

URTeC 2024 Technical Program Alternates

** Denotes presenter other than first author.*

Theme 1: Operators' Forum: Case Studies Highlighting the Multidisciplinary Approach to Exploration, Appraisal, Pilot Tests, and Development

- **MPD Technique Drive Through Extreme Narrow Pressure Window, Eliminate Drilling Hazard Related to HPHT Salt Anhydrite and Limestone Formation in North Kuwait Jurassic Deep Well**
R.M. Alqabandi*, G. Marin, H. Benyounes, A. Aliyeva, Weatherford, Kuwait, KUWAIT A. Alomar, N. Abdulmohsen, Kuwait Oil Company, Ahmadi, KUWAIT
- **Chlorine Dioxide (CLO₂) Acid – Restimulation in Unconventional Wells: Redefining the Type Curve and Depletion Assumptions of Unconventional Resources**
P. Dalamarinis*, S. Fusselman, DG Petro Oil and Gas, McKinney, Texas, UNITED STATES
- **Optimization of Parent-Child-Well Spacing and Completion Design: A Delaware Basin Case Study**
H. Xiong*, University Lands, Houston, Texas, UNITED STATES T. Pham, PETE, UT Austin, Austin, Texas, UNITED STATES P. Sarkar, PETE, TAMU, College Station, Texas, UNITED STATES

Theme 2: Advanced Formation Evaluation

- **Negative Production Factor Recognition and Separation From Other Pore Fluids with Advanced Logging Techniques: A Case Study From Junggar Basin**
L. Cai*, SLB, Beijing, CHINA
- **Correlations for Initial Formation Volume Factor Estimation: A Case Study in Midland Basin**
S. Moonesan*, TORA, University of Texas, Katy, Texas, UNITED STATES
- **Permeability Variation During CO₂ Pre-Fracturing in Shale Reservoir: A Case Study of Ordos Basin**
W. Tang*, F. Zhou, L. hu, G. Huang, L. Li, China university of petroleum-Beijing, Beijing, CHINA
- **Evaluation of Hydrogen Interaction with Mudrocks: Implication for Geo-Storage**
S. Mamoudou*, S.T. Dang, C. Rai, Mewbourne College of Earth and Energy, University of Oklahoma, Norman, Oklahoma, UNITED STATES
- **Relative Permeability, Microscopic Displacement Efficiency and Microscopic Remaining Oil Distribution in Multi-Modal Carbonates**
M. Wang*, K. Wu, J. Li, China university of petroleum in Beijing, Beijing, CHINA Z. Chen, University of Calgary, Calgary, Alberta, CANADA D. Feng, China University of Geosciences in Beijing, Beijing, CHINA
- **Unveiling Stimulation Fluid-Driven Alterations of Pore Architecture in the Mowry Shale, Wyoming**
V. Alvarado*, Chemical and Biomedical Engineering, University of Wyoming, Laramie, Wyoming, UNITED STATES G. Copeland, F. McLaughlin, School of Energy Resources, University of Wyoming, Laramie, Wyoming, UNITED STATES Z. Kou, Columbia University, New York, New York, UNITED STATES

Theme 3: Geological Characterization and Evaluation Spanning the E&P Lifecycle

- **Deciphering Deep Coalbed Methane Sweet Spots in the Ordos Basin: Geological Influences and Characteristics**
Z. Liu*, Z. Hu, B. Shen, D. Feng, W. Du, S. Zhao, X. Chen, J. Zhang, J. Wan, Z. Liu, Sinopec Petroleum Exploration and Production Research Institute, Beijing, CHINA
- **Geological Insights into Lacustrine Shale Oil and Gas: The Jurassic Ziliujing Formation in China's Sichuan Basin**
D. Feng*, P. Li, Q. wang, C. Sun, Z. Liu, R. Wang, S. Xu, National Key Laboratory of Shale Oil and Gas Enrichment Mechanism and Efficient Development, Beijing, CHINA D. Feng, P. Li, Q. wang, C. Sun, Y. Xiao, Z. Liu, R. Wang, S. Xu, Sinopec Petroleum Exploration and Production Research Institute, Beijing, CHINA
- **A Revolutionary Workflow for Precise and Fast Calibration of Hydraulic and Natural Fractures' Geometries in Sichuan's Shale Gas Basin, Southwest China**

C. Liu*, K. Sepehrnoori, The University of Texas at Austin, Austin, Texas, UNITED STATES X. Yang, S. Zhao, D. Zhang, D. Liu, PetroChina Southwest Oil & Gas Field Company, Chengdu, CHINA W. Yu, SimTech LLC, College Station, Texas, UNITED STATES

Theme 4: Geophysical Reservoir Analysis

- **Quantitative Prediction of Natural Fractures in Deep Coal Seams Through the Application of Machine Learning Method**
Y. Li*, China University of Petroleum-Beijing, BeiJing, CHINA
- **A Novel Workflow to Characterize Production Profiles of Shale Gas Horizontal Wells Using Distributed Temperature Sensing Data**
C. Liu*, K. Sepehrnoori, The University of Texas at Austin, Austin, Texas, UNITED STATES N. Li, W. Yu, SimTech LLC, College Station, Texas, UNITED STATES X. Yang, C. Chang, Petrochina Southwest Oil & Gas Field Company, Chengdu, CHINA
- **Real Time Pressure Pumping Data as a Lens into the Reservoir: A Case Study Comparing Fracture Complexity From Pressure Pumping Data Against Microseismic**
S. Marouf*, ShearFRAC, Calgary, Alberta, CANADA
- **Seismic Characterization of the Vaca Muerta Formation in the Central Region of the Neuquén Basin**
S.R. Lagos*, K.B. Anis, A.P. Kautyian Ziyisyian, YPF SA, Capital Federal, Buenos Aires, ARGENTINA
- **A Machine Learning-Based Multi-Scale Natural Fracture Characterization Approach Using Seismic Attributes in the Sichuan Basin**
J. Leines*, W. Yu, J. Miao, SimTech LLC, Quito, ECUADOR C. Liu, The University of Texas at Austin, Austin, Texas, UNITED STATES X. Yang, S. Zhao, D. Zhang, D. Liu, CNPC, Beijing, CHINA

Theme 5: Geomechanics – The Intersection of Geoscience and Engineering

- **An Experimental Study on the Effect of Capillary Condensation on the Geomechanical Properties of Tight Rocks**
A. Albannay*, M. Baig, A. Alharthi, A. Al Hashmi, H. Al Marzooqi, S.A. Elazab, A. Al Blooshi, Unconventional Development Division, Abu Dhabi National Oil Company, Abu Dhabi, Abu Dhabi, UNITED ARAB EMIRATES A. Albannay, B. Bui, Colorado School of Mines, Golden, Colorado, UNITED STATES
- **Integrating Experiments and Well Logs to Predict Caney Shale Static Mechanical Properties During Production with Supervised Machine Learning**
S. Elkholy, H. Lee, M. Radonjic, Petroleum Engineering, Oklahoma State University, Stillwater, Oklahoma, UNITED STATES
- **Pressure Monitoring Above the CO₂ Injection Zone: Insights into CO₂ Plume Behavior and Leakage Potential in the Uinta Basin**
O. Bakelli*, Civil and Environmental Engineering, University of Utah, Salt Lake City, Utah, UNITED STATES
- **Avoiding the Salts: Strategic Fracture Propagation Management for Enhanced Stimulation Efficiency in the Cane Creek Play**
N.Z. Dvory*, B.J. McPherson, Civil and Environmental Engineering, University of Utah, Salt Lake City, Utah, UNITED STATES N.Z. Dvory, J. McLennan, B.J. McPherson, Energy and Geoscience Institute, University of Utah, Salt Lake City, Utah, UNITED STATES J. McLennan, Chemical Engineering, University of Utah, Salt Lake City, Utah, UNITED STATES A. Singh, ResFrac Corporation, Palo Alto, California, UNITED STATES
- **Numerical Modeling of Distributed Fiber Optic Strain Measurements for Detection and Mitigation of Induced Seismicity**
A. Srinivasan*, K. Wu, G. Moridis, Petroleum Engineering, Texas A and M University, Bryan, Texas, UNITED STATES G. Jin, Geophysics, Colorado School of Mines, Golden, Colorado, UNITED STATES G. Moridis, Lawrence Berkeley National Laboratory, Berkeley, California, UNITED STATES
- **New Approach for Well Clean-Up and Well Testing Operations in High-Rate Gas-Condensate Fields Resulting in Smart Sand Management System**
C. Denton, L. Perez*, S. Haymond, I. Khan, Engineering, SOS Sand Technology Inc, Spring, Texas, UNITED STATES E.

Abbad, J. Leal, Southern Area Production Engineering Department (SAPED), Saudi Aramco, Udhailiyah, SAUDI ARABIA

- **Investigation of the Impact of Re-Pressurization on Hydraulic Refracturing Performance**
A. Dehdouh*, Energy and Petroleum Engineering, University of Wyoming, Laramie, Wyoming, UNITED STATES
- **Fracture Deflection vs. Penetration at Interfaces: What matters most, strength or toughness?**
S. Serebrinsky*, J. Gutierrez, YPF Tecnologia, Berisso, Buenos Aires, ARGENTINA A. Huespe, Centro de Investigacion de Metodos Computacionales (CIMEC), UNL, CONICET, Santa Fe, ARGENTINA
- **Source-Rock Reservoirs Production Forecast: Investigating the Impact of Pressure-Dependent Permeability (PDP) – A Case Study Approach**
O. Rojas Conde*, H. Galvis Silva, Harold Vance Petroleum Engineering, Texas A&M University, College Station, Texas, UNITED STATES J.C. Cardenas, ICP, Ecopetrol, Bucaramanga, COLOMBIA
- **A Coupled XFEM Modeling and Comparative Analysis of Poroelastic Effects in Hydraulic Fracture Propagation**
R. Tao*, J. Chen, J.Y. Leung, S. Adeb, University of Alberta, Edmonton, Alberta, CANADA

Theme 6: Organic and Inorganic Geochemistry including Fluid-Rock Interactions

- **Wettability Quantification in Organic-Rich Mudrocks by Water Adsorption Isotherms** Isa
I.S. Araujo*, Z. Heidari, Petroleum and Geosystem Engineering, The University of Texas at Austin, Austin, Texas, UNITED STATES
- **Completion Fluid Design for Improving Wettability**
G. Thyne*, ES&P, Laramie, Wyoming, UNITED STATES
- **Geochemical Modeling of In-Situ Cement Degredation in Potential CO₂ Reservoirs**
L.M. Allam*, Energy and Petroleum Engineering, University of Wyoming, Laramie, Wyoming, UNITED STATES
- **Enhancing Well Productivity by Adding a Nano-Particle to the Fracturing Fluid: The Roles of Clay Swelling and Compatibility with Formation Brine**
T. Lan, S. Mohammadi*, H. Dehghanpour, University of Alberta, Edmonton, Alberta, CANADA
- **Investigation on the Effects of Geochemistry and Cushion Gases in Saline Aquifer; Implication for Underground Hydrogen Storage**
R. AL Homoud*, Petroleum engineering, University of Texas at Austin, Austin, Texas, UNITED STATES
- **Vertical and Lateral Geological and Geochemical Characterization of the Upper and Lower Benches of the Third Bone Spring Sand: A Case Study in Lea County, New Mexico, USA**
I. Easow*, Technology, Geolog Americas, Houston, Texas, UNITED STATES J. Speight, Geology, Marshall & Winston, Midland, Texas, UNITED STATES G.M. Oliver, Geoscience, Geolog Americas, Houston, Texas, UNITED STATES
- **Integration of Geochemical and Fracture Propagation Modeling of CO₂-Assisted Fracturing: Implications for Enhancing Hydrocarbon Recovery and CO₂ Storage**
M. Abdalla*, Multidisciplinary Engineering, Texas A&M University, College Station, Texas, UNITED STATES

Theme 7: Applications of Data Science

- **Estimation of Stimulated Reservoir Region for Hydraulic Fracturing in Shale Gas Well Based on Ensemble Learning Algorithm**
Y. Luo*, B. Kang, L. Jiang, Y. Cheng, Y. Xiao, X. Zhao, Zhenhua Oil Co., Ltd, Chengdu, CHINA J. Guo, C. Lu, southwest petroleum university, Chengdu, CHINA
- **Machine Learning-Based Sweet Spot Prediction Method for Canada Tight Sandstone Gas Reservoir**
Z. Chen*, H. Su, Y. Qian, Sinopec Petroleum Exploration and Production Research Institute, Beijing, CHINA Y. Fang, CNPC Engineering Technology R&D Company Limited, Beijing, CHINA Y. Chen, Oil & Gas Technology Research Institute Changqing Oilfield Company, Xi'an, Xi An, CHINA
- **Predicting Hydraulic Fracture Injection Pressure Using Hybrid Model for Completions Optimization**
R. Zhang*, Texas AM University, College Station, Texas, UNITED STATES H. Zalavadia, S. Sankaran, Xecta Digital Labs, Houston, Texas, UNITED STATES

- A Machine-Learning-Based Workflow for Drilling Risk Prediction of Wellbore Instability and Trajectory Optimization in Ultra-Deep Formation**
 H. Wang*, J. Meng, H. Wang, Y. Zhou, F. Yang, Y. Xiao, SINOPEC Exploration and Production Research Institute, Beijing, CHINA R. Zhang, Texas AM University, College Station, Texas, UNITED STATES Z. Deng, China University of Geoscience, Beijing, CHINA
- Real Time Data Driven Framework for Rate of Penetration Optimization of S-Shaped Wells in a Southern Iraq Field Using Prior Knowledge**
 A. Alattar*, Spotfire, San Francisco, California, UNITED STATES E.H. AlKamil, A. Mazin, Petroleum Engineering, University Of Basra, Basra, IRAQ M. Al Alwani, Chesapeake, Oklahoma City, Oklahoma, UNITED STATES M. Karnot, M. Talib, S. Taher, SLB, Basra, IRAQ
- Evaluation of Empirical Correlations and Time Series Models for the Prediction and Forecast of Unconventional Wells Production**
 H. Khalifa, A. Benarbia, H. Ouadi, O. Tomomewo, Energy Engineering, University of North Dakota, Grand Forks, North Dakota, UNITED STATES A. Laalam*, Petroleum Engineering, University of North Dakota, Grand Forks, North Dakota, UNITED STATES
- Evaluation Of Chemical Additives Impact on Well Productivity by Using Machine Learning Algorithms**
 S. Baki*, S. Dursun, N.M. Alotaibi, Saudi Aramco, Dhahran, SAUDI ARABIA
- Leakage Detection Applying Machine Learning Methods During CO₂ Storage in a Legacy Wells Field**
 I. Jahan*, EES-16, Los Alamos National Laboratory, Houston, Texas, UNITED STATES S. Morshed, Rayscent Limited Company, Houston, Texas, UNITED STATES W. Hao, Cella Mineral Storage Inc, New York, New York, UNITED STATES
- Integrating Machine Learning into Reservoir Drawdown Workflows to Deliver Sustainable Well Performance**
 Y. Gonzalez*, J. Courtier, C. Garces, E. Moncayo, I. Wang, Subsurface, Ecopetrol Permian, Katy, Texas, UNITED STATES
- Data-Driven Machine Learning Approach in Reservoir Parameter Prediction**
 V.O. Oguadinma*, Data Science in Geoscience, Deivoc Integrated, Pau, FRANCE T. Ujowundu, TotalEnergies, Lagos, NIGERIA J. Pwavodi, University of Strasbourg, Strasbourg, FRANCE
- Optimizing Estimated Oil Recovery in Horizontal Wells Through Data-Driven Analytics**
 A. Alzahabi, A. Kamel*, Petroleum Engineering, UT Permian Basin, Odessa, Texas, UNITED STATES A. Trindade, Texas Tech University, Lubbock, Texas, UNITED STATES
- Machine Learning-Powered EUR Prediction and Performance Forecasting for Unconventional Reservoirs**
 C. Vega*, P. Panja, M. Deo, B.J. McPherson, University of Utah, Salt Lake City, Utah, UNITED STATES
- A Hybrid Machine Learning Workflow for CO₂ Huff-n-Puff Production Optimization**
 G. Singh*, D. Davudov, A. Venkatraman, Resermine, Austin, Texas, UNITED STATES
- Stay Connected: Using Novel High-Resolution Acoustics to Identify Casing Connection Leak Paths and Support Operator Root Cause Analysis**
 T. Pehlke*, G. Simpson, DarkVision Technologies, North Vancouver, British Columbia, CANADA
- Artificial Intelligence (AI) Integration for Optimal Reservoir Data Analysis and Pattern Recognition**
 M. Rauch, TGS, Houston, Texas, UNITED STATES L. Hamilton*, none, Houston, Texas, UNITED STATES
- Aligning Rock and Drilling Data: Advanced Workflows for XRF Cuttings Analysis in Horizontal Wells**
 C.W. Symcox*, Diversified Well Logging, Oklahoma City, Oklahoma, UNITED STATES
- Completion Limitation Analysis Workflow (CLAW): An Innovative Machine Learning-Based Workflow for Matching Unconventional Well Completion Designs to Rock Conditions**
 S.J. Prochnow*, Subsurface Innovation Lab, Chevron Technical Center, a division of Chevron U.S.A. Inc., Houston, Texas, UNITED STATES
- Using ANN Prediction in Carbonate Reservoir Properties: Implication for Large-Scale Reservoir Correlation**
 A. Abdelkarim*, J. Humphrey, Geosciences, CPG, KFUPM, Dhahran, SAUDI ARABIA

Theme 8: Unlocking the Production and Recovery Potential

- **First Field Use In Vaca Muerta of Encapsulating Biopolymers for Managing Reservoir Damage in Complex Stimulated Reservoirs**
M.D. Pellicer*, P.A. Crespo, Reserve, Panamerican Energy, Buenos Aires, Buenos Aires, ARGENTINA C. Landis, C. Hall, Integrity BioChem, Cresson, Texas, UNITED STATES
- **Case Studies: Integrated Production Profiling Analyses From Distributed Temperature and Acoustic Data**
Y. Mao*, C. Godefroy, A. Gysen, Interpretive Software Products (ISP), Houston, Texas, UNITED STATES
- **A Laboratory Protocol to Evaluate Regained Permeability for Screening Surfactants Used in Fracturing Operations**
L. Yuan*, M. Yousefi, H. Dehghanpour, University of Alberta, Edmonton, Alberta, CANADA D. Oswald, LFS chemistry, Edmonton, Alberta, CANADA
- **Smart Control: Advancing the Optimization and Control of Artificial Lift Systems**
S. Bost*, J. Searle, SIG Machine Learning Pty Ltd., Brisbane, Queensland, AUSTRALIA
- **Evaluation of Cyclic Gas injection EOR in Unconventional Reservoirs and Exit Strategies, Including Potential Storage Options Using Bakken Field as an Example Case**
A. Abdulwarith*, A. Kareb, M. Ammar, B. Dindoruk, Petroleum Engineering, University of Houston, Houston, Texas, UNITED STATES
- **Characterization of Complex Fracture Network Using Improved Rate-Transient Analysis Method in Tight Oil Reservoir Exhibiting Multiphase Flow**
J. Tian*, B. Yuan, J. Li, W. Zhang, China university of petroleum (east China), Qingdao, CHINA
- **Evaluation of Enhanced Oil Recovery From the Powder River Basin Turner Shale via the SuperEOR and UltraEOR Processes**
R. Downey*, Shale Ingenuity LLC, Centennial, Colorado, UNITED STATES M.A. Whitelock, BKV Corporation, Denver, Colorado, UNITED STATES K.K. Venepalli, Computer Modelling Group Ltd, Houston, Texas, UNITED STATES
- **A New and Cost Effective Way to Estimate Production in Unconventional Fields Using Advanced Multiphase Flowmeter Technology in North Dakota**
K. Moncada*, L. Husoschi, B. Marmon, B. Theuveny, J.A. Dodds, J. Hussenet, SLB, Houston, Texas, UNITED STATES
- **Horizontal Well Flow Profile Assessment: Advanced Thermal-Hydrodynamic Modeling with Fracture Flow Analysis**
M. Volkov*, Center of Excellence, TGT Oilfield Services, Fulshear, Texas, UNITED STATES
- **Unique Resiliency of Biosurfactants in the Lab and Field with Depleting Concentration**
M. Pearl*, E. Kakadjian, E. Gutierrez, Locus Bio-Energy, The Woodlands, Texas, UNITED STATES

Theme 9: Reserves Estimation and Production Forecasting

- **Prospects for a Vibrant UK Shale Gas Industry: Getting the Policies and Politics Right**
B. Bassey*, Energy and Power, Cranfield University, Cranfield, Central Bedfordshire, UNITED KINGDOM E.A. Ana, Petroleum Engineering, University of Calabar, Calabar, Cross River State, NIGERIA
- **Production Forecast Using Produced Water Production for Wells Producing Tight-Shale Reservoirs**
S. Yu*, Tartan Energy Group, Calgary, Alberta, CANADA
- **A New Approach to Accurate and Dynamic Unconventional Field Development Planning**
P.J. Torres*, Sales, SeisWare, Houston, Texas, UNITED STATES
- **Detection of Liquid Loading Using a Physics Inspired Data-Driven Method**
P.S. Chauhan*, U. Sinha, H. Zalavadia, V. Sabharwal, S. Sankaran, Research & Solutions, Xecta Digital Labs, Houston, Texas, UNITED STATES
- **Application of a Sparse Hybrid Data-Driven and Physics Model in Unconventional Reservoirs for Production Forecasting**
H. Zalavadia*, P.S. Chauhan, S. Sankaran, Xecta Digital Labs, Richmond, Texas, UNITED STATES
- **Physics-Informed Machine Learning Approach for Closed-Loop Reservoir Management Using RGNNet**
Z. Guo*, S. Sankaran, Xecta, Houston, Texas, UNITED STATES
- **Geothermal Potential and Risk Assessment of Repurposing Old Wellbores for Geothermal Applications: Case Study of Oklahoma and Texas**

N. Konate*, S. Salehi, Mewbourne School Petroleum and Geological Engineering, University of Oklahoma, Norman, Oklahoma, UNITED STATES

- **Forecasting Production Loss for Delayed Secondary Bench Development Across Various Basins**
A. Cui*, B. Davis, Novi Labs, Austin, Texas, UNITED STATES
- **Probabilistic Modeling of Well Interference for Shale and Tight Development with Subsurface Uncertainty**
Y. Chen*, R. Burke, T. Tran, A. Roark, S. Hanson, Chevron, Bellaire, Texas, UNITED STATES
- **A Comparative Study for Probabilistic EUR Forecasting in Shale Gas Reservoir Using Early-Time Production Data**
Y. Pan*, X. Duan, L. Fu, Reserves Management, PetroChina Oil, Gas & New Energies Company, Beijing, Beijing, CHINA
- **Convolutional Neural Networks Forecasting for Unconventional Drilling Units for US Land**
F.J. Parga Garcia*, N. Shumaker, J. Fang, Innovation Factori, SLB, Houston, Texas, UNITED STATES
- **Predicting Gas EUR in Shale Plays Using Machine Learning Methods: A Comparative Study of Marcellus, Barnett, and Eagle Ford Shales**
A.F. Ibrahim*, King Fahd University of Petroleum & Minerals, Dhahran, SAUDI ARABIA N. Darraj, imperial college london, London, UNITED KINGDOM A. Gharieb, Apache Corp., Houston, Texas, UNITED STATES A. Algarhy, Marietta College, Marietta, Ohio, UNITED STATES M.A. Gabry, University of Houston, Houston, Texas, UNITED STATES
- **Production Forecasting Using Physics Informed Neural Networks and Flow Network Modeling**
R. Manasipov*, D. Didenko, D. Nikolaev, R. Abdalla, M. Stundner, Datagrator Solutions Inc., Vienna, AUSTRIA
- **Enhanced Decision Making and Asset Optimization for Unconventional Resources with Type Wells (DCA), RTA-Based Numerical Modeling and Machine Learning**
A. Haghghat*, T. Burrough, S&P Global, Houston, Texas, UNITED STATES
- **Influence of Geological, Completion, and Well Spacing Parameters on the EUR in Delaware Basin**
S. Berdysheva*, S. Ikonnikova, T.P. McMahon, Bureau of Economic Geology, University of Texas at Austin, Austin, Texas, UNITED STATES S. Ikonnikova, School of Management, Technical University of Munich, Munich, Bavaria, GERMANY
- **Optimizing Unconventional Well Performance: Streamlining Type Curve Benchmark Analysis for Enhanced Production Insights**
G. Kirk*, University of Calgary, Calgary, Alberta, CANADA
- **Under Pressure: The Art of Post-Fracture Pressure Decay Technique as a Well Spacing Optimization Tool**
D. Zeinabady*, M. Adams, Shear Frac Group, LLC, Calgary, Alberta, CANADA
- **A Holistic Approach for Rapid Unconventional Reservoir Optimization**
W. Zheng*, SLB, Houston, Texas, UNITED STATES
- **A New Method for Planning Completions, Estimating Reserves, and Tracking Producibility for Unconventional Reservoirs**
M.C. Waid*, S. Campbell, C.C. Waid, J. Waid, Waid Forensics Science LLC, Medicine Park, Oklahoma, UNITED STATES
- **Early-Time Production Impact on Machine-Learning-Assisted Production Forecasting for Shale Gas Reservoirs**
M.H. Elkady*, S. Misra, V.T. Kumar, Harold Vance department of Petroleum Engineering, Texas A&M University, College Station, Texas, UNITED STATES U. Odi, A. Silver, Aramco Americas, Houston, Texas, UNITED STATES
- **Ranking of Key Properties and Operational Variables Impacting Gas Production in Unconventional Reservoirs**
J.C. Cardenas*, Ecopetrol S.A, Bucaramanga, COLOMBIA O. Rojas Conde, H. Galvis Silva, Harold Vance Petroleum Engineering, Texas A&M University, College Station, Texas, UNITED STATES