ConocoPhillips

See page 14 for more information

3:50 Introductory Remarks

- 3:55 **Chris Cheatwood**, Executive Vice President and Chief Technology Officer, Pioneer Natural Resources
- 4:05 **Chris Spies**, Vice President of Geoscience and Technology, Concho
- 4:15 **Yanni Charalambous**, Vice President and Chief Information Officer, Occidental Petroleum

- 4:25 **Hege Kverneland**, Corporate Vice President and Chief Technology Officer, National Oilwell Varco (NOV)

4:35 Moderated Panel Discussion

5:05 Audience Q&A

Theme 08: Inorganic Geochemistry of Unconventional Plays/Fluid Rock Interactions

Room 351

Co-Chairs: J. Adams and F. Liu

1:45 Introductory Remarks

- 1:50 **Bench-Top Experiments Evaluating Simulated Hydraulic Fracturing Fluid Interactions With Marcellus Shale Core:** J. Moore^{1,3}, J. A. Hakala², C. L. Lopano², W. Xiong^{2,4}, T. Phan^{2,4}, A. Vankeuren⁵, S. Sharma⁶, J. Pilewski⁶, K. Jarvis^{1,3}, S. Brown^{1,3}, D. Crandall¹ (1. Department of Energy; 2. Department of Energy; 3. AECOM; 4. Oak Ridge Institute for Science and Education; 5. Sacramento State University; 6. West Virginia University) 2901634
- 2:15 **Barium Sources in Hydraulic Fracturing Systems and Chemical Controls on Its Release Into Solution:** A. Jew^{1,2}, Q. Li^{1,2}, D. Cercone³, K. Maher², G. Brown^{1,2}, J. Bargar¹ (1. SLAC National Accelerator Laboratory; 2. Stanford University; 3. National Energy Technology Laboratory) 2899671
- 2:40 **Imaging Pyrite Oxidation and Barite Precipitation in Gas and Oil Shales:** Q. Li^{1,2}, A. Jew^{*1}, A. Kiss¹, A. Kohli^{1,2}, A. A. Alalli², A. Kovscek², M. Zoback², D. Cercone³, K. Maher², G. Brown^{1,2}, J. Bargar¹ (1. SLAC National Accelerator Laboratory; 2. Stanford University; 3. National Energy Technology Laboratory) 2902747



Commitment Runs Deep

devon

MONDAY

Monday Technical Program

*Denotes a presenter other than the first author.

University Lands Special Session II

Room 351

Co-Chairs: Y. Pradhan and J. Spath

See page 14 for more information

3:50 **Introductory Remarks**

3:55 **Lessons Learned From Existing Horizontal Fractured Wells in Midland Basin of University Lands (UL): Rate Transient Analysis vs. Completion and Field Development Optimization:** J. Zhu, J. K. Forrest, H. Xiong, Y. U. Pradhan (Texas Oil & Gas Institute) 2884337

4:20 **The Effect of Initial Conditions and Fluid PVT Properties on Unconventional Oil and Gas Recoveries in the Wolfcamp Formation in the Midland Basin:** J. K. Forrest, J. Zhu, H. Xiong, Y. U. Pradhan (Texas Oil & Gas Institute) 2888693

4:45 **A Practical Way to Prepare Physical-Based Type Well Performance Curves for Unconventional Reservoirs in the Permian Basin:** H. Xiong (Texas Oil and Gas Institute) 2888118

5:10 **Evaluating Underperforming Wells on Permian Basin University Lands:** Y. U. Pradhan, J. Spath, H. Xiong, J. Zhu, J. K. Forrest (Texas Oil and Gas Institute) 2901615

Exhibit Hall

Theme 09: EOR Applications for Unconventional Reservoirs

Exhibit Hall Station A

Co-Chairs: S. Carpenter, B. Kurtoglu, and D. Riestenberg

1:45 **Introductory Remarks**

1:50 **Chemical Stimulation with Driving Process to Extract Oil from Tight Formation:** J. Zhang, D. Wang (University of North Dakota) 2903115

2:15 **Lithologic and Geomechanical Control on CO₂ Huff-n-Puff Enhanced Oil Recovery Processes Using Integrated Modeling Framework in Wolfcamp:** T. N. Phan, Z. A. Reza (University of Oklahoma) 2901346

2:40 **Scaling for Wettability Alteration Induced by Addition of Surfactants in Completion Fluids: Surfactant Selection for Optimum Performance:** F. Zhang, I. Saputra, I. Adel, D. S. Schechter (Texas A&M University) 2889308

Theme 05: Unconventional Well Productivity

Exhibit Hall Station A

Co-Chairs: B. Liang and B. Poe

3:50 **Introductory Remarks**

3:55 **Alternative Production Mechanisms in Unconventional Reservoirs:** J. A. Acuna (Chevron) 2896802

4:20 **Condensate Blocking and Mitigation in Liquid-Rich Shale Reservoirs: An Integrated Evaluation Based on Systematic PVT Modeling and Simulation Studies:** N. Nagarajan¹, A. Orangi² (1. Hess Corporation; 2. Apache Corporation) 2918864

Theme 14: Drilling and Completions Optimization IV

Exhibit Hall Station B

Co-Chairs: I. Aviles, G. Gullickson, and J. Miskimins

1:45 **Introductory Remarks**

1:50 **A Unified Model for Predicting Flowing Pressure and Temperature Distribution in the Horizontal Wellbore for Different Energized Fracturing Fluids:** Z. Xu¹, K. Wu¹, X. Song², G. Li², W. Yu², Z. Zhu², Z. Pang² (1. Texas A&M University; 2. China University of Petroleum) 2901603

2:15 **Development of A High-Performance Cement Slurry Antifoamer Through Lab Evaluation and Field Trials:** L. Cabori, L. Jiang, B. Abrams, J. Terracina (Hexion, Inc.) 2877667

2:40 **Fracture Initiation and Propagation Characteristics for Radial Drilling-Fracturing: An Experimental Study:** Q. Liu¹, K. Sepehrnoori¹, W. Yu² (1. University of Texas at Austin; 2. Texas A&M University) 2902984

3:05 **Refreshment Break**

3:55 **Rapid Evaluation of Diverter Effectiveness From Poroelastic Pressure Response in Offset Wells:** C. Kahn^{*1}, B. Cottingham^{*2}, S. Kashikar¹, S. Senften¹, E. Coenen¹ (1. Reveal Energy Services; 2. Linn Energy)

4:20 **Geomechanical Modeling and Wellbore Stability Analysis Approach to Plan Deep Horizontal Wells Across Problematic Shale Formation:** A. K. Abbas^{1,2}, R. Flori², M. Alsaba³ (1. Iraq Drilling Company; 2. Missouri University of Science and Technology; 3. Australian College of Kuwait) 2879569

Theme 04: Beyond Brittleness: Geomechanical Characterization II

Exhibit Hall Station

Co-Chairs: B. Lai and A. Mitra

1:45 **Introductory Remarks**

1:50 **Identifying Volcanic Ash Beds and Lamina-scale Stratigraphy Using Rock Mechanical Properties:** A. Hildick, J. Havens (Fracture ID) 2881288

2:15 **Compressibility, Porosity, and Permeability of Shales Involving Stress Shock and Loading/Unloading Hysteresis:** F. Civan (University of Oklahoma) 2902156

2:40 **Rigorous Estimation of the Initial Conditions of Flowback Using a Coupled Frac/Dynamic Drainage Area Model Constrained by Laboratory Geomechanical Data:** Z. Zhang, B. Yuan^{*}, C. R. Clarkson (The University of Calgary) 2901771

MONDAY



METAROCK
LABORATORIES



Testing Services

- Triaxial Test
- Unconfined Compressive Strength (UCS)
- Permeability (Steady and Unsteady State)
- Brazilian Tensile Test
- Uniaxial Pore Volume Compressibility (UPVC)
- Brinell Hardness Number
- Fracture Toughness
- Acoustic Velocity Measurements
- Biot's Coefficient
- Thick Wall Cylinder (TWC)
- Proppant Embedment
- Radial Velocity Measurements



Consulting Services

- Static vs. Dynamic Properties
- Acoustic Velocity Analysis
- Stress Profile (Isotropic and Anisotropic)
- Wellbore Stability
- Log Analysis
- Hydraulic Fractures Modeling
- 3D Mechanical Earth Modeling
- Sand Production Assessment
- Reservoir Compaction/Subsidence



Testing Systems

- HPHT Rock Mechanics System
- Pressure Vessels
- Standard Rock Mechanics System
- Flow Cube Pump
- Elastic Properties
- Permeameter
- Cantilever Bridge
- Porosimeter
- Load Cell
- Multipurpose Stressed Measurement System
- One-Four Zone Benchtop Heater
- One-Four Zone Rack Mounted Heater Controller
- Ultrasonic Acoustics Velocity Platens



Tuesday Technical Program

*Denotes a presenter other than the first author.

Morning Technical Sessions

Session Rooms

Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels II

Room 310

Co-Chairs: R. Lambert, R. Pearson, and T. Peters

- 8:25 **Introductory Remarks**
- 8:30 **Seismic to Simulation: Woodford Shale Case Study in Oklahoma, USA:** E. J. Torres-Parada, S. Sinha, L. E. Infante-Paez, R. M. Slatt, K. Marfurt (The University of Oklahoma) 2886614
- 8:55 **The Importance of Overburden and Pore Pressure on Horizontal Stress Magnitude Determination: An Example From the Delaware Basin:** K. Kozłowski, M. Da Silva, D. Brown, J. Taylor, H. Willems, T. Watson, D. Burch, T. Hutton, C. Christensen, M. Manohar (Noble Energy, Inc.) 2901778
- 9:20 **A Strategy for De-risking the Upper Vaca Muerta as a Dual-Layer Development:** K. Boyd, R. Notta, M. Thomas, D. Cakici (Shell Oil Company) 2902441
- 9:45 **Geological Controls on Fluid Compositional Variations in Unconventional Hybrid Plays: Insight From Gas Geochemistry (Montney Play, Western Canada):** T. Euzen¹, J. Chatellier², A. Mort³ (1. IFP Technologies (Canada) Inc.; 2. Tecto Sedi Integrated; 3. Geological Survey of Canada) 2901653
- 10:10 **Refreshment Break**
- 11:00 **Outlier Analysis: A Systematic Method for Distinguishing Between Sub-surface and Engineering Influence on Well Performance in the Montney:** F. Todea, B. Stephenson, A. Tomlinson, H. Pratt, W. Williams, L. Acosta, B. Speidel (Shell Canada Ltd.) 2902668
- 11:25 **An Upscaled DFN Model to Understand the Effects of Natural Fracture Properties on Fluid Flow in the Hunton Group Tight Limestone:** B. Milad, S. Ghosh, R. M. Slatt (University of Oklahoma) 2903038
- 11:50 **Sedimentological Characterization of the Pimienta Formation in the Central Part of the Tampico-Misantla Basin, Veracruz, Mexico:** G. Abascal-Hernández, J. M. León-Francisco, R. Torres-Vargas, D. E. Garduño-Martínez, S. Franco-Navarrete, J. Méndez-Vázquez, S. Ortega-Lucach, L. Gutierrez-Caminero, G. Murillo-Muñetón (Instituto Mexicano del Petróleo) 2884742

Theme 04: Geomechanics – Hydraulic Fracture Simulation I

Room 320

Co-Chairs: G. Han and A. Munoz

- 8:25 **Introductory Remarks**
- 8:30 **Increase NPV and Reduce Completion Cost by Using an In-House Automated Fracture Design, Reservoir Simulator, and Optimization Workflow to Design Well Spacing and Completions:** S. Bhattacharya, E. Lake, R. Dombrowski (Shell Oil Company) 2902106
- 8:55 **Numerical Study of Stress Shadowing Effect on Fracture Initiation and Interaction Between Perforation Clusters:** B. Damjanac^{1,2}, S. Maxwell², A. Pirayehgar² (1. Itasca Consulting Group, Inc.; 2. IMaGE) 2901800
- 9:20 **An Integrated Field and Numerical Study of the Impact of Formation Anisotropy on Stage Spacing in Horizontal Wells:** V. Sesetty¹, A. Ghassemi¹, I. Gil² (1. University of Oklahoma; 2. BP) 2878152

- 9:45 **Effect of Interbeds on Hydraulic Fracture Characteristics and Formation Pressure Response:** A. Bere¹, M. Profit¹, M. Dutko¹, U. Mutlu^{*2} (1. Rockfield Software; 2. Rockfield Global Technologies America LLC) 2886425
- 10:10 **Refreshment Break**
- 11:00 **A Coupled Three-Dimensional Hydraulic Fracture Propagation Model Considering Multiple Bedding Layers:** J. Tang¹, K. Wu¹, L. Zuo¹, C. Ehlig-Economides² (1. Texas A&M University; 2. University of Houston) 2901905
- 11:25 **The Impact of Natural Fracture Thickness on Hydraulic Fracture Interaction Mechanics:** W. Wang¹, J. Olson², M. Prodanović², R. Schultz³ (1. Shell International Exploration and Production Company; 2. The University of Texas at Austin; 3. Orion Geomechanics) 2902343
- 11:50 **Field Scale Proppant Transport Simulation and Its Application to Optimize Stimulation Strategy:** R. Kou, G. J. Moridis, T. Blasingame (Texas A&M University) 2878230

Special Session: Hydraulic Fracture Test Site (HFTS) I

Room 322

Co-Chairs: J. Courtier and K. Perry

See page 16 for more information

- 8:25 **Introductory Remarks**
- 8:30 **Hydraulic Fracture Test Site – Project Overview and Summary of Results:** J. Courtier¹, J. Ciezobka^{*2} (1. Laredo Petroleum; 2. Gas Technology Institute) 2937168
- 8:55 **Hydraulic Fractures in Core From Stimulated Reservoirs: Core Fracture Description of the HFTS Slant Core, Reagan County, Midland Basin, Texas:** J. F. Gale, S. J. Elliott, S. E. Laubach (University of Texas at Austin) 2902624
- 9:20 **Assessment of In-situ Proppant Placement in SRV Using Through-Fracture Core Sampling at HFTS:** D. Maity, J. Ciezobka, S. Eisenlord (Gas Technology Institute) 2902364
- 9:45 **Analysis and Distribution of Proppant Recovered From Fracture Faces in the HFTS Slant Core Drilled Through a Stimulated Reservoir:** S. J. Elliott, J. F. Gale (University of Texas at Austin) 2902629
- 10:10 **Refreshment Break**
- 11:00 **Natural and Hydraulic Fracture Density Prediction and Identification of Controllers:** J. Wicker, W. Campbell*, J. Courtier (Laredo Petroleum) 2934611
- 11:25 **Inter-well Communication Study of UWC and MWC Wells in the HFTS:** T. Wood, R. Leonard, C. Senters, C. Squires (ProTechnics a Division of Core Laboratories) 2902960
- 11:50 **Well Interference Diagnosis Through Integrated Analysis of Chemical Tracer and Pressure Interference Tests:** A. Kumar, P. Seth, K. Shrivastava, R. Manchanda, M. Sharma (University of Texas at Austin) 2901827

Tuesday Technical Program

*Denotes a presenter other than the first author.

Operators' Forum – Performance Prediction and Reservoir Characterization

Room 330

Co-Chairs: C. Cipolla and A. Sloan

- 8:25 **Introductory Remarks**
- 8:30 **Case Histories of Integrating DAS Fiber-Based Microseismic and Strain Data for Monitoring Horizontal Hydraulic Stimulations:** R. Hull, R. Meek, H. Bello (Pioneer Natural Resources)
- 8:55 **Integrated Statistical Workflow for Optimum Well Spacing With Data Analytics, Pilots, Geomechanical-Reservoir Modeling, and Economic Analysis:** R. Cao^{*1}, C. Chen^{*1}, R. Li¹, T. Firincioglu², C. Ozgen², T. Croft¹, A. Girardi¹, N. Chowdhury¹ (1. Shell; 2. NITEC LLC) 2902138
- 9:45 **Refreshment Break**
- 11:00 **Myths and Facts of Forecasting Horizontal Well Production in Unconventional Reservoirs – Are We Complicating a Simple Analysis?:** V. Muralidharan^{1,2}, K. Joshi^{1,2} (1. Occidental Petroleum Corporation; 2. SPE) 2897088
- 11:25 **An Integrated Geomechanics-Reservoir Simulation Workflow for Completion Design Optimization:** T. Yeh^{*}, J. Jennings, D. Cakici^{*}, J. Chavarria Guerra, M. Durand, B. L. Williams, T. Chen, R. Casillas, V. Jain, R. Li, T. Bai (Shell) 2902561

Theme 07: Nanoparticles, Chemistry, and Machine Learning: Tools for Enhancing Oil Recovery

Room 332

Co-Chairs: D. Langton and L. Pirela

- 8:25 **Introductory Remarks**
- 8:30 **Nanoparticle-Encapsulated Acids for Stimulation of Calcite-Rich Shales:** R. Singh, S. Tong^{*}, K. Panthi, K. Mohanty (The University of Texas at Austin) 2897114
- 8:55 **Post-Frac-Hit Mitigation and Well Remediation of Woodford Horizontal Wells With Solvent/Surfactant Chemistry Blend:** C. Swanson¹, W. A. Hill², G. Nilson², G. Griman², R. Hill², P. Sullivan², C. Aften², J. C. Jimenez², G. Pietrangeli², D. C. Shedd² (1. Apache Corporation; 2. Flotek Industries) 2902400
- 9:20 **Ion Tuned Water Can Greatly Enhance Alteration of Carbonate Surface to Water-wet:** H. Ding, S. Rahman (University of New South Wales) 2902143
- 9:45 **Synthetic Well Log Generation Using Machine Learning Techniques:** O. Akinnikawe, S. Lyne, J. Roberts (Devon Energy Corp E&P) 2877021

Theme 07: From Machine Learning to CT Scanning – Novel Approaches to Old Problems

Room 332

Co-Chairs: I. Aviles and S. Nash

- 10:55 **Introductory Remarks**
- 11:00 **Novel Monitoring Technology Helps to Make Informed Decisions and Maximize the Efficiency of Completion Strategy:** S. Parkhonyuk, R. Korkin, A. Kabannik, A. Fedorov^{*}, M. Nikolaev (Schlumberger) 2885828
- 11:25 **High-Quality 3-D MicroCT Imaging of Source Rocks – Novel Methodology to Measure and Correct for X-Ray Scatter:** A. Katsevich^{1,2}, M. Frenkel¹, Q. Sun³, S. Eichmann³, V. Prieto¹ (1. iTomography Corporation; 2. University of Central Florida; 3. Aramco Services Company: Aramco Research Center – Houston) 2902457
- 11:50 **Quantitative Analysis and Feature Detection for Scanning Electron Microscopy Images Using Machine Learning and Image Processing:** X. Tian, H. Daigle (The University of Texas at Austin) 2886325

Theme 05: Transient Analysis, History Matching, and Reservoir Modeling

Room 340

Co-Chairs: V. Artus, H. Kalaei, and M. Sorkin

- 8:25 **Introductory Remarks**
- 8:30 **A Methodology to Characterize Well Performance in the Delaware Basin: A Wolfcamp Case Study:** K. Mohan (ConocoPhillips) 2892188
- 8:55 **Pressure and Rate Transient Behavior of a Horizontal Well Intercepting Multiple Hydraulic Fractures Within a Fractal Reservoir:** A. R. Valdes-Perez¹, T. Blasingame¹, L. Larsen² (1. Texas A&M University; 2. Universitet i Stavanger) 2902854
- 9:20 **Improved Rate-Transient Analysis Coupled With Pore Mechanics and Multi-Scale Fluid Dynamics in Heterogeneous Fractured Liquid-Rich Shale:** B. Yuan, C. R. Clarkson (The University of Calgary) 2901799
- 9:45 **Transient Linear Flow Analysis of Multi-Fractured Horizontal Wells Considering Three-Phase Flow and Pressure-Dependent Rock Properties:** H. Behmanesh^{1,2}, H. Hamdi², S. A. Ghaderi², C. R. Clarkson² (1. Anderson Thompson Reservoir Strategies; 2. University of Calgary) 2884255
- 10:10 **Refreshment Break**
- 11:00 **Understanding Production Drivers in the Vaca Muerta Shale Using an Integrated Reservoir Simulation Approach:** R. Altman¹, D. Pederiva², R. Mehranfar¹, M. Frydman¹ (1. Schlumberger; 2. Wintershall) 2902306
- 11:25 **Reservoir Characterization to Understand Optimal Well Spacing – A Wolfcamp Case Study:** N. Bansal¹, T. Blasingame², J. Han¹, Y. Shin¹ (1. Anadarko Petroleum Corporation; 2. Texas A&M University) 2901322
- 11:50 **Modeling Well Performance in Piceance Basin Niobrara Formation Using Embedded Discrete Fracture Model:** Y. Xu¹, W. Yu², N. Li³, E. Lolon⁴, K. Sepehrnoori¹ (1. University of Texas At Austin; 2. Texas A&M University; 3. Black Hills Exploration & Production; 4. Liberty Oilfield Services) 2901327

Theme 06: Geophysics in the Permian Basin

Room 342

Co-Chairs: M. Hargrave and U. Zimmer

- 8:25 **Introductory Remarks**
- 8:30 **Predicting Pore-Pressure From On-shore Seismic Data in the Delaware Basin:** M. Rauch-Davies¹, B. Schmicker¹, S. W. Smith¹, S. Green², J. J. Meyer² (1. Devon Energy; 2. IKON Science) 2888832
- 8:55 **Production Metric Analytics in the Wolfcamp Formation:** C. P. Ross (Cross Quantitative Interpretation, LP) 2872226
- 9:20 **Geophysical Data Processing, Rock Property Inversion, and Geomechanical Model Building in a Midland Basin Prospect, Midland/Ector Counties, Texas:** S. Singleton (Independence Resources Management) 2902878
- 9:45 **Revealing Geologic Features in the Midland Basin Through Frequency Decomposition:** R. Moore (GeoTeric) 2902077
- 10:10 **Refreshment Break**
- 11:00 **Strategies for Improving the Performance of Child Wells in the Permian Basin:** R. Manchanda¹, P. Bhardwaj¹, J. Hwang¹, M. Sharma¹, M. Maguire², J. Greenwald² (1. The University of Texas at Austin; 2. Laredo Petroleum) 2900679

Tuesday Technical Program

*Denotes a presenter other than the first author.

- 11:25 **Estimation of Seismic Attenuation in the Delaware Basin Using Peak Frequencies:** M. Drwila, L. Eisner, Z. Jechumtalova, D. Anikiev, R. Keller* (Seismik s.r.o.) 2887911

Theme 11: Well Spacing Optimization

Room 351

Co-Chairs: A. Lerza, M. Manohar, and A. Martinez

- 8:25 **Introductory Remarks**
- 8:30 **Development of the Stacked Pay in the Delaware Basin:** F. Alimahomed, C. Defeu (Schlumberger) 2875581
- 8:55 **Material Balance Approach to Determine Drainage Volume for Multi-Fracture Unconventional Oil Wells:** A. Gherabati (Bureau of Economic Geology at University of Texas at Austin) 2901597
- 9:20 **Characterizing Well Spacing, Well Stacking, and Well Completion Optimization in the Permian Basin – An Improved and Efficient Workflow Using Cloud Based Computing:** P. Pankaj (Schlumberger) 2876482
- 9:45 **Advanced Modeling of Production-Induced Stress Change Impact on Wellbore Stability of Infill Well Drilling in Unconventional Reservoirs:** W. Zheng, L. Xu, P. Pankaj, F. Ajisafe, J. Li (Schlumberger) 2889495
- 10:10 **Refreshment Break**
- 11:00 **Understand the Early Indicators for Long-term Performance of Unconventional Wells:** R. Cao, H. Liu (Shell) 2903016
- 11:25 **Depth of Investigation for Linear Flow: Theory and Practice:** A. Ravikumar, J. Lee (Texas A&M University) 2901712
- 11:50 **Rapid Field-Scale Well Spacing Optimization in Tight and Shale Oil Reservoirs Using Fast Marching Method:** A. Iino, T. Onishi, F. Olalotiti-Lawal, A. Datta-Gupta (Texas A&M University) 2901376

Exhibit Hall

Theme 04: Geomechanics: From Lab To Field

Exhibit Hall Station A

Co-Chairs: A. Almomen, Y. Liu, and Y. Pradhan

- 9:40 **Introductory Remarks**
- 9:45 **Physics-Driven Optimization of Drained Rock Volume for Multistage Fracturing: Field Example From the Wolfcamp Formation, Midland Basin:** S. G. Parsegov, K. Nandlal, D. S. Schechter, R. Weijermars (Texas A&M University) 2879159
- 10:10 **Experimental and Numerical Investigation of Fracture Toughness of Anisotropic Shale:** Y. Suo, Z. Chen, S. Rahman (University of New South Wales) 2902970
- 10:35 **The Elastic Moduli Change After Carbon Dioxide Flooding Into Limestone: An Experimental Study:** Y. Zhang¹, M. Lebedev¹, M. Sarmadivaleh¹, H. Yu², S. Iglaue³ (1. Curtin University; 2. Northwest University; 3. Edith Cowan University) 2902695
- 11:00 **Pulsed Power Plasma Stimulation Technique – Experimental Study on Single Pulse Test for Fractures Initiation:** Y. Xiao, W. House, E. Unal, M. Soliman (University of Houston) 2881050

Theme 05: Nanoscale PVT and IOR

Exhibit Hall Station B

Co-Chairs: B. Dindoruk and T. Firincioglu

- 9:40 **Introductory Remarks**
- 9:45 **An Integrated Geological Modeling Approach to Assess Potential of Field Wells for Application of a Surfactant Imbibition Process in an Ultra-Tight Rock Formation:** S. L. Detwiler, A. Roth, D. Wang (University of North Dakota) 2886060
- 10:10 **Characterization of Thermal Evolution of Pores and Fluids in Shales Using NMR 2-D Measurement:** H. Jiang, H. Daigle, B. Zhang, X. Tian (UT Austin) 2901623
- 10:35 **Determination of Confined Fluid Phase Behavior Using Modified Peng-Robinson Equation of State:** G. Yang, Z. Fan, X. Li (The University of Kansas) 2903084
- 11:00 **Simulation of Gas Adsorption and Capillary Condensation in Shale Nanopores Using Lattice Boltzmann Equation With Non-ideal Equation of State:** R. Xu, M. Prodanović, C. J. Landry (The University of Texas at Austin) 2902821

Theme 10: Completion to Reservoir Optimization and Diagnostics

Exhibit Hall Station C

Co-Chairs: P. Fanailoo and A. Shannon

- 9:40 **Introductory Remarks**
- 9:45 **Fracture Closure (FC) Determination From Two Successive DFITs (Diagnostic Fracture Injection Test) in One Formation:** Y. Rizwan¹, G. Liu^{*2} (1. TU Delft; 2. University of Houston) 2887227
- 10:10 **A New Model for Pressure Transient Analysis of Fractured Horizontal Wells in Shale Gas Reservoirs With Continuum and Discrete Fracture Networks:** Z. Chen¹, X. W. Liao¹, H. Zhang², W. Yu³, X. D. Shen¹, X. Shang¹, J. L. Zhang¹, H. Chu¹ (1. China University of Petroleum; 2. Shengli Oilfield Co. Ltd.; 3. Texas A&M University) 2882814
- 10:35 **Salt Dry-Out in Shale Gas Reservoirs and Its Effect on Well Performance:** M. Jamshid-Nezhad, Mehdi Zeidouni*, R. Hughes (Louisiana State University) 2896788

Afternoon Technical Sessions

Session Rooms

Theme 09: Chemical EOR and Novel Techniques

Room 310

Co-Chairs: J. Alvarez and H. Kalaei

- 1:45 **Introductory Remarks**
- 1:50 **A Chemical Blend for Stimulating Production in Oil-Shale Formations:** K. Mohanty, C. Miller, S. Tong (The University of Texas at Austin) 2900955
- 2:15 **Comprehensive Workflow for Lab to Field-Scale Numerical Simulation to Improve Oil Recovery in the Eagle Ford Shale by Selective Testing and Modeling of Surfactants for Wettability Alteration:** I. Saputra, D. S. Schechter (Texas A&M University) 2884598
- 2:40 **Comprehensive Study of CO₂ Gas Cycling in Eagle Ford Reservoirs:** A. Sanaei, A. Abouie, M. Tagavifar, K. Sepehrnoori (University of Texas at Austin) 2902940
- 3:05 **Refreshment Break**
- 3:55 **Simulation of Wettability Alteration Effect on Well Performance in Highly Fractured Reservoirs:** J. Li, K. Wu (Texas A&M University) 2899349

Tuesday Technical Program

*Denotes a presenter other than the first author.

- 4:20 **An Efficient Method to Determine Wormhole Propagation During Matrix Acidizing:** Z. Fan¹, X. Li¹, R. D. Ostermann¹, J. Jiang² (1. University of Kansas; 2. Tarim Oilfield Company) 2902519
- 4:45 **The Impact of the Fracturing Additives on the Near Fracture Face Matrix Permeability for Shale and Low Permeability Sand Formations:** A. A. Al-Ameri, T. D. Gamadi, L. Heinze, I. Ispas, S. Gorell (Texas Tech University) 2850669
- 5:10 **Surfactant Based EOR for Tight Oil Unconventional Reservoirs Through Wettability Alteration: Novel Surfactant Formulations and Their Efficacy to Induce Spontaneous Imbibition:** P. D. Patil, N. Rohilla, W. Yu, A. Katiyar*, S. Falcone, B. Brown, S. Duckworth, P. Rozowski (The Dow Chemical Company) 2896289

Theme 04: Fracture Monitoring and Diagnostics

Room 320

Co-Chairs: J. Hnat and C. Pollock

- 1:45 **Introductory Remarks**
- 1:50 **Geomechanical Simulation of Different Conceptual Models for Microseismic Interpretation:** S. Maxwell, A. Pirayehgar (IMaGE) 2900807
- 2:15 **Modeling Distributed Fiber Optic Sensor Signals Using Computational Rock Mechanics:** C. S. Sherman, R. J. Mellors, J. P. Morris, F. J. Ryerson (Lawrence Livermore National Laboratory) 2900760
- 2:40 **Estimation of Fracture Geometries From a Network of Poroelastic Pressure Responses in Offset Wells:** S. Spicer, E. Coenen (Reveal Energy Services) 2886118

Theme 04: From Perforation to Performance: Geomechanical Applications

Room 320

Co-Chairs: A. Mubarak and K. Yared

- 3:50 **Introductory Remarks**
- 3:55 **Paradigm Shift in Wolfcamp Shale Improves Well Performance by 70%:** E. Ejofodomi¹, R. Sethi^{*1}, E. Aktas^{*1}, J. Padgett¹, B. Mackay¹, A. Mirakyan¹, B. McCrackin², C. Douglas² (1. Schlumberger; 2. Manti Tarka Permian) 2836566
- 4:20 **Production Optimization Using Machine Learning in Bakken Shale:** G. Luo, Y. Tian, M. Bychina, C. Ehlig-Economides (University of Houston) 2902505
- 4:45 **An Industrialized Approach to Stage-by-Stage Completion Designs:** W. D. Logan¹, P. Dalamarinis¹, B. Williams², K. Urbis², S. Lipari² (1. C&J Energy Services; 2. Silverback Exploration) 2899869
- 5:10 **A Simple and Cost-Effective Workflow for Engineered Perforations:** B. Cottingham¹, J. Truax², M. Padgham³, X. An⁴, S. Denney⁴ (1. Linn Energy; 2. Linn Energy; 3. Linn Energy; 4. Baker Hughes) 2875442

Theme 03: NMR and Electrical Measurements

Room 322

Co-Chairs: M. Manohar and S. Perry

- 1:45 **Introductory Remarks**
- 1:50 **Investigation of the Shale Electrical Resistivity Reversal Commonly Observed at the Wet- to Dry-Gas Transition:** S. P. Cumella^{1,2}, A. P. Byrnes^{*2}, M. D. Sonnenfeld² (1. Consultant; 2. Whiting Petroleum Corp) 2901788
- 2:15 **Observations of Induction Dielectric Measurements and Their Role in Determining Thermal Maturity of Organic Mudrocks:** J. C. Rasmus, D. Homan, G. Wang, N. Uschner (Schlumberger) 2901940

- 2:40 **Quantifying the Influence of Rock Fabric, Composition, and Electrical Double Layer on the Broadband Dielectric Dispersion of Organic-rich Mudrocks:** A. Posenato Garcia, Z. Heidari (The University of Texas at Austin) 2867679
- 3:05 **Refreshment Break**
- 3:55 **Multiscale Pore Systems in Shales and Their Effect on Laboratory Measurements and Transport Properties:** H. Daigle, C. Jiang, X. Tian, H. Jiang (University of Texas at Austin) 2899570
- 4:20 **NMR Considerations in Shales at Elevated Temperature:** A. Chakravarty, C. Rai, C. Sondergeld (University of Oklahoma) 2902883
- 4:45 **Measurement of Natural Gas Isotherms and Imaging Gas in Shale Using NMR:** M. Dick, D. Veselinovic*, D. Green (Green Imaging Technology) 2886080
- 5:10 **High-Field (400 MHz) T2 Measurements Using a Custom-Built NMR Probe, Eagle Ford Shale, Gonzales and La Salle Counties, Texas:** B. McDowell, A. N. Tutuncu, Y. Yang (Colorado School of Mines) 2902130

Operators' Forum – Well Spacing and Field Development

Room 330

Co-Chairs: P. Boyle, R. Hull, and H. Sun

- 1:45 **Introductory Remarks**
- 1:50 **Integrating Microseismic, Geomechanics, Hydraulic Fracture Modeling, and Reservoir Simulation to Characterize Parent Well Depletion and Infill Well Performance in the Bakken:** C. L. Cipolla*, M. Motiee*, A. Kechemir (Hess Corporation) 2899721
- 2:40 **Refreshment Break**
- 3:55 **An Integrated Approach to Optimizing Completions and Protecting Parent Wells in the Montney Formation:** J. Nieto*, G. Janega*, B. Batlai, H. Martinez (Canbriam Energy Inc.) 2902707
- 4:45 **Tank Development in the Midland Basin, Texas: A Case Study of Super-charging a Reservoir to Optimize Production and Increase Horizontal Well Densities:** J. Thompson*, N. Franciose*, M. Schutt¹, K. Hartig¹, J. McKenna² (1. QEP Resources; 2. MicroSeismic, Inc.) 2902895

Theme 13: Water Management

Room 332

Co-Chairs: S. Eisenlord and B. Levett

- 1:45 **Introductory Remarks**
- 1:50 **"Fit-for-Purpose" Treatment of Produced Water for Hydraulic Fracturing:** R. R. Sharma (ConocoPhillips) 2902544
- 2:15 **Produced Water Treatment R&D: Developing Advanced, Cost-Effective Treatment Technologies:** E. Folio, O. Ogunsola, E. Melchert, E. Frye* (US Department of Energy) 2886718
- 2:40 **Tailoring Treated Brines for Reuse Scenarios:** M. Wenzlick, N. Siefert, A. Hakala* (National Energy Technology Laboratory) 2902572
- 3:05 **Refreshment Break**
- 3:55 **The Water Challenge Program – Permian Basin Pilot Results:** A. Wilcox (HARC-EFD) 2877246
- 4:20 **Optimal Planning for Wastewater Disposal Facilities: Application of Geographic Information System and Data Analytics:** A. Jamali (Texas Tech University) 2901874
- 4:45 **Replacing Freshwater With Seawater: Problems, Solutions, and Applications:** T. Almubarak¹, J. Ng², H. Nasr-El-Din² (1. Saudi Aramco EXPEC ARC; 2. Texas A&M University) 2896321

Tuesday Technical Program

*Denotes a presenter other than the first author.

- 5:10 **Ultrafiltration of Water Using Graphene Membranes and Removing Heavy Metal Salts as Primary Contaminates:** N. Agrawal, M. Jadon, P. Mishra (University of Petroleum and Energy Studies) 2898198

Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes

Room 340

Chair: D. Fulford and J. Thompson

- 1:45 **Introductory Remarks**
- 1:50 **In Situ Fractionation in Liquids-Rich Shales and Its Implications for EOR: Experimental Verification and Modeling Study:** A. Tinni, F. Perez, D. Devegowda, T. Trong, S. T. Dang, C. Sondergeld, C. Rai (University of Oklahoma) 2902946
- 2:15 **Minimum Miscibility Pressure Calculation for Oil Shale and Tight Reservoirs With Large Gas-Oil Capillary Pressure:** K. Zhang¹, B. Nojabaei¹, K. Ahmadi², R. Johns³ (1. Virginia Polytechnic Institute and State University; 2. Pometis Technology; 3. Pennsylvania State University) 2901892
- 2:40 **Solution Gas Drive in Tight Oil Reservoirs: New Insights From Capillary Evaporation Experiments:** E. Barsotti¹, M. Piri¹, J. Chen², S. Althaus² (1. University of Wyoming; 2. Aramco Services: Aramco Research Center-Houston) 2902677
- 3:05 **Refreshment Break**
- 3:55 **Flow Behavior From Organic- and Mineral-Hosted Porosity Systems—From Pores to Production:** R. M. MacDonald¹, S. Geetan¹, D. Klemin² (1. EP Energy Corp; 2. Schlumberger) 2902911
- 4:20 **Experimental and Theoretical Investigation of the Confinement Effect on Gas Properties in Nano-scale Porous Media:** S. Salahshoor, M. Fahs (University of Oklahoma) 2902592
- 4:45 **The Effect of Mineral Composition on Shale Oil Recovery:** A. Fakhry, T. Hoffman* (Montana Tech) 2902921
- 5:10 **Determining the Impact of Mineralogy Composition for Multiphase Flow Through Hydraulically Induced Fractures:** J. E. Santos, C. J. Landry, M. Prodanović (University of Texas at Austin) 2902986

Panel: Induced Seismicity – Perspectives and Challenges

Room 342

Moderators: C. Comiskey and H. Macartney

See page 17 for more information

- 1:45 **Introductory Remarks**
- 1:50 **Doug Klepacki**, Manager of Geophysics, Cimarex
- 2:00 **Aaron Velasco**, Texas State Seismologist
- 2:10 **Anna Kuchment**, Science Writer and Reporter, Dallas Morning News
- 2:20 **Moderated Discussion**
- 2:45 **Audience Q&A**

Induced Seismicity Special Session

Room 342

Co-Chairs: C. Comiskey and H. Macartney

See page 17 for more information

- 3:50 **Introductory Remarks**
- 3:55 **Integrating Poroelastic Effects of Wastewater Injection and Rupture Dynamics to Understand Induced Seismicity:** D. Szafranski, B. Duan (Texas A&M University) 2902051
- 4:20 **Source Mechanisms of Hydraulic-Fracturing Induced Event Sequences in the Fox Creek Area:** H. Zhang, D. W. Eaton (University of Calgary) 2875453

- 4:45 **Case Study: Fault Slip and Casing Deformation Induced by Hydraulic Fracturing in Sichuan Basin:** Z. Chen¹, L. Zhou², R. Walsh³, M. Zoback⁴ (1. CNPC Drilling Research Institute; 2. Petrochina Southwest Oil & Gas Field Company; 3. Now at Decision Geomechanics LLC; 4. Stanford University) 2882313
- 5:10 **Statistical Controls on Induced Seismicity: A Physics-based Data Mining Approach Integrating Seismic and Well Data:** S. Sinha, Y. Wen, R. A. Pires de Lima, K. Marfurt (University of Oklahoma) 2897507

Theme 14: Drilling and Completions Optimization II

Room 351

Co-Chairs: S. Noynaert and M. Sorrell

- 1:45 **Introductory Remarks**
- 1:50 **Modeling of Azimuthal Gamma Ray Tools for Use in Geosteering Unconventional Reservoirs:** H. Wang, E. Stockhausen, D. Wyatt, D. Gulick (Chevron USA, Inc.) 2898135
- 2:15 **Monitoring Wellbore Quality in Real-Time Using a Geometrically Derived Tortuosity Metric:** J. D'Angelo¹, P. Ashok¹, E. van Oort¹, M. Shahri², T. Thetford², B. Nelson², M. Behounek² (1. University of Texas; 2. Apache Corp) 2901598
- 2:40 **Cement Placement in Severe Doglegs and Its Impact on Well Integrity: A Numerical Assessment:** H. Yu, A. Dahi Taleghani* (Pennsylvania State University) 2902132

Theme 14: Drilling and Completions Optimization III

Room 351

Co-Chairs: S. Noynaert and M. Sorrell

- 3:50 **Introductory Remarks**
- 3:55 **Impact of Cyclic Pressure Loading on Well Integrity in Multi-Stage Hydraulic Fracturing:** M. Shahri, D. Barreda*, R. Wagner, G. King (Apache Corp.) 2902463
- 4:20 **Diagnostic Applications of Borehole Hydraulic Signal Processing:** C. J. Clark¹, J. L. Miskimins¹, D. L. Gallegos² (1. Colorado School of Mines; 2. Texas A&M University) 2902141
- 4:45 **Enhancing Placement of Microproppant in Microfractures for Increasing Stimulated Reservoir Volume in Shale Reservoirs:** L. Xu, K. He, P. Lord, P. Nguyen (Halliburton) 2899438
- 5:10 **Is Conductivity Still Important in Unconventional Reservoirs? A Field Data Review:** R. Shelley¹, B. Davidson¹, K. Shah¹, T. Palish² (1. StrataGen; 2. CARBO Ceramics) 2898429

Exhibit Hall

Theme 06: The Use of Geophysical Technologies in Unconventional Plays

Exhibit Hall Station A

Co-Chairs: E. Ay and H. Patel

- 1:45 **Introductory Remarks**
- 1:50 **Novel 3-D Field-scale Characterization of Reservoir Fractures Using Surface Seismic Data by the Double-Beam Method and Field Applications:** Y. Zheng, H. Hu (University of Houston) 2878197
- 2:15 **Improving Marcellus Imaging Through the Use of FWI and Joint Tomographic Inversion for Velocity and Epsilon:** D. McCann (Geokinetics) 2878680
- 2:40 **Quantitative Interpretation Efforts in Seismic Reservoir Characterization of Utica-Point Pleasant Shale – A Case Study:** S. Chopra¹, R. K. Sharma¹, H. Nemati¹, J. Keay² (1. Arcis Seismic Solutions/TGS; 2. TGS, Houston) 2886597

Tuesday Technical Program

*Denotes a presenter other than the first author.

Theme 05: Well-Scale Modeling and Simulation

Exhibit Hall Station B

Co-Chairs: V. Artus and A. Yarotsky

1:45 **Introductory Remarks**

1:50 **Applications of a Novel Hybrid Model for Unconventional Reservoirs:** J. A. Ayoub¹, B. Blakey², S. Krishnamurthy², M. Thambynayagam² (1. J. Ayoub Consulting LLC; 2. Emerson Automation Solutions) 2902834

2:15 **Multiscale Modeling to Evaluate the Mechanisms Controlling CO₂-Based Enhanced Oil Recovery and CO₂ Storage in the Bakken Formation:** J. Torres Rivero, L. Jin, N. Bosshart, L. J. Pekot, J. A. Sorensen, K. Peterson, P. Anderson, S. B. Hawthorne (Energy & Environmental Research Center) 2902837

2:40 **Impact of Cluster Spacing on Infill Completions in the Eagle Ford:** S. Evans¹, J. Magness², S. Siddiqui² (1. formerly Halliburton; 2. Halliburton) 2899323

3:05 **Numerical Modeling and Optimization of Condensate Banking Treatment in the Hydraulic-fractured Shale Gas Condensate Reservoir:** W. Liu¹, R. Ganjdanesh¹, A. Varavei¹, W. Yu², K. Sepehrnoori¹ (1. The University of Texas at Austin; 2. Texas A&M University) 2902081

Theme 11: Decline Curve Analysis and Reservoir Models II

Exhibit Hall Station A

Co-Chairs: S. Bhattacharya and W. Yu

3:50 **Introductory Remarks**

3:55 **RTA-Assisted Production Forecasting in Shale Reservoir Development:** C. Aniemena (BP Plc) 2870785

4:20 **Integrating Model Uncertainties in Probabilistic Decline Curve Analysis for Unconventional Oil Production Forecasting:** A. Hong^{1,2}, R. B. Bratvold^{1,2}, L. W. Lake³ (1. University of Stavanger; 2. The National IOR Centre of Norway; 3. The University of Texas at Austin) 2900625

Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels III

Exhibit Hall Station B

Co-Chairs: B. Driskill, M. Hargrave, and T. Loseke

3:50 **Introductory Remarks**

3:55 **SCOOP/STACK Periphery Plays: A Multidisciplinary Approach:** D. Yee, G. Johnston, S. Ahmed, J. Wakter, D. Howard (RS Energy Group) 2902870

4:20 **Using Data Analytics to Maximize Value Within the Denver-Julesburg Basin:** K. Repchuk, A. P. Reimchen, D. Gregoris (RS Energy Group) 2902938

Theme 08: Geochemistry – Applications to Unconventionals

Exhibit Hall Station C

Co-Chairs: I. Arango and S. Macalello

3:50 **Introductory Remarks**

3:55 **Are Redox-Sensitive Geochemical Proxies Valid in Mature Shales?:** D. R. Lindsey, S. M. Rimmer, K. B. Anderson (Southern Illinois University Carbondale) 2901011

4:20 **Interpretation of High Resolution XRF Data From the Bone Spring and Upper Wolfcamp, Delaware Basin, US:** B. Driskill¹, J. Pickering¹, H. Rowe² (1. Shell Exploration and Production Company; 2. Premier Oilfield Laboratories) 2901968

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Wednesday Technical Program

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Morning Technical Sessions

Session Rooms

Theme 09: Gas Injection Projects

Room 310

Co-Chairs: T. Firincioglu and T. Mallinson

8:25 **Introductory Remarks**

8:30 **Field Test of CO₂ Injection in a Vertical Middle Bakken Well to Evaluate the Potential for Enhanced Oil Recovery and CO₂ Storage:** J. A. Sorensen¹, L. J. Pekot¹, J. Torres Rivero¹, L. Jin¹, S. B. Hawthorne¹, L. Jacobson¹, T. Doll¹, S. Smith¹, M. Flynn² (1. Energy & Environmental Research Center; 2. XTO Energy Inc.) 2902813

8:55 **Miscible EOR Process Assessment for Unconventional Reservoirs: Understanding Key Mechanisms for Optimal Field Test Design:** V. Sahni, S. Liu (Occidental Petroleum) 2870010

9:20 **Huff-n-Puff Gas Injection Performance in Shale Reservoirs: A Case Study From Duvernay Shale in Alberta, Canada:** H. Hamdi¹, C. R. Clarkson^{*1}, A. Ghanizadeh¹, S. A. Ghaderi¹, A. Vahedian¹, N. Riaz¹, A. N. Esmail² (1. University of Calgary; 2. Encana) 2902835

9:45 **Laboratory Investigation of EOR Techniques for Organic Rich Shales in the Permian Basin:** S. Liu¹, V. Sahni¹, J. Tan¹, D. Beckett², T. Vo² (1. Occidental Petroleum; 2. Core Laboratories) 2890074

10:10 **Refreshment Break**

11:00 **Recovery Mechanisms During Gas Injection for EOR in Organic Rich Shale Reservoirs:** F. Tovar, M. Barrufet, D. S. Schechter (Texas A&M University) 2903026

11:25 **The Influence of Organic Matter on Supercritical CO₂ Migration in Organic-Rich Shales:** B. A. Kurz¹, J. A. Sorensen¹, S. B. Hawthorne¹, S. Smith^{*1}, H. Sanei², O. Ardakani³, J. D. Walls⁴, L. Jin¹, S. Butler¹, C. Beddoe¹, B. Mibeck¹ (1. Energy & Environmental Research Center; 2. Aarhus University; 3. Geological Survey of Canada; 4. Ingrain-Halliburton) 2902743

11:50 **Ethane Flooding as an Alternative to CO₂ Injection in Tight Formation: A Bakken Case Study:** B. N. Yolo, H. Jabbari, W. Yue, Y. Agbor (University of North Dakota) 2897170

Theme 04: Beyond Brittleness: Geomechanical Characterization I

Room 320

Co-Chairs: R. Fulks and K. Huffman

8:25 **Introductory Remarks**

8:30 **Full-Field Strain Measurement on Naturally-Fractured Rocks:** M. Mokhtari (University of Louisiana at Lafayette) 2902953

8:55 **Rock Dilation and Its Effect on Fracture Transmissivity:** H. Zhou, Q. Zhao, G. Grasselli (University of Toronto) 2903018

9:20 **Effects of Porous Properties of Rock on Near-Wellbore Hydraulic Fracture Complexity:** Y. Feng, E. E. Podnos, K. Gray (The University of Texas at Austin) 2883153

9:45 **A Novel Method for Experimental Characterization of the Poroelastic Constants in Unconventional Formations:** D. Gokaraju, M. Aldin, S. Govindarajan, A. Thombare, O. Abdulbaki, R. Patterson (MetaRock Laboratories) 2902907

10:10 **Refreshment Break**

11:00 **Layered Modulus Effect on Fracture Modeling and Height Containment:** K. Yue¹, J. Olson¹, R. Schultz² (1. University of Texas at Austin; 2. Orion Geomechanics) 2898691

11:25 **Stimulation Mechanisms in Unconventional Reservoirs:** Z. Ye¹, A. Ghassemi¹, S. Riley² (1. University of Oklahoma; 2. Devon Energy) 2902728

11:50 **Hydraulic Fracture Propagation in a Vertically and Laterally Heterogeneous Stress Media in the Permian Basin:** L. Cruz¹, G. Izadi¹, C. Barton¹, T. Hoeink¹, B. Elliott² (1. Baker Hughes, a GE company; 2. Devon Energy Corporation) 2881326

Theme 03: Physical Properties of Low-Permeability Rocks

Room 322

Co-Chairs: R. Hurt and K. Yared

8:25 **Introductory Remarks**

8:30 **A Novel Methodology for Mercury Intrusion Porosimetry Analysis, Data Reduction, Blank Correction, and Interpretation for Shales:** K. E. Gorynski, T. Dewane, T. Smagala, M. H. Tobey, J. Mansoori (Encana Services Company Ltd) 2902097

8:55 **Application of Integrated Core and Multiscale 3-D Image Rock Physics to Characterize Porosity, Permeability, Capillary Pressure, and Two- and Three-Phase Relative Permeability in the Codell Sandstone, Denver Basin, Colorado:** A. P. Byrnes¹, S. Zhang^{1,2}, L. Canter¹, M. D. Sonnenfeld¹ (1. Whiting Petroleum Corp.; 2. DigiM Solution LLC) 2901840

9:20 **A New Method for Quantifying Cation Exchange Capacity: Application to Organic-Rich Mudrock Formations:** K. Cheng², Z. Heidari¹ (1. The University of Texas at Austin; 2. Texas A&M University) 2901029

9:45 **Impacts of Thermal Maturity and Geochemical Properties on Wettability of Kerogen and Organic-rich Mudrocks:** A. Jagadisan, Z. Heidari (The University of Texas at Austin) 2902155

10:10 **Refreshment Break**

11:00 **Characterization of Transport Properties of Shale Using Novel Theoretical Pore-scale Dendroidal Model:** D. Zheng, Y. Zapata, Z. A. Reza (University of Oklahoma) 2901903

11:25 **Probing the Wettability of Mudrocks at the Pore-scale Using Nanoparticle Tracers:** C. J. Landry, M. Prodanović, K. Mohanty (University of Texas at Austin) 2903124

11:50 **Measurement and Analysis of Wellbore Micro-Losses and Rock Properties While Drilling: A Novel Approach to Identification of Fractures in the Osage and Meramec Formations of Anadarko Basin:** B. Chiniwala¹, A. Palakurthy¹, I. Easow¹, E. Russo² (1. Geolog Americas Inc; 2. Geolog S.r.l.) 2896976

Operators' Forum – Operating in the Permian

Room 330

Co-Chairs: J. Amini, C. Doherty, and B. Elliott

8:25 **Introductory Remarks**

8:30 **Life Isn't Perfect: The Petrophysical Difficulties of Modeling the Permian:** T. Croft, A. Blount, M. Durand, S. Warneke, A. McMullen, B. Driskill (Shell) 2902909

8:55 **What Can Good Data Do For You? Machine Learning Applied to Completion Design Optimization:** A. Sommer, R. Flumerfelt, J. Parkhurst (Pioneer Natural Resources)

9:20 **Completion Design and Optimization Program Overview in the Permian Basin:** O. Jaripatke, G. Barzola, R. Flumerfelt (Pioneer Natural Resources)

Wednesday Technical Program

*Denotes a presenter other than the first author.

Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind

Room 332

Co-Chairs: L. Geiser, J. Han, and S. Sankaran

- 8:25 **Introductory Remarks**
- 8:30 **Rate of Penetration (ROP) Modeling Using Hybrid Models: Deterministic and Machine Learning:** C. Hegde, C. Soares, K. Gray (The University of Texas at Austin) 2896522
- 8:55 **Identification and Evaluation of Viscoelastic Surfactants Including Smart Viscoelastic Systems for Generation and Stabilization of Ultra-Dry N₂ and CO₂ Foam for Fracturing Fluids and Proppant Transport:** S. Alzobaidi, M. Lotfollahi, C. Lu, M. Bloom, X. Zhang, M. Prodanovic, K. Johnston, D. DiCarlo (The University of Texas at Austin) 2896923
- 9:20 **Degradation Study on Materials for Dissolvable Frac Plugs:** S. Takahashi¹, A. Shitsukawa¹, M. Okura² (1. Kureha Corporation; 2. Kureha Energy Solutions) 2901283
- 9:45 **Accelerating Well Construction Using a Digital Twin Demonstrated on Unconventional Well Data in North America:** G. S. Saini¹, P. Ashok¹, E. van Oort¹, M. Isbell² (1. The University of Texas at Austin; 2. Hess Corp) 2902186
- 10:10 **Refreshment Break**
- 11:00 **Oilfield Data Analytics: Linking Fracturing Chemistry and Well Productivity:** D. Khvostichenko, S. Makarychev-Mikhailov (Schlumberger) 2903086
- 11:25 **A Fiber Optic-Assisted Multilayer Perceptron Reservoir Modeling: A Machine Learning Approach in Prediction of Gas Production From the Unconventional Reservoirs, a Case Study From the Marcellus Shale:** P. Kavousi Ghahfarokhi¹, S. Bhattacharya², T. Carr¹, A. Shahkarami³, J. Elliott¹ (1. West Virginia University; 2. University of Alaska Anchorage; 3. Saint Francis University) 2902641
- 11:50 **Extracted Pore-Network Model for Shales Characterizing Geometry of Void Space:** D. Zheng, Z. A. Reza (University of Oklahoma) 2901785

Theme 05: Permeability Measurement and Modeling

Room 340

Co-Chairs: R. Hassen, B. Liang, and W. Yu

- 8:25 **Introductory Remarks**
- 8:30 **Geological Controls on Liquid Hydrocarbon Permeability of Tight Oil and Liquid-Rich Gas Reservoirs:** A. Ghanizadeh, C. Song, A. Vahedian, C. R. Clarkson (University of Calgary) 2902898
- 8:55 **Impacts of Kerogen and Clay on Stress-Dependent Permeability Measurements of Shale Reservoirs:** C. An, X. Guo*, J. Killough (Texas A&M University) 2902756
- 9:20 **A Finite-difference Based, Multi-scale Approach for Electromagnetic Digital Rock Modeling:** M. Yu¹, Y. Wang¹, J. Chen², J. Chen¹ (1. University of Houston; 2. Aramco) 2900753
- 9:45 **Determination of Shale Matrix Permeability Through Methane Dynamic Production Experiments Using Variable Pressure Gradients:** K. Fan^{1,2}, Y. Li¹, D. Elsworth², M. Dong^{1,3}, H. Yu², C. Yin⁴, Y. Li⁴ (1. China University of Petroleum; 2. The Pennsylvania State University; 3. University of Calgary; 4. CNPC) 2901171
- 10:10 **Refreshment Break**

- 11:00 **Use of Rate-Transient Analysis Techniques for Evaluating Experimental Core Permeability Tests for Unconventional Reservoirs:** A. Vahedian, C. R. Clarkson*, A. Ghanizadeh, B. Zanganeh, C. Song, H. Hamdi (University of Calgary) 2902799
- 11:25 **Integrated Effects of Pore Volume Compaction and Connectivity Loss on Intrinsic Permeability of Shale Samples:** D. Davudov, R. G. Moghanloo (The University of Oklahoma) 2902660
- 11:50 **A Validated Digital Rock Workflow to Accurately Predict Apparent Permeability in Tight Rocks:** J. F. Bautista, D. Freed, B. Crouse, G. Balasubramanian, H. Cheng, R. Zhang, C. Ghodke (Exa Corporation) 2894594

Theme 06: Geophysical Reservoir Characterization in Unconventional Plays

Room 342

Co-Chairs: A. Munoz and S. Singleton

- 8:25 **Introductory Remarks**
- 8:30 **Considerations in Azimuthal Processing and Velocity Inversion for Unconventional Plays:** M. J. Perz¹, W. Keller², V. Kriechbaum² (1. TGS; 2. Enervest, Ltd.) 2892229
- 8:55 **Unconventional Play Fracture Characterization Through Orthorhombic Depth Model Building:** G. Hilburn¹, A. Pendharkar¹, W. Keller², R. Mott², J. Peinado², A. Jumper², V. Kriechbaum² (1. TGS; 2. EnerVest) 2902335
- 9:20 **Steps for Improving the Utility of Land Seismic Data for Unconventional Reservoirs:** C. Stork (Land Seismic Noise Specialists, Inc) 2901978
- 9:45 **Coherence Attribute Applications on Seismic Data in Various Guises:** S. Chopra¹, K. Marfurt² (1. Arcis Seismic Solutions/TGS; 2. The University of Oklahoma) 2886034
- 10:10 **Refreshment Break**
- 11:00 **Fracture Productivity Prediction Considering Natural Fracture Formation Proximal to Fault Damage Zone:** T. Ramsay, L. Hernandez*, J. Li, M. Erdogan (Halliburton) 2900588
- 11:25 **Time-Lapse Petro-Elastic and Seismic Modeling to Evaluate Fracturing Efficiency in Low-Permeability Reservoirs:** M. Alfi¹, Z. Chai¹, A. Pradhan², T. Ramsay³, M. Barrufet¹, J. Killough¹ (1. Texas A&M University; 2. Stanford University; 3. Halliburton) 2857198
- 11:50 **First Unconventional Play From Peruvian Northeast: Muerto Formation:** W. Morales Paetan¹, A. Arguedas¹, J. Rodríguez¹, H. Taipe¹, J. Porlles² (1. Universidad Nacional de Ingeniería; 2. University of Utah) 2903064

Theme 11: Decline Curve Analysis and Reservoir Models I

Room 351

Co-Chairs: F. Male, L. Pirela, and R. Walker

- 8:25 **Introductory Remarks**
- 8:30 **A Physical Decline Curve for Fractured Horizontal Wells:** V. Artus, O. Houzé (KAPPA Engineering) 2856750
- 8:55 **Variation of Hyperbolic-b-parameter for Unconventional Reservoirs, and 3-Segment Hyperbolic Decline Curve Model:** S. Varma, H. Tabatabaie, J. R. Ewert*, L. Mattar (IHS Markit) 2892966
- 9:20 **Criteria for Proper Production Decline Models and Algorithm for Decline Curve Parameter Inference:** P. Zhou, Y. Pan, H. Sang, J. Lee (Texas A&M University) 2903078
- 9:45 **Variable Exponential Decline – Modified Arps to Characterize Unconventional Shale Production Performance:** I. Gupta, C. Rai, C. Sondergeld, D. Devegowda* (University of Oklahoma) 2902794

Wednesday Technical Program

**Denotes a presenter other than the first author.*

- 10:10 **Refreshment Break**
11:00 **A Model-Based Diagnostic Workflow for Time-Rate Performance of Unconventional Wells:** D. S. Fulford (Texas A&M University and Apache Corporation) 2903036
11:25 **Straightforward Representative Fluid Flow Models for Complex Fracture Networks in Unconventional Reservoirs:** J. A. Acuna (Chevron) 2876208
11:50 **A Novel Production Forecast Model for Hydraulic Fractured Wells Based on Anomalous Transport Phenomenon due to the Fractal Geometry of the Fracture Networks:** S. Liu, H. Li, P. P. Valko (Texas A&M University) 2902890

Exhibit Hall

Theme 03: Quantification and Evaluation of Reservoir Quality in Unconventional Reservoirs

Exhibit Hall Station A

Co-Chairs: U. Ahmed, K. Jerath, and B. Liang

- 9:40 **Introductory Remarks**
9:45 **Advances in Borehole Imaging in Unconventional Reservoirs:** M. Morys¹, S. Knizhnik¹, A. R. Duncan², B. E. Tingey² (1. PetroMar Technologies, Inc.; 2. Task Fronterra Geoscience) 2903065
10:10 **Laboratory Evaluation of Apparent Conductivity of UFP:** D. Hu¹, J. C. Montalvo^{*1}, U. Inyang¹, R. Dusterhoft¹, M. Apostolopoulou² (1. Halliburton; 2. University College London) 2902308
10:35 **Causes of Resistivity Reversal in the Vaca Muerta Formation, Argentina:** A. C. Ortiz¹, C. Bernhardt¹, F. Tomassini¹, S. P. Cumella² (1. YPF; 2. SPE) 2901804

- 11:00 **Natural Fractures, Fracture Facies, and Their Applications in the Well Completion – Case Studies From the Permian Wolfcamp Formation, Midland Basin, West Texas, USA:** B. Li¹, J. Wan², P. Lascelles², A. Coker¹ (1. Blackriver Geoscience LLC; 2. EP Energy) 2902102

Theme 04: Geomechanics – Hydraulic Fracture Simulation II

Exhibit Hall Station B

Co-Chairs: A. Ghassemi and X. Weng

- 9:40 **Introductory Remarks**
9:45 **Microscale Laboratory Studies for Determining Fracture Directionality in Tight Sandstone and Shale During Hydraulic Fracturing:** M. A. Ante, G. Manjunath, B. Jha, F. Aminzadeh (University of Southern California) 2903021
10:10 **Geomechanical Investigation of Fracture Hits and Its Implications on Well Integrity and Productivity:** P. Pankaj (Schlumberger) 2876100
10:35 **Micromechanical Modeling of Hydraulic Fracturing in Kerogen Rich Shales:** Y. Fang, Y. Han (Aramco Services Company) 2900577

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Contact Darrin West at
dwest@hartenergy.com

Hydraulic Fracture Test Site (HFTS) Special Session II

Exhibit Hall Station C

Co-Chairs: J. Courtier and K. Perry

See page 16 for more information

9:40 **Introductory Remarks**

9:45 **Downhole Microseismic Mapping of More Than 400 Fracturing Stages on a Multiwell Pad at the Hydraulic Fracturing Test Site (HFTS): Discussion of Operational Challenges and Analytic Results:** N. A. Stegent, C. Candler (Halliburton Energy Services) 2902311

10:10 **Using Stage Level Microseismic Analysis to Gain Insight Into Fracture Efficiency and Completion Effectiveness:** R. Fairfield¹, J. Courtier¹, S. Trowbridge¹, T. Campbell¹, J. Wicker^{*1}, S. Lee² (1. Laredo Petroleum; 2. University of Texas at Austin) 2937228

10:35 **Using Stage Level Microseismic Analysis to Correlate and Ground Truth Cored Hydraulic Fractures:** J. Wicker¹, J. Courtier¹, T. Campbell¹, S. Lee², R. Fairfield, S. Trowbridge (1. Laredo Petroleum; 2. University of Texas at Austin) 2937221

11:00 **Surface Seismic Monitoring of Hydraulic Fracturing Test Site (HFTS) in the Midland Basin, Texas:** A. Kumar¹, K. Chao², R. W. Hammack¹, W. Harbert³ (1. National Energy Technology Laboratory; 2. Northwestern University; 3. University of Pittsburgh) 2902789

11:25 **Microseismicity Analysis for HFTS Pad and Correlation With Completion Parameters:** D. Maity (Gas Technology Institute) 2902355

11:50 **Environmental Monitoring of the Hydraulic Fracture Test Site (HFTS):** S. Eisenlord, T. Hayes (Gas Technology Institute) 2900727

Afternoon Technical Sessions Session Rooms

Theme 12: Emerging Plays in North America

Room 310

Co-Chairs: D. Hume and M. Poole

1:45 **Introductory Remarks**

1:50 **Review of the Bone Spring Hybrid Play in the Delaware Basin:** K. Schwartz, A. Starr, H. Meier, N. Stolte (Chevron) 2901606

2:15 **Predicting Success in the Haynesville Shale: A Geologic, Completion, and Production Analysis:** B. Johnston (RS Energy Group) 2902880

2:40 **The Niobrara Formation in the Southern Powder River Basin, Wyoming: An Emerging Giant Continuous Petroleum Accumulation:** S. Sonnenberg (Colorado School of Mines) 2901558

3:05 **Regional Appraisal of Shale Resource Potential Within the Permian, Anadarko, and Arkoma Basins: How Does the Alpine High Stack Up?:** A. Bromhead, T. Butt (Halliburton) 2886116

Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs II

Room 320

Co-Chairs: J. Alvarez and J. Gujral

1:45 **Introductory Remarks**

1:50 **Diagnosing the Health of Your Well With Rate Transient Analysis:** D. Anderson, J. M. Thompson, H. Behmanesh (Anderson Thompson Reservoir Strategies) 2902908

2:15 **Artificial Lift Selection and Its Applications for Deep Horizontal Wells in the Unconventional Reservoirs:** P. Pankaj (Schlumberger) 2875180

2:40 **Use of Chemical Tracers Reveals Details of Cleaning of a Non-Conventional Gas Well in Vaca Muerta Shale:** J. V. Ramirez, D. Garcia, D. Ceccon, C. D. Ferlaza* (YPF) 2902279

3:05 **Multifunctional Surfactant Provides Superior Post Frac Production by Enhancing Polymer and Load Fluid Recovery:** R. C. Plasier¹, J. Delorey², K. Cooney¹, J. Leguizamon¹, C. Thomson³ (1. BJ Services; 2. Delorey Consulting Inc; 3. Paramount Resources) 2902575

Theme 08: Produced Fluid Geochemical Surveillance – Drained Rock Volume

Room 322

Co-Chairs: M. Laughland and O. Woodruff

1:45 **Introductory Remarks**

1:50 **Fluid Heterogeneity for Tight Unconventionals on a Well-Box Scale:** C. H. Whitson, F. Alqahtani, E. Chuparova (NTNU) 2882502

2:15 **Production of Migrated Oil From Horizontal Wells Drilled Into the Eagle Ford Formation on the San Marcos Arch:** A. S. Kornacki (Weatherford Laboratories Inc.) 2871569

2:40 **Permian Basin Petroleum Systems—Geochemical Insight Into Hydrocarbon Generation, Migration, and Well Performance:** J. B. Curtis, J. E. Zumberge (GeoMark Research Ltd.) 2901680

3:05 **Insights From Stable Isotope Geochemistry Surveillance in the Unconventional Horn River Basin Play:** G. Norville (University of Alberta) 2901086

Theme 07: Surveillance of Unconventional Production and Rock Physics

Room 332

Co-Chairs: S. Sankaran and J. Thompson

1:45 **Introductory Remarks**

1:50 **Rapid Reservoir Modeling With Automated Tops Correlation:** C. Grant, W. M. Bashore, S. Compton (DrillingInfo) 2904037

2:15 **Stimulation Performance Indicators and Machine-Learning-based Analytics in the Utica Shale: Case Study and Lessons Learnt:** S. Perrier^{1,2}, A. Delpeint^{1,2}, A. Shrestha², Z. Shawuti² (1. TOTAL; 2. Chesapeake Energy) 2902017

2:40 **Unlocking Reservoir Potential With a Multilayer Inversion Technique From a Directional Resistivity Tool:** T. Rathmann¹, P. Lemay¹, A. Nandlal², J. Gremillion², M. Flowers² (1. Crescent Point Energy; 2. Schlumberger Ltd.) 2901604

3:05 **Novel Diversion Case Study for Improved Near-Wellbore Connection Between Wellbore and Hydraulic Fracture:** W. P. Scanlan¹, K. Pierskalla¹, D. W. Sobernheim¹, R. Boehringer² (1. Keane Group; 2. Imerys) 2881395

Theme 05: Fluid Flow – Fracture Simulation and Geomechanics

Room 340

Co-Chairs: C. Cipolla and W. Yu

1:45 **Introductory Remarks**

1:50 **Simulation of Proppant Transport in Foam Fracturing Fluid Based on Experimental Results:** K. Mohanty¹, S. Tong^{*1}, M. Gu², R. Singh¹ (1. The University of Texas at Austin; 2. West Virginia University) 2901054

2:15 **Multi-Physics Pore-Scale Modeling of Particle Plugging Due to Fluid Invasion During Hydraulic Fracturing:** Y. Zapata, X. Dong, T. N. Phan, Z. A. Reza (University of Oklahoma) 2901340

Wednesday Technical Program

**Denotes a presenter other than the first author.*

- 2:40 **Understanding the Mechanism of Interwell Fracturing Interference Based on Reservoir-Geomechanics-Fracturing Modeling in Eagle Ford Shale:** X. Guo, K. Wu, J. Killough, J. Tang (Texas A&M University) 2874464
- 3:05 **Modeling of Fluid Injection in Depleted Parent Wells to Minimize Damage Due to Frac-Hits:** D. P. Gala, R. Manchanda, M. Sharma (University of Texas at Austin) 2881265

ARMA (American Rock Mechanics Association): Principles, Simulation, and Practice

Room 342

Chair: J. McLennan

See page 18 for more information

- 1:45 **Introductory Remarks**
- 1:50 **The EGS Collab Project: A Field Stimulation Study in Crystalline Rock to Validate Models:** D. A. Blankenship¹, T. Kneafsey^{*2} (1. Sandia National Laboratories; 2. Lawrence Berkeley National Laboratory)
- 2:15 **Completion Engineer for a Day: How Geology and Geomechanics Can Influence Completion Designs in Unconventionals:** N. Nagel (OilField Geomechanics)
- 2:40 **Modeling of Hydraulic Fracture Height Growth Through Weak Interfaces:** X. Weng (Schlumberger)
- 3:05 **The Formation and Properties of Complex Fracture Networks in Shales:** M. Sharma (University of Texas)

Theme 07: Advanced Materials and Chemistry

Room 351

Co-Chairs: D. Livasy and S. Nash

- 1:45 **Introductory Remarks**
- 1:50 **Quantitative Mineralogy of Vaca Muerta and Alum Shales From Core Chips and Drill Cuttings by Calibrated SEM-EDS Mineralogical Mapping:** C. I. Fialips, B. Labeyrie, V. Burg, V. Maziere, Y. Muneral, H. Haurie, I. Jolivet, R. Lasnel, J. Laurent, L. Lambert, L. Jacquelin-Vallee (TOTAL S.A.) 2902304
- 2:15 **Development of a Mixed Polymer Fracturing Fluid for High Temperature Applications:** T. Almubarak¹, J. Ng², K. Sokhanvarian², H. Nasr-El-Din², M. Khaldi¹ (1. Saudi Aramco EXPEC ARC; 2. Texas A&M University) 2896329
- 2:40 **Enhancing Friction Reducer Performance in High Salt Conditions:** B. Seymour, A. Sanders, D. Friesen (Stepan Company) 2902709
- 3:05 **Can Friction Reducers Transport Sand During Fracturing Treatment?:** L. Shen, L. Vigderman, D. Heller, D. Fu (BJ Services) 2873723

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Presenter Cross Reference

	PRESENTER	DAY	TIME	LOCATION	SESSION TITLE
A	Abascal-Hernández, Griselda	Tue	11:50a	Room 310	Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels II
	Abbas, Ahmed	Mon	4:20p	Exhibit Hall Station B	Theme 14: Drilling and Completions Optimization IV
	Abivin, Patrice	Mon	1:50p	Room 340	Theme 05: Fracturing Fluid, Fracture, and Matrix Interactions
	Acuna, Jorge	Mon	3:55p	Exhibit Hall Station A	Theme 05: Unconventional Well Productivity
	Acuna, Jorge	Wed	11:25a	Room 351	Theme 11: Decline Curve Analysis and Reservoir Models I
	Agrawal, Nipun	Tue	5:10p	Room 332	Theme 13: Water Management
	Agrawal, Shivam	Mon	11:40a	Room 320	Theme 04: Geomechanics and Pore Pressure
	Aimene, Yamina	Mon	1:50p	Room 320	Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)
	Akinnikawe, Oyewande	Tue	9:45a	Room 332	Theme 07: Nanoparticles, Chemistry, and Machine Learning: Tools for Enhancing Oil Recovery
	Alalli, Abdulgader	Mon	5:10p	Room 340	Theme 05: Fracturing Fluid, Fracture, and Matrix Interactions
	Al-Ameri, Aymen	Tue	4:45p	Room 310	Theme 09: Chemical EOR and Novel Techniques
	Alfi, Masoud	Wed	11:25a	Room 342	Theme 06: Geophysical Reservoir Characterization in Unconventional Plays
	Alimahomed, Farhan	Tue	8:30a	Room 351	Theme 11: Well Spacing Optimization
	Almubarak, Tariq	Tue	4:45p	Room 332	Theme 13: Water Management
	Almubarak, Tariq	Wed	2:15p	Room 351	Theme 07: Advanced Materials and Chemistry
	Altman, Raphael	Tue	11:00a	Room 340	Theme 05: Transient Analysis, History Matching, and Reservoir Modeling
	Alzobaidi, Shehab	Wed	8:55a	Room 332	Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind
	Anderson, David	Wed	1:50p	Room 320	Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs II
	Aniemena, Chigozie	Tue	3:55p	Exhibit Hall Station A	Theme 11: Decline Curve Analysis and Reservoir Models II
	Ante, Magdalene	Wed	9:45a	Exhibit Hall Station B	Theme 04: Geomechanics – Hydraulic Fracture Simulation II
B	Artus, Vincent	Wed	8:30a	Room 351	Theme 11: Decline Curve Analysis and Reservoir Models I
	Ashok, Pradeepkumar	Mon	10:50a	Room 330	Theme 07: Augmented Intelligence for Reservoir Characterization and Performance Prediction
	Ayoub, Joseph	Tue	1:50p	Exhibit Hall Station B	Theme 05: Well-Scale Modeling and Simulation
	Bansal, Neha	Tue	11:25a	Room 340	Theme 05: Transient Analysis, History Matching, and Reservoir Modeling
	Barreda, Diego	Tue	3:55p	Room 351	Theme 14: Drilling and Completions Optimization III
	Barsotti, Elizabeth	Tue	2:40p	Room 340	Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes
	Bautista, Juan	Wed	11:50a	Room 340	Theme 05: Permeability Measurement and Modeling
	Behmanesh, Hamid	Tue	9:45a	Room 340	Theme 05: Transient Analysis, History Matching, and Reservoir Modeling
	Bhattacharya, Srimoyee	Tue	8:30a	Room 320	Theme 04: Geomechanics – Hydraulic Fracture Simulation I
	Blount, Aidan	Mon	1:50p	Room 322	Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II
	Bowman, Jeff	Mon	4:45p	Room 330	Operators' Forum – Completion Optimization
	Boyd, Kristen	Tue	9:20a	Room 310	Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels II
	Brackett, Robert	Mon	9:15a	Grand Ballroom A/B	Opening Plenary Session
	Bromhal, Grant	Mon	11:06a	Room 342	Panel: National Labs – Leveraging Basic Science to Advance Subsurface Understanding
	Bromhead, Alex	Wed	3:05p	Room 310	Theme 12: Emerging Plays in North America
	Bunker, Estevan	Mon	1:50p	Room 330	Operators' Forum – Completion Optimization
	Byrnes, Alan	Tue	1:50p	Room 322	Theme 03: NMR and Electrical Measurements
	Byrnes, Alan	Wed	8:55a	Room 322	Theme 03: Physical Properties of Low-Permeability Rocks
C	Cabori, Logan	Mon	2:15p	Exhibit Hall Station B	Theme 14: Drilling and Completions Optimization IV
	Cakici, Deniz	Tue	11:25a	Room 330	Operators' Forum – Performance Prediction and Reservoir Characterization
	Campbell, Whitney	Tue	11:00a	Room 322	Hydraulic Fracture Test Site (HFTS) Special Session I
	Cao, Richard	Mon	10:50a	Room 310	Panel: Impact of Prior Depletion on Completion Efficiency and Well Performance
	Cao, Richard	Tue	8:55a	Room 330	Operators' Forum – Performance Prediction and Reservoir Characterization
	Cao, Richard	Tue	11:00a	Room 351	Theme 11: Well Spacing Optimization
	Casey, B. J.	Mon	10:35a	Exhibit Hall Station C	University Lands Special Session I
	Chakravarty, Aditya	Tue	4:20p	Room 322	Theme 03: NMR and Electrical Measurements

Presenter Cross Reference

Charalambous, Yanni	Mon	4:15p	Room 342
Cheatwood, Chris	Mon	3:55p	Room 342
Chen, Zhiming	Tue	10:10a	Exhibit Hall Station C
Chen, Chaohui	Tue	8:55a	Room 330
Cheng, Kai	Wed	9:20a	Room 322
Chiniwala, Barzin	Wed	11:50a	Room 322
Chopra, Satinder	Tue	2:40p	Exhibit Hall Station A
Chopra, Satinder	Wed	9:45a	Room 342
Ciezobka, Jordan	Tue	8:30a	Room 322
Cipolla, Craig	Tue	1:50p	Room 330
Civan, Faruk	Mon	2:15p	Exhibit Hall Station C
Clarkson, Christopher	Wed	9:20a	Room 310
Clarkson, Christopher	Wed	11:00a	Room 340
Clark, Connor	Tue	4:20p	Room 351
Clarke, Robert	Mon	3:55p	Room 332
Cottingham, Byron	Mon	3:55p	Exhibit Hall Station B
Cottingham, Byron	Tue	5:10p	Room 320
Croft, Tyler	Wed	8:30a	Room 330
Cruz, Leonardo	Wed	11:50a	Room 320
Curtis, John	Wed	2:40p	Room 322
D Dahi Taleghani, Arash	Tue	2:40p	Room 351
Daigle, Hugh	Tue	3:55p	Room 322
Damjanac, Branko	Tue	8:55a	Room 320
D'Angelo, John	Tue	2:15p	Room 351
Davudov, Davud	Wed	11:25a	Room 340
Deng, Lichi	Mon	3:55p	Room 340
Detwiler, Stephen	Tue	9:45a	Exhibit Hall Station B
Devegowda, Deepak	Wed	9:45a	Room 351
Ding, Hongna	Tue	9:20a	Room 332
Dommissie, Robin	Mon	5:10p	Room 332
Driskill, Brian	Tue	4:20p	Exhibit Hall Station C
Dutta, Riteja	Mon	2:15p	Room 332
E E. Santos, Javier	Tue	5:10p	Room 340
Eisenlord, Sarah	Wed	11:50a	Exhibit Hall Station C
Elliott, Sara	Tue	9:45a	Room 322
Elputranto, Riza	Mon	2:40p	Room 340
Euzen, Tristan	Tue	9:45a	Room 310
Evans, Shea	Tue	2:40p	Exhibit Hall Station B
Ewert, James	Wed	8:55a	Room 351
F Fan, Kunkun	Wed	9:45a	Room 340
Fan, Zhaoqi	Tue	4:20p	Room 310
Fang, Yi	Wed	10:35a	Exhibit Hall Station B
Fedorov, Andrey	Tue	11:00a	Room 332
Feng, Yongcun	Wed	9:20a	Room 320
Ferlaza, Carlos	Wed	2:40p	Room 320
Fialips, Claire	Wed	1:50p	Room 351
Fierstien, John	Mon	11:15a	Room 340
Forrest, James	Mon	4:20p	Room 351

Panel: Technologies That Will Make a Difference in Unconventional Reservoir E&P
Panel: Technologies That Will Make a Difference in Unconventional Reservoir E&P
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Operators' Forum – Performance Prediction and Reservoir Characterization
Theme 03: Physical Properties of Low-Permeability Rocks
Theme 03: Physical Properties of Low-Permeability Rocks
Theme 06: The Use of Geophysical Technologies in Unconventional Plays
Theme 06: Geophysical Reservoir Characterization in Unconventional Plays
Hydraulic Fracture Test Site (HFTS) Special Session I
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Theme 04: Beyond Brittleness: Geomechanical Characterization II
Theme 09: Gas Injection Projects
Theme 05: Permeability Measurement and Modeling
Theme 14: Drilling and Completions Optimization III
Theme 11: Reserves, Economics, and Field Studies I
Theme 14: Drilling and Completions Optimization IV
Theme 04: From Perforation to Performance: Geomechanical Applications
Operators' Forum – Operating in the Permian
Theme 04: Beyond Brittleness: Geomechanical Characterization I
Theme 08: Produced Fluid Geochemical Surveillance – Drained Rock Volume
Theme 14: Drilling and Completions Optimization II
Theme 03: NMR and Electrical Measurements
Theme 04: Geomechanics – Hydraulic Fracture Simulation I
Theme 14: Drilling and Completions Optimization II
Theme 05: Permeability Measurement and Modeling
Theme 05: Fracturing Fluid, Fracture, and Matrix Interactions
Theme 05: Nanoscale PVT and IOR
Theme 11: Decline Curve Analysis and Reservoir Models I
Theme 07: Nanoparticles, Chemistry, and Machine Learning: Tools for Enhancing Oil Recovery
Theme 11: Reserves, Economics, and Field Studies I
Theme 08: Geochemistry – Applications to Unconventionals
Theme 11: Reserves, Economics, and Field Studies I
Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes
Hydraulic Fracture Test Site (HFTS) Special Session II
Hydraulic Fracture Test Site (HFTS) Special Session I
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Theme 05: Well-Scale Modeling and Simulation
Theme 11: Decline Curve Analysis and Reservoir Models I
Theme 05: Permeability Measurement and Modeling
Theme 09: Chemical EOR and Novel Techniques
Theme 04: Geomechanics – Hydraulic Fracture Simulation II
Theme 07: From Machine Learning to CT Scanning – Novel Approaches to Old Problems
Theme 04: Beyond Brittleness: Geomechanical Characterization I
Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs II
Theme 07: Advanced Materials and Chemistry
Theme 14: Drilling and Completions Optimization I
University Lands Special Session II

Presenter Cross Reference

Franciose, Nick	Tue	4:45p	Room 330
Freeborn, Randy	Mon	4:45p	Room 332
Frye, Evan	Tue	2:15p	Room 332
Fulford, David	Wed	11:00a	Room 351
Fu, Yingkun	Mon	2:15p	Room 342
G Gala, Deepen	Wed	3:05p	Room 340
Gale, Julia	Tue	8:55a	Room 322
Geetan, Steve	Mon	11:10a	Room 310
Ghanizadeh, Amin	Wed	8:30a	Room 340
Gherabati, Amin	Tue	8:55a	Room 351
Gokaraju, Deepak	Wed	9:45a	Room 320
Gong, Changrui	Mon	11:15a	Room 351
Gorynski, Kyle	Wed	8:30a	Room 322
Grant, Chris	Wed	1:50p	Room 332
Green, Sam	Mon	11:15a	Room 320
Guo, Xuyang	Wed	2:40p	Room 340
Guo, Xuyang	Wed	8:55a	Room 340
H Hakala, Alexandra	Mon	11:00a	Exhibit Hall Station A
Hakala, Alexandra	Tue	2:40p	Room 332
Hammack, Richard	Mon	10:35a	Exhibit Hall Station A
Hammes, Ursula	Mon	3:55p	Room 310
Han, Mei	Mon	1:50p	Room 330
Hegde, Chiranth	Wed	8:30a	Room 332
Hermanson, Kay-Cee	Mon	10:50a	Room 322
Hernandez, Luisalic	Wed	11:00a	Room 342
Hilburn, Guy	Wed	8:55a	Room 342
Hildick, Alice	Mon	1:50p	Exhibit Hall Station C
Hoffman, Todd	Tue	4:45p	Room 340
Hollub, Vicki	Mon	8:45a	Grand Ballroom A/B
Hong, Aojie	Tue	4:20p	Exhibit Hall Station A
Howrith, Ryan	Mon	1:50p	Room 332
Huckabee, Paul	Mon	3:55p	Room 330
Hull, Robert	Tue	8:30a	Room 330
I Iino, Atsushi	Tue	11:50a	Room 351
Ibrahim, Mazher	Mon	11:15a	Room 332
J Jagadisan, Archana	Wed	9:45a	Room 322
Jamali, Ali	Tue	4:20p	Room 332
Janega, Graham	Tue	3:55p	Room 330
Jaripatke, Omkar	Wed	9:20a	Room 330
Jew, Adam	Mon	2:15p	Room 351
Jew, Adam	Mon	2:40p	Room 351
Jiang, Han	Tue	10:10a	Exhibit Hall Station B
Johnston, Brad	Wed	2:15p	Room 310
Jones, David	Mon	11:15a	Room 330

Operators' Forum – Well Spacing and Field Development
 Theme 11: Reserves, Economics, and Field Studies I
 Theme 13: Water Management
 Theme 11: Decline Curve Analysis and Reservoir Models I
 Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs I
 Theme 05: Fluid Flow – Fracture Simulation and Geomechanics
 Hydraulic Fracture Test Site (HFTS) Special Session I
 Panel: Impact of Prior Depletion on Completion Efficiency and Well Performance
 Theme 05: Permeability Measurement and Modeling
 Theme 11: Well Spacing Optimization
 Theme 04: Beyond Brittleness: Geomechanical Characterization I
 Theme 08: Geochemistry – Reservoir Characterization
 Theme 03: Physical Properties of Low-Permeability Rocks
 Theme 07: Surveillance of Unconventional Production and Rock Physics
 Theme 04: Geomechanics and Pore Pressure
 Theme 05: Fluid Flow – Fracture Simulation and Geomechanics
 Theme 05: Permeability Measurement and Modeling
 Theme 13: Stakeholder Management and Social Performance (HSSE)
 Theme 13: Water Management
 Theme 13: Stakeholder Management and Social Performance (HSSE)
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I
 Operators' Forum – Completion Optimization
 Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind
 Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods I
 Theme 06: Geophysical Reservoir Characterization in Unconventional Plays
 Theme 06: Geophysical Reservoir Characterization in Unconventional Plays
 Theme 04: Beyond Brittleness: Geomechanical Characterization II
 Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes
 Opening Plenary Session
 Theme 11: Decline Curve Analysis and Reservoir Models II
 Theme 11: Reserves, Economics, and Field Studies I
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 Operators' Forum – Performance Prediction and Reservoir Characterization
 Theme 11: Well Spacing Optimization
 Theme 12: International Emerging Plays
 Theme 03: Physical Properties of Low-Permeability Rocks
 Theme 13: Water Management
 Operators' Forum – Well Spacing and Field Development
 Operators' Forum – Operating in the Permian
 Theme 08: Inorganic Geochemistry of Unconventional Plays/Fluid Rock Interactions
 Theme 08: Inorganic Geochemistry of Unconventional Plays/Fluid Rock Interactions
 Theme 05: Nanoscale PVT and IOR
 Theme 12: Emerging Plays in North America
 Theme 07: Augmented Intelligence for Reservoir Characterization and Performance Prediction

Presenter Cross Reference

K	Kahn, Charles	Mon	3:55p	Exhibit Hall Station B
	Katiyar, Amit	Tue	5:10p	Room 310
	Katsevich, Alexander	Tue	11:25a	Room 332
	Kavousi Ghahfarokhi, Payam	Wed	11:25a	Room 332
	Keller, Randy	Tue	11:25a	Room 342
	Khvostichenko, Daria	Wed	11:00a	Room 332
	Klepacki, Doug	Tue	1:50p	Room 342
	Kneafsey, Timothy	Mon	11:06a	Room 342
	Kneafsey, Timothy	Wed	1:50p	Room 342
	Kornacki, Alan	Wed	2:15p	Room 322
	Kou, Rui	Tue	11:50a	Room 320
	Kozlowski, Kristen	Tue	8:55a	Room 310
	Krukowski, Elizabeth	Mon	5:10p	Room 322
	Kuchment, Anna	Tue	2:10p	Room 342
	Kumar, Ashish	Mon	4:20p	Room 340
	Kumar, Ashish	Tue	11:50a	Room 322
	Kumar, Abhash	Wed	11:00a	Exhibit Hall Station C
	Kverneland, Hege	Mon	4:25p	Room 342
L	Landry, Christopher	Wed	11:25a	Room 322
	Lasecki, Leo	Mon	4:45p	Room 330
	Lerza, Alejandro	Mon	2:40p	Room 342
	Li, Bingjian	Wed	11:00a	Exhibit Hall Station A
	Li, Jiawei	Tue	3:55p	Room 310
	Li, Maowen	Mon	10:50a	Room 332
	Lindsey, Dakota	Tue	3:55p	Exhibit Hall Station C
	Liu, Guoqing	Tue	9:45a	Exhibit Hall Station C
	Liu, Qingling	Mon	2:40p	Exhibit Hall Station B
	Liu, Shuai	Wed	11:50a	Room 351
	Liu, Shunhua	Wed	9:45a	Room 310
	Liu, Wendi	Tue	3:05p	Exhibit Hall Station B
	Logan, William	Tue	4:45p	Room 320
	Lozano, Felipe	Mon	4:45p	Room 310
	Luo, Guofan	Tue	4:20p	Room 320
M	MacDonald, Richard	Tue	3:55p	Room 340
	Mahmoud, Omar	Mon	2:40p	Room 332
	Maity, Deboryam	Tue	9:20a	Room 322
	Maity, Deboryam	Wed	11:25a	Exhibit Hall Station C
	Male, Frank	Mon	11:25a	Exhibit Hall Station B
	Manchanda, Ripudaman	Tue	11:00a	Room 342
	Maxwell, Shawn	Tue	1:50p	Room 320
	McCann, David	Tue	2:15p	Exhibit Hall Station A
	McDowell, Bryan	Tue	5:10p	Room 322
	Meehan, D. Nathan	Mon	11:25a	Exhibit Hall Station A
	Mehana, Mohamed	Mon	4:20p	Room 332
	Mehmani, Ayaz	Mon	4:45p	Room 340

Theme 14: Drilling and Completions Optimization IV
 Theme 09: Chemical EOR and Novel Techniques
 Theme 07: From Machine Learning to CT Scanning – Novel Approaches to Old Problems
 Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind
 Theme 06: Geophysics in the Permian Basin
 Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind
 Panel: Induced Seismicity – Perspectives and Challenges
 Panel: National Labs – Leveraging Basic Science to Advance Subsurface Understanding
 ARMA (American Rock Mechanics Association): Principles, Simulation, and Practice
 Theme 08: Produced Fluid Geochemical Surveillance – Drained Rock Volume
 Theme 04: Geomechanics – Hydraulic Fracture Simulation I
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels II
 Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II
 Panel: Induced Seismicity – Perspectives and Challenges
 Theme 05: Fracturing Fluids, Fracture and Matrix Interactions
 Hydraulic Fracture Test Site (HFTS) Special Session I
 Hydraulic Fracture Test Site (HFTS) Special Session II
 Panel: Technologies That Will Make a Difference in Unconventional Reservoir E&P
 Theme 03: Physical Properties of Low-Permeability Rocks
 Operators' Forum – Completion Optimization
 Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs I
 Theme 03: Quantification and Evaluation of Reservoir Quality in Unconventional Reservoirs
 Theme 09: Chemical EOR and Novel Techniques
 Theme 12: International Emerging Plays
 Theme 08: Geochemistry – Applications to Unconventionals
 Theme 10: Completion to Reservoir Optimization and Diagnostics
 Theme 14: Drilling and Completions Optimization IV
 Theme 11: Decline Curve Analysis and Reservoir Models I
 Theme 09: Gas Injection Projects
 Theme 05: Well-Scale Modeling and Simulation
 Theme 04: From Perforation to Performance: Geomechanical Applications
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I
 Theme 04: From Perforation to Performance: Geomechanical Applications
 Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes
 Theme 11: Reserves, Economics, and Field Studies I
 Hydraulic Fracture Test Site (HFTS) Special Session I
 Hydraulic Fracture Test Site (HFTS) Special Session II
 Theme 11: Reserves, Economics, and Field Studies II
 Theme 06: Geophysics in the Permian Basin
 Theme 04: Fracture Monitoring and Diagnostics
 Theme 06: The Use of Geophysical Technologies in Unconventional Plays
 Theme 03: NMR and Electrical Measurements
 Theme 13: Stakeholder Management and Social Performance (HSSE)
 Theme 11: Reserves, Economics, and Field Studies I
 Theme 05: Fracturing Fluid, Fracture, and Matrix Interactions

Presenter Cross Reference

Meyer, Jeremy	Mon	3:55p	Room 320
Milad, Benmadi	Mon	11:40a	Room 322
Milad, Benmadi	Tue	11:25a	Room 310
Min, Kyoung Suk	Mon	2:40p	Room 330
Mintz, Jason	Mon	11:40a	Room 330
Miskimins, Jennifer	Mon	2:40p	Room 322
Mohan, Kshitij	Tue	8:30a	Room 340
Mohanty, Kishore	Tue	1:50p	Room 310
Mokhtari, Mehdi	Wed	8:30a	Room 320
Montalvo, Janette	Wed	10:10a	Exhibit Hall Station A
Moore, Johnathan	Mon	1:50p	Room 351
Moore, Rachael	Tue	9:45a	Room 342
Morales Paetan, Walter Jacob	Wed	11:50a	Room 342
Moridis, George	Mon	11:00a	Exhibit Hall Station B
Morys, Marian	Wed	9:45a	Exhibit Hall Station A
Motiee, Monet	Tue	1:50p	Room 330
Muralidharan, Vivek	Tue	11:00a	Room 330
Mutlu, Uno	Tue	9:45a	Room 320
Myers, Grant	Mon	4:45p	Room 322
N Nagarajan, Narayana (Nagi)	Mon	4:20p	Exhibit Hall Station A
Nagel, Neal	Mon	10:50a	Room 320
Nieto, John	Tue	3:55p	Room 330
Norville, Giselle	Wed	3:05p	Room 322
O Odi, Uchenna	Mon	2:40p	Room 310
Ogilvy, Kaley	Mon	11:50a	Exhibit Hall Station B
Ortega-Lucach, Sandra	Mon	11:40a	Room 351
Ortiz, Alberto	Wed	10:35a	Exhibit Hall Station A
P Pankaj, Piyush	Mon	2:15p	Room 340
Pankaj, Piyush	Wed	10:10a	Exhibit Hall Station B
Pankaj, Piyush	Tue	9:20a	Room 351
Pankaj, Piyush	Wed	2:15p	Room 320
Parsegov, Sergei	Tue	9:45a	Exhibit Hall Station A
Pawar, Rajesh	Mon	10:58a	Room 342
Perrier, Sebastien	Wed	2:15p	Room 332
Perz, Michael	Wed	8:30a	Room 342
Phan, Tien	Mon	2:15p	Exhibit Hall Station A
Pinto, Jesús	Mon	5:10p	Room 320
Plasier, Ronald	Wed	3:05p	Room 320
Pollock, Caleb	Mon	2:40p	Room 320
Polsky, Yarom	Mon	10:50a	Room 342

Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)
 Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods I
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels II
 Operators' Forum – Completion Optimization
 Theme 07: Augmented Intelligence for Reservoir Characterization and Performance Prediction
 Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II
 Theme 05: Transient Analysis, History Matching, and Reservoir Modeling
 Theme 09: Chemical EOR and Novel Techniques
 Theme 04: Beyond Brittleness: Geomechanical Characterization I
 Theme 03: Quantification and Evaluation of Reservoir Quality in Unconventional Reservoirs
 Theme 08: Inorganic Geochemistry of Unconventional Plays/Fluid Rock Interactions
 Theme 06: Geophysics in the Permian Basin
 Theme 06: Geophysical Reservoir Characterization in Unconventional Plays
 Theme 11: Reserves, Economics, and Field Studies II
 Theme 03: Quantification and Evaluation of Reservoir Quality in Unconventional Reservoirs
 Operators' Forum – Well Spacing and Field Development
 Operators' Forum – Performance Prediction and Reservoir Characterization
 Theme 04: Geomechanics – Hydraulic Fracture Simulation I
 Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II
 Theme 05: Unconventional Well Productivity
 Theme 04: Geomechanics and Pore Pressure
 Operators' Forum – Well Spacing and Field Development
 Theme 08: Produced Fluid Geochemical Surveillance – Drained Rock Volume
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I
 Theme 11: Reserves, Economics, and Field Studies II
 Theme 08: Geochemistry – Reservoir Characterization
 Theme 03: Quantification and Evaluation of Reservoir Quality in Unconventional Reservoirs
 Theme 05: Fracturing Fluid, Fracture, and Matrix Interactions
 Theme 04: Geomechanics – Hydraulic Fracture Simulation II
 Theme 11: Well Spacing Optimization
 Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs II
 Theme 04: Geomechanics: From Lab To Field
 Panel: National Labs – Leveraging Basic Science to Advance Subsurface Understanding
 Theme 07: Surveillance of Unconventional Production and Rock Physics
 Theme 06: Geophysical Reservoir Characterization in Unconventional Plays
 Theme 09: EOR Applications for Unconventional Reservoirs
 Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)
 Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs II
 Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)
 Panel: National Labs – Leveraging Basic Science to Advance Subsurface Understanding

Presenter Cross Reference

Posenato Garcia, Artur	Tue	2:40p	Room 322
Pradhan, Yogashri	Mon	11:00a	Exhibit Hall Station C
Pradhan, Yogashri	Mon	11:25a	Exhibit Hall Station C
Pradhan, Yogashri	Mon	5:10p	Room 351
Putri, Kamilia	Mon	1:50p	Room 342
R Rasmus, John	Tue	2:15p	Room 322
Rathmann, Tim	Wed	2:40p	Room 332
Rauch-Davies, Marianne	Tue	8:30a	Room 342
Ravikumar, Arjun	Tue	11:25a	Room 351
Repchuk, Kristina	Tue	4:20p	Exhibit Hall Station B
Reynolds, Amanda	Mon	3:55p	Room 322
Romero McIntosh, Cristian	Mon	1:50p	Exhibit Hall Station B
S Ross, Christopher	Tue	8:55a	Room 342
Sahni, Vinay	Wed	8:55a	Room 310
Saini, Gurtej	Wed	9:45a	Room 332
Salahshoor, Shadi	Tue	4:20p	Room 340
Salem, Anthony	Mon	4:20p	Room 310
Sanaei, Alireza	Tue	2:40p	Room 310
Saputra, I Wayan Rakananda	Tue	2:15p	Room 310
Scanlan, William	Wed	3:05p	Room 332
Schwartz, Kenneth	Wed	1:50p	Room 310
Sethi, Richa	Tue	3:55p	Room 320
Sesetty, Varahanaresh	Tue	9:20a	Room 320
Seymour, Brian	Wed	2:40p	Room 351
Sharma, Mukul	Wed	3:05p	Room 342
Sharma, Ramesh	Tue	1:50p	Room 332
Shelley, Robert	Tue	5:10p	Room 351
Shen, Lingjuan	Wed	3:05p	Room 351
Sherman, Christopher	Tue	2:15p	Room 320
Singleton, Scott	Tue	9:20a	Room 342
Sinha, Saurabh	Tue	5:10p	Room 342
Slatt, Roger	Mon	2:15p	Room 310
Smith, Steven	Wed	11:25a	Room 310
Sobczyk, Rad	Mon	4:20p	Room 320
Sommer, Andrew	Wed	8:55a	Room 330
Sonnenberg, Steve	Wed	2:40p	Room 310
Sorensen, James	Wed	8:30a	Room 310
Spicer, Sean	Tue	2:40p	Room 320
Spies, Chris	Mon	4:05p	Room 342
Stegent, Neil	Wed	9:45a	Exhibit Hall Station C
Stephenson, Ben	Mon	2:15p	Room 320
Stork, Christof	Wed	9:20a	Room 342
Stotts, Garth	Mon	11:00a	Room 310
Suo, Yu	Tue	10:10a	Exhibit Hall Station A
Swanson, Cory	Tue	8:55a	Room 332
Szafranski, Dawid	Tue	3:55p	Room 342

Theme 03: NMR and Electrical Measurements
University Lands Special Session I
University Lands Special Session I
University Lands Special Session II
Theme 10: Flowback and Artificial Lift for Unconventional Reservoirs I
Theme 03: NMR and Electrical Measurements
Theme 07: Surveillance of Unconventional Production and Rock Physics
Theme 06: Geophysics in the Permian Basin
Theme 11: Well Spacing Optimization
Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels III
Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II
Theme 14: Drilling and Completions Optimization IV
Theme 06: Geophysics in the Permian Basin
Theme 09: Gas Injection Projects
Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind
Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes
Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I
Theme 09: Chemical EOR and Novel Techniques
Theme 09: Chemical EOR and Novel Techniques
Theme 07: Surveillance of Unconventional Production and Rock Physics
Theme 12: Emerging Plays in North America
Theme 04: From Perforation to Performance: Geomechanical Applications
Theme 04: Geomechanics – Hydraulic Fracture Simulation I
Theme 07: Advanced Materials and Chemistry
ARMA (American Rock Mechanics Association): Principles, Simulation, and Practice
Theme 13: Water Management
Theme 14: Drilling and Completions Optimization III
Theme 07: Advanced Materials and Chemistry
Theme 04: Fracture Monitoring and Diagnostics
Theme 06: Geophysics in the Permian Basin
Induced Seismicity Special Session
Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I
Theme 09: Gas Injection Projects
Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)
Operators' Forum – Operating in the Permian
Theme 12: Emerging Plays in North America
Theme 09: Gas Injection Projects
Theme 04: Fracture Monitoring and Diagnostics
Panel: Technologies That Will Make a Difference in Unconventional Reservoir E&P
Hydraulic Fracture Test Site (HFTS) Special Session II
Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)
Theme 06: Geophysical Reservoir Characterization in Unconventional Plays
Panel: Impact of Prior Depletion on Completion Efficiency and Well Performance
Theme 04: Geomechanics: From Lab To Field
Theme 07: Nanoparticles, Chemistry, and Machine Learning: Tools for Enhancing Oil Recovery
Induced Seismicity Special Session

Presenter Cross Reference

T	Takahashi, Shinya	Wed	9:20a	Room 332
	Tanakov, Ivan	Mon	1:50p	Room 330
	Tandon, Saurabh	Mon	4:20p	Room 322
	Tang, Jizhou	Tue	11:00a	Room 320
	Tang, Yongchun	Mon	10:50a	Room 351
	Thompson, Jill	Tue	4:45p	Room 330
	Thompson, Michelle	Mon	1:50p	Room 310
	Tian, Xiao	Tue	11:50a	Room 332
	Tinker, Scott	Mon	9:00a	Grand Ballroom A/B
	Tinni, Ali	Tue	1:50p	Room 340
	Tittlemier, Troy	Mon	2:15p	Room 322
	Todea, Felix	Tue	11:00a	Room 310
	Tong, Songyang	Wed	1:50p	Room 340
	Tong, Songyang	Tue	8:30a	Room 332
	Torres Rivero, Jose	Tue	2:15p	Exhibit Hall Station B
	Torres-Parada, Emilio	Tue	8:30a	Room 310
U	Tovar, Francisco	Wed	11:00a	Room 310
	Trumbo, Amanda	Mon	4:45p	Room 330
	Ugueto, Gustavo	Mon	3:55p	Room 330
	Valdes-Perez, Alex	Tue	8:55a	Room 340
V	Velasco, Aaron	Tue	2:00p	Room 342
	Veselinovic, Dragan	Tue	4:45p	Room 322
	Viens, Christopher	Mon	5:10p	Room 310
	Walls, Joel	Mon	11:15a	Room 322
W	Wanderley de Holanda, Rafael	Mon	10:35a	Exhibit Hall Station B
	Wang, Haijing	Tue	1:50p	Room 351
	Wang, Iris	Wed	10:10a	Exhibit Hall Station C
	Wang, Weiwei	Tue	11:25a	Room 320
	Weng, Xiaowei	Wed	2:40p	Room 342
	Whitson, Curtis	Wed	1:50p	Room 322
	Wicker, Joe	Wed	10:35a	Exhibit Hall Station C
	Wilcox, Andra	Tue	3:55p	Room 332
	Winberg, Steve	Mon	8:35a	Grand Ballroom A/B
	Wood, Tanner	Tue	11:25a	Room 322
	Wojtaszek, Magdalene	Mon	3:55p	Room 330
	Xiao, Yue	Tue	11:00a	Exhibit Hall Station A
X	Xiong, Hongjie	Mon	4:45p	Room 351
	Xu, Liang	Tue	4:45p	Room 351
	Xu, Rui	Tue	11:00a	Exhibit Hall Station B
	Xu, Yifei	Tue	11:50a	Room 340
	Xu, Zhengming	Mon	1:50p	Exhibit Hall Station B
	Xu, Ziyi	Mon	10:50a	Room 340
	Yale, David	Wed	2:15p	Room 342
	Yang, Gang	Tue	10:35a	Exhibit Hall Station B
Y	Ye, Zhi	Wed	11:25a	Room 320

Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind
 Operators' Forum – Completion Optimization
 Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II
 Theme 04: Geomechanics – Hydraulic Fracture Simulation I
 Theme 08: Geochemistry – Reservoir Characterization
 Operators' Forum – Well Spacing and Field Development
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I
 Theme 07: From Machine Learning to CT Scanning – Novel Approaches to Old Problems
 Opening Plenary Session
 Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes
 Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods II
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels II
 Theme 05: Fluid Flow – Fracture Simulation and Geomechanics
 Theme 07: Nanoparticles, Chemistry, and Machine Learning: Tools for Enhancing Oil Recovery
 Theme 05: Well-Scale Modeling and Simulation
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels II
 Theme 09: Gas Injection Projects
 Operators' Forum – Completion Optimization
 Operators' Forum – Completion Optimization
 Theme 05: Transient Analysis, History Matching, and Reservoir Modeling
 Panel: Induced Seismicity – Perspectives and Challenges
 Theme 03: NMR and Electrical Measurements
 Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels I
 Theme 03: Formation Evaluation – Integrated Workflows and Interpretation Methods I
 Theme 11: Reserves, Economics, and Field Studies II
 Theme 14: Drilling and Completions Optimization II
 Hydraulic Fracture Test Site (HFTS) Special Session II
 Theme 04: Geomechanics – Hydraulic Fracture Simulation I
 ARMA (American Rock Mechanics Association): Principles, Simulation, and Practice
 Theme 08: Produced Fluid Geochemical Surveillance – Drained Rock Volume
 Hydraulic Fracture Test Site (HFTS) Special Session II
 Theme 13: Water Management
 Opening Plenary: The Shale Revolution - Getting Down to Business
 Hydraulic Fracture Test Site (HFTS) Special Session I
 Operators' Forum – Completion Optimization
 Theme 04: Geomechanics: From Lab To Field
 University Lands Special Session II
 Theme 14: Drilling and Completions Optimization III
 Theme 05: Nanoscale PVT and IOR
 Theme 05: Transient Analysis, History Matching, and Reservoir Modeling
 Theme 14: Drilling and Completions Optimization IV
 Theme 14: Drilling and Completions Optimization I
 ARMA (American Rock Mechanics Association): Principles, Simulation, and Practice
 Theme 05: Nanoscale PVT and IOR
 Theme 04: Beyond Brittleness: Geomechanical Characterization I

Presenter Cross Reference

Yee, Denise	Tue	3:55p	Exhibit Hall Station B
Yeh, Tzu-hao	Tue	11:25a	Room 330
Yolo, Barco	Wed	11:50a	Room 310
Yu, Mengping	Wed	9:20a	Room 340
Yuan, Bin	Mon	2:40p	Exhibit Hall Station C
Yuan, Bin	Tue	9:20a	Room 340
Yue, Kaimin	Wed	11:00a	Room 320
Z Zapata, Yuliana	Wed	2:15p	Room 340
Zeidouni, Mehdi	Tue	10:35a	Exhibit Hall Station C
Zhang, Fan	Mon	2:40p	Exhibit Hall Station A
Zhang, Hongliang	Tue	4:20p	Room 342
Zhang, Jin	Mon	1:50p	Exhibit Hall Station A
Zhang, Kaiyi	Tue	2:15p	Room 340
Zhang, Tuanfeng	Mon	11:40a	Room 340
Zhang, Yihuai	Tue	10:35a	Exhibit Hall Station A
Zheng, Da	Wed	11:00a	Room 322
Zheng, Da	Wed	11:50a	Room 332
Zheng, Wei	Tue	9:45a	Room 351
Zheng, Yingcai	Tue	1:50p	Exhibit Hall Station A
Zhou, Hongyuan	Wed	8:55a	Room 320
Zhou, Jie	Mon	4:45p	Room 320
Zhou, Peng	Wed	9:20a	Room 351
Zoback, Mark	Tues.	4:45p	Room 342

Theme 02: Integrated Characterization of Unconventional Reservoirs – From Outcrops to Geomodels III
 Operators' Forum – Performance Prediction and Reservoir Characterization
 Theme 09: Gas Injection Projects
 Theme 05: Permeability Measurement and Modeling
 Theme 04: Beyond Brittleness: Geomechanical Characterization II
 Theme 05: Transient Analysis, History Matching, and Reservoir Modeling
 Theme 04: Beyond Brittleness: Geomechanical Characterization I
 Theme 05: Fluid Flow – Fracture Simulation and Geomechanics
 Theme 10: Completion to Reservoir Optimization and Diagnostics
 Theme 09: EOR Applications for Unconventional Reservoirs Induced Seismicity Special Session
 Theme 09: EOR Applications for Unconventional Reservoirs
 Theme 05: Fluid Flow – Nanoscale Compositional and Diffusion Processes
 Theme 14: Drilling and Completions Optimization I
 Theme 04: Geomechanics: From Lab To Field
 Theme 03: Physical Properties of Low-Permeability Rocks
 Theme 07: Big Data and Artificial Intelligence Are Rapidly Changing the Oilfield – Don't Be Left Behind
 Theme 11: Well Spacing Optimization
 Theme 06: The Use of Geophysical Technologies in Unconventional Plays
 Theme 04: Beyond Brittleness: Geomechanical Characterization I
 Theme 04: AAPG's Petroleum Structure and Geomechanics Division (PSGD)
 Theme 11: Decline Curve Analysis and Reservoir Models I
 Induced Seismicity Special Session

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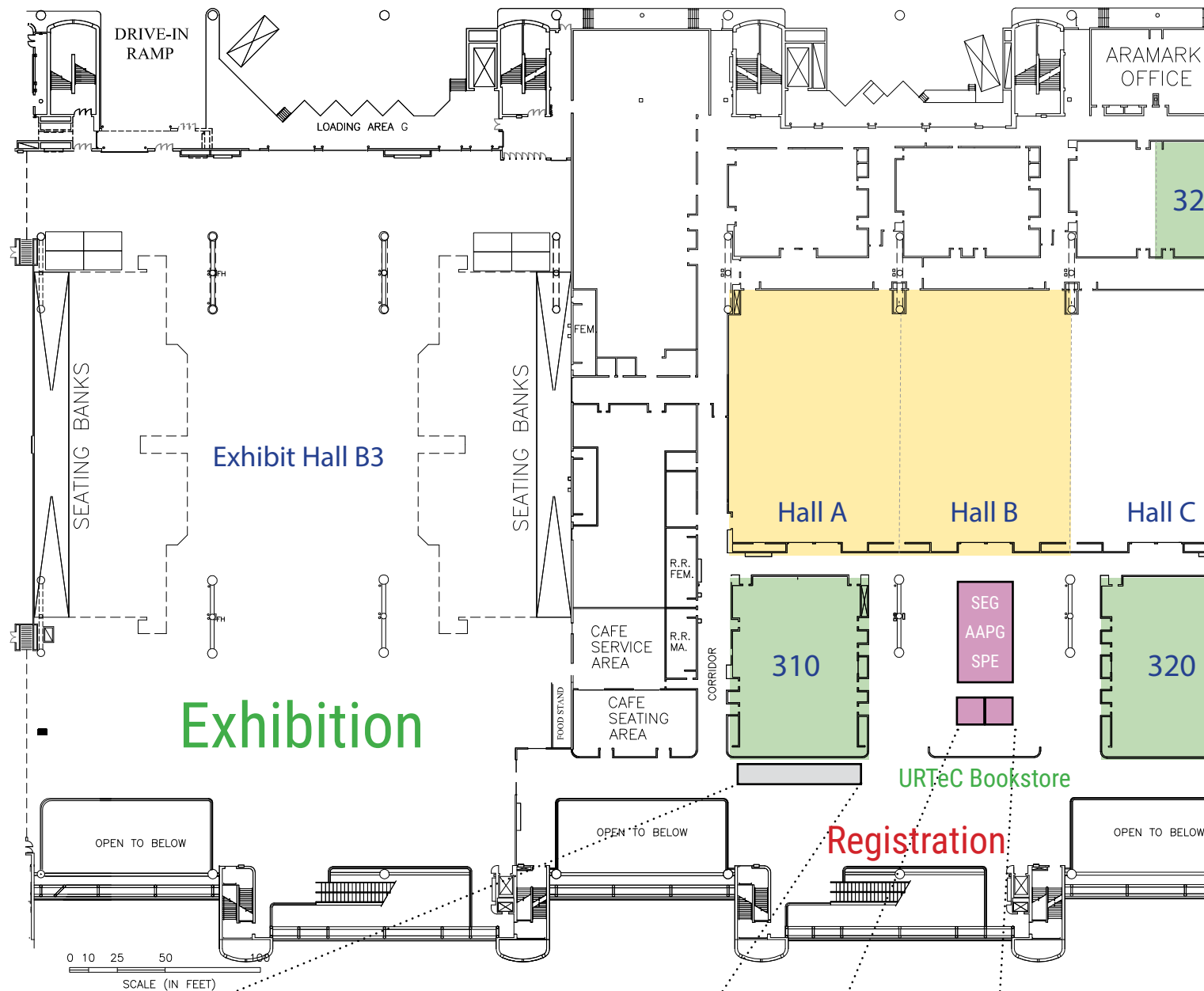
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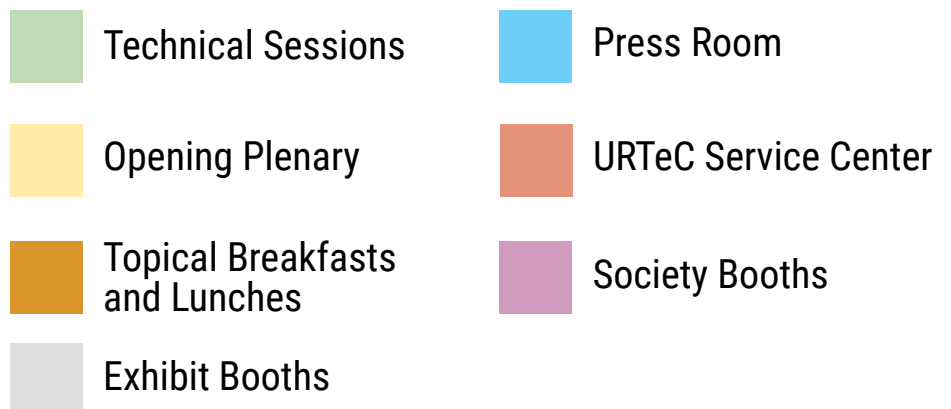


3000	3001	3003	3004	3005	3006	3007
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Hart Energy	3000	Integrated Energy Services	3004
NAPE Expo	3001	Geophysical Society of Houston	3005
GEO ExPro	3003	Rocky Mountain Association of Geologists	3006
		World Oil	3007

3008	3009
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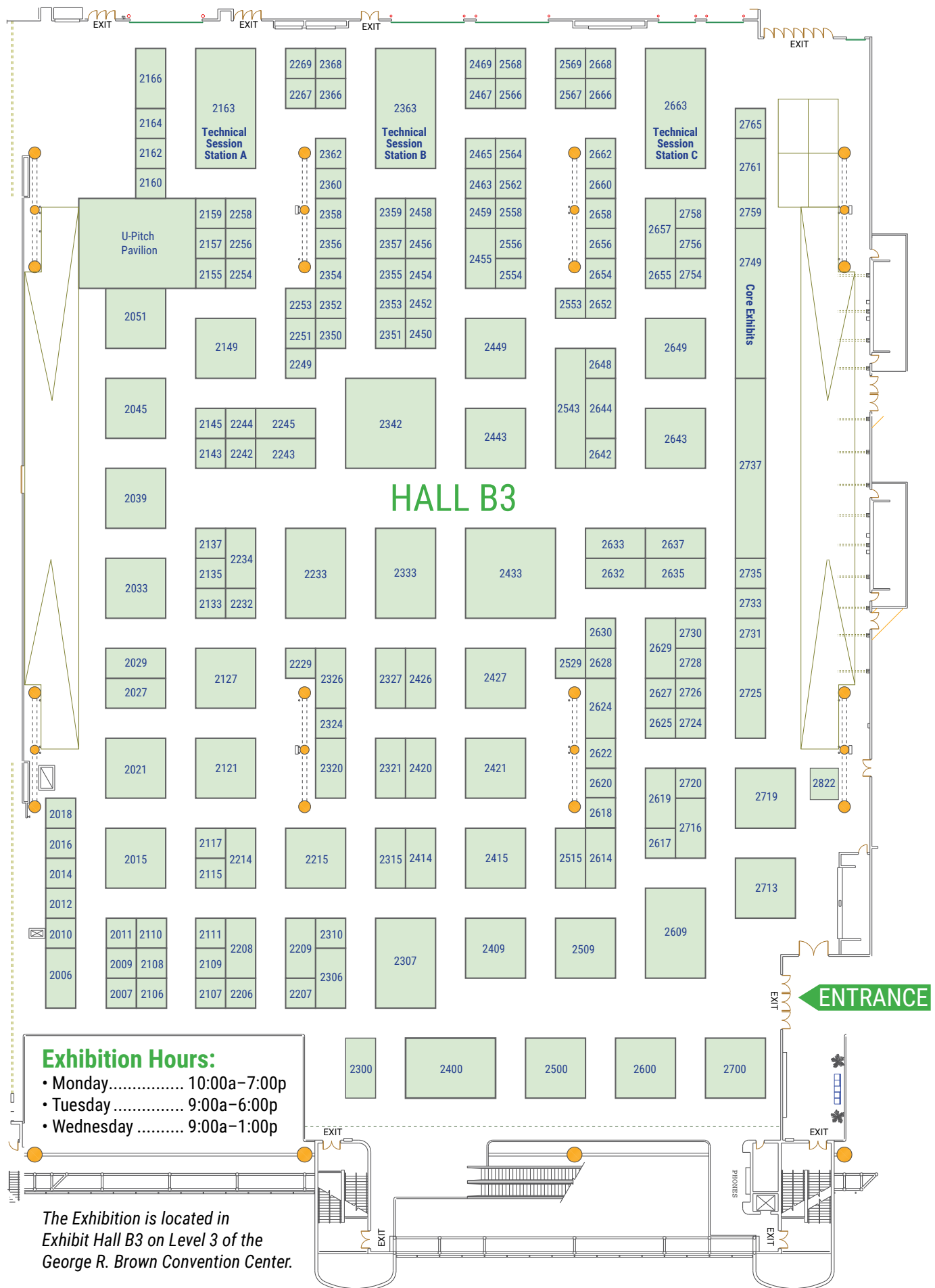
The American Society of Mechanical Engineers (ASME)	3008
American Rock Mechanics Association (ARMA)	3009



Exhibitors

3esi-Energisight	2021	Geophysical Society of Houston	3005	ROGII Inc	2127
American Association of Petroleum Geologists (AAPG)	Grand Ballroom Lobby	Geo-Steering Solutions Inc.	2117	Rose and Associates LLP	2456
Allied Horizontal Wireline	2356	Getech	2207	Rosen USA	2569
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AAPG Datapages	3002	GTI Hydraulic Fracture Test Site 2	2251	RS Energy	2301
American Rock Mechanics Association (ARMA)	3009	Haliburton	2160	RTC Lab	2765
The American Society of Mechanical Engineers (ASME)	3008	Halliburton Energy Services Inc.	2433	Safoco Inc	2529
Battelle	2115	Hart Energy	3000	Saudi Aramco	2443
BHGE - Digital Reservoir Software	2258	Houston Geological Society	2655	Saudi Geophysical Consulting Office	2253
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Biodentify	2564	Hydrocarbon Data Systems	2617	Schlumberger	2543
Biota Technology	2628	iCore Group inc	2658	SEISMOS	2500
Bruker Corporation	2725	IHS Markit	2633	SeisWare Inc.	2006
C&J Energy Services	2427	Ikon Science	2713	Seitel Inc	2415
Calsep Incorporated	2726	Impac Exploration Services	2306	Selman & Associates, LTD	2620
Carbo	2039	Impact Selector	2108	Sentek Instrument	2454
Cegal LLC	2111	Infrastructure Networks	2157	SGS Canada Inc.	2450
CGG	2426	Integrated Energy Services Inc.	3004	Shale IOR LLC	2155
Chemostrat	2731	Integrity Geological Services, LLC	2368	Shale Oil Tools	2660
Chesapeake Energy Corporation	2765	iReservoir.com	2359	Shale.ai	2011
Chetu Inc.	2007	ITF Software	2350	ShaleProfile	2562
Citadel Casing Solutions	2107	KAPPA Engineering	2643	Sharp Reflections Inc.	2618
ClampOn, Inc.	2724	Keane Group	2627	SIGMA3	2632
Comitt Well Solutions	2567	King Canyon Buffalo Inc	2635	Signum Instruments	2356
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Cordax Evaluation Technologies, Inc.	2324	Linde LLC	2018	Sim Tech, LLC	2269
Core Laboratories	2737	Lumina Technologies	2357	Society of Exploration Geophysicists (SEG)	Grand Ballroom Lobby
Core Mineralogy, Inc.	2244	MagVar	2027	Society of Petroleum Engineers (SPE)	Grand Ballroom Lobby
D&L Oil Tools	2421	MATHESON	2164	Sound QI Solutions Ltd.	2355
Dawson Geophysical Company	2409	MetaRock Laboratories	2622	Stratagraph, Inc.	2110
Devon Strategic Innovation Group	2159	MicroSeismic, Inc.	2509	Subsea Technologies	2010
dGB Earth Sciences	2644	MJ SYSTEMS	2360	Subsurface Consultants & Associates, LLC	2554
Digital Formation	2609	Motive Drilling Technologies	2027	TAO Petroleum Consulting	2568
Diversified Well Logging, LLC	2469	Nabors Industries	2149	TARGET Energy Solutions	2668
DiverterPlus LLC	2458	Nalco Champion	2009	Tartan Energy Group	2465
Drill2Frac	2214	Nanometrics	2351	Task Fronterra Geoscience	2206
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Dynamic Graphics, Inc.	2637	Nautilus	2414	Terra Guidance LLC	2720
Dynamic Technologies (DTCC)	2162	National Petrographic Service	2758	Terves Incorporated	2648
EAGE - European Association of Geoscientists and Engineers	2656	NCS Multistage	2307	TETRA Technologies, Inc.	2700
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EDGE Finance, LLC	2515	New England Research Inc	2014	Thru Tubing Solutions	2051
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Enthought	2629	Occidental Petroleum Corporation	2459	Tubel Energy	2133
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Fairfield Geotechnologies	2719	Paladin Geological Services	2455	United Oil & Gas Consulting	2232
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Exhibition Hours

- Monday 10:00a–7:00p
- Tuesday 9:00a–6:00p
- Wednesday..... 9:00a–1:00p

Exhibition Location

The Exhibition is located in Exhibit Hall B3 on Level 3 of the George R. Brown Convention Center.

U-Pitch

Brand new this year to URTeC, the U-Pitch Pavilion is conveniently located inside the Exhibition. Stop by and find out about the technology of tomorrow through the innovative ideas and new ventures being presented. Dedicated to connecting entrepreneurs, investors, and potential partners – all are welcome to come and find out more. See page 22 for more information.

URTeC Society Booth

Stop by the Society Booth and visit with all three Sponsoring Organizations (SPE, AAPG, and SEG), located in the Grand Ballroom Lobby.

URTeC Bookstore

For the first time, SPE, SEG, and AAPG will have a joint Bookstore at URTeC. Located in the Grand Ballroom Lobby directly across from Registration, this Bookstore will have unconventional-related products for sale from each society. Be sure to come by and browse. Of note at this inaugural Bookstore will be an author signing for “Atlas of Natural and Induced Fractures in Core” by John C. Lorenz and Scott P. Cooper. John Lorenz will be signing copies on Tuesday, 24 July from 10:00a–noon.



Core Exhibits

View Core Samples in the Exhibit Hall from around the globe and discover the true variability of these tight reservoirs.

Core evaluation has undergone a rebirth thanks to investment in unconventional plays both in North America and globally, which has fostered and necessitated a back-to-the-rocks approach to reservoir analysis. It has become a fundamental piece of the exploration phase in terms of reservoir characterization, and it continues to add value during the optimization phase of a development program.

Presentations and materials displaying the analytical methods and raw data will help provide a better understanding of the sedimentology, petrology, and reservoir characterization.

Core samples from previous URTeC meetings have included:

- Wolfcamp (Delaware and Midland)
- Woodford Permian
- Eagle Ford
- Avalon Shale
- Bone Spring
- Bakken
- Utica
- Marcellus
- Tuscaloosa Marine Shale
- Haynesville

The Core Exhibits are conveniently located inside the Exhibit Hall in Booth #2749



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Hiring managers will be onsite throughout URTeC to interview professionals whose expertise match our open positions.

Visit us at booth #2443 to find out how you can make an impact and be part of one of our many multidisciplinary teams or apply online at www.aramco.jobs/urtec.

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