SPE Journal

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Drilling and Completion Technologies

Reservoir Modeling and Simulation

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SPE-203974-PA (2021 SPE Reservoir Simulation Conference Special Issue)

Adaptive Timestepping, Linearization, and A Posteriori Error Control for Multiphase Flow of Immiscible Fluids in Porous Media with Wells

E. Ahmed, Ø. Klemetsdal, X. Raynaud, O. Møyner, and H. M. Nilsen

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SPE-212308-PA (Direct to Peer)

A Unified Pore Network Model for Evaluation of Permeability, Relative Permeability, and Sealing Capacity From Mercury Intrusion Measurement

Y. Yang

594–613

SPE-212829-PA (Direct to Peer)

An Integrated Approach for History Matching of Complex Fracture Distributions for Shale Oil Reservoirs Based on Improved Adaptive Particle Filter

G. Zhao, Y. Yao, T. Zhang, L. Wang, C. D. Adenutsi, and N. N. Nassar

614–627

SPE-212842-PA (Direct to Peer)

Reservoir Porosity Improvement Device based on Underwater Pulse Arc Fracturing and Frequency Resonance Technology

Z. Kang, Y. Yu, C. Gao, Z. Shao, D. Gong, Y. Wang, and G. Zhai

Production and Facilities Engineering

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SPE-212297-PA (Direct to Peer)

Effect of Amla Fruit (*Phyllanthus emblica*) Extract in Flow Assurance of Indian Waxy Crude Oil

B. Pal, T. K. Naiya, and G. Sarkhel

EOR/IOR Applications

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SPE-209415-PA

A Molecular Dynamics Study on Low-Pressure Carbon Dioxide in the Water/Oil Interface for Enhanced Oil Recovery

Q. Chang, L. Huang, and X. Wu

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SPE-209445-PA

Fluid-Fluid Interfacial Area and Its Impact on Relative Permeability: A Pore Network Modeling Study

S. Mukherjee, R. T. Johns, S. Foroughi, and M. J. Blunt

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Characterization of Nonlinear Viscoelastic Properties of Enhanced Oil Recovery Polymer Systems Using Steady-Shear Rheometry

M. S. Azad

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SPE-212827-PA (Direct to Peer)

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K. Wang, M. Luo, M. Li, S. Kang, X. Li, C. Pu, and J. Liu

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Experimentally Investigating Sand Particle Characteristics Under Annular Multiphase Flow Conditions Using a Triaxial Vibration Method

K. Wang, Z. Chang, Y. Li, M. Qin, G. Wang, and G. Fu

Data Analytics Applications

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SPE-210200-PA (includes Supplemental Materials)

Life-Cycle Production Optimization of the CO_2-Water-Alternating-Gas Injection Process Using Least-Squares Support-Vector Regression Proxy

A. Almasov and M. Onur

Geomechanics and Poroelasticity

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Upscaling Shear Strength of Heterogeneous Oil Sands with Interbedded Shales Using Artificial Neural Network

B. Zhang, Z. Ma, D. Zheng, R. J. Chalaturnyk, and J. Boisvert

CO_2 Sequestration Applications

754–767

SPE-212272-PA (Direct to Peer)

Effects of Carbonic Acid-Rock Interactions on CO_2/Brine Multiphase Flow Properties in the Upper Minnelusa Sandstones

Z. Kou, H. Wang, V. Alvarado, C. Nye, D. A. Bagdonas, J. F. McLaughlin, and S. A. Quillinan

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SPE-212830-PA (Direct to Peer; includes Supplementary Materials)

In-Situ Imaging of CO_2 Trapping and Oil Recovery in Three-Phase Systems: Dependence on Pore Geometry and Wettability

Y. Li, Y. Yang, M. Dong, J. Yao, K. Zhang, H. Sun, and L. Zhang

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SPE-212843-PA (Direct to Peer)

Some Interfacial Properties of Water and CO_2/H_2S at Quasireservoir Conditions: A Molecular Dynamics Study

K. Ofori, C. M. Phan, A. Barifcani, and S. Iglauer

Advances in Unconventional Reservoir Development (Shale, Heavy Oil, Hydrates)

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SPE-212280-PA (Direct to Peer)

Probing the Interaction Forces between Bitumen-Coated Mineral Surfaces with Implications for the Removal of Fine Solids from Oil Product: Effect of Solvent

M. Cao, Y. Zhao, Y. Hu, Y. Wu, C. Qiao, C. Liu, C. Dai, Q. Liu, H. Zeng, and J. Huang

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SPE-212287-PA (Direct to Peer)

A Study of Swirling Jet Drilling and Its Specific Energy for Hydrate-Bearing Sediments

Y. Zhang, X. Hu, X. Wu, G. Li, J. Li, S. Tian, and K. Shen

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Methane Diffusion Through Nanopore-Throat Geometry: A Molecular Dynamics Simulation Study

R. Sun, K. Xu, T. Huang, and D. Zhang

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SPE-212306-PA (Direct to Peer)

Multiscale Pore Structure Evolution of Longmaxi Shale Induced by Acid Treatment

S. Xu, S. Zhou, J. Zhou, L. Wang, M. Sheng, and J. Cai

Special Topics in Petroleum Engineering

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Technology Development Framework: Moving from Qualitative toward Quantitative Decision-Making

H. P. Clark and O. Castellanos Diaz

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SPE-212271-PA (Direct to Peer; Open Access; includes Supplemental Materials)

Predicting the Solubility of Mercury in Hydrocarbons

L. T. Bryndzia, J. M. Burgess, and J. Bourdet

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SPE-212298-PA (Direct to Peer; includes Supplemental Materials)

Laboratory Comparative Study of Anionic and Cationic High-Viscosity Friction Reducers in Moderate to Extremely High Total Dissolved Solids Environments

X. Ge and A. Imqam

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SPE-212311-PA (Direct to Peer)

Molecular Structure: The First and Most Significant Factor in the Precipitation of Asphaltenes

M. Hassanzadeh and M. Abdouss

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SPE-212836-PA (Direct to Peer)

Microencapsulation of the Enzyme Breaker by Double-Layer Embedding Method

Z. Zhang, F. Zhao, Y. Meng, J. Lin, Y. Xu, Y. Feng, F. Ding, and P. Li

Preprint Errata

SPE-214664-PA (Direct to Peer)

Fatty Alcohol Polyoxyethylene Ether Sodium Sulfate–Modified Cement to Improve the Bonding and Sealing of Cement to Oil-Wet Casing or Formation Surface in Shale Gas Wells

S. Huang, C. Zhou, D. Su, Z. Li, Z. Yao, J. Zhang, X. Yi, Z. Rao

Editorial Notes

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The proliferation and increasing sophistication of AI-assisted language tools (such as ChatGPT) have opened new avenues for research, but the ethics and best practices for their use are still evolving. These tools may generate useful information and content but are also prone to errors and inconsistencies. AI-generated content can be used within SPE publications under the following conditions:

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- The authors of the manuscript will be held responsible for any errors, inconsistencies, incorrect references, plagiarism, or misleading content included from the AI tool.

Policy Review. This policy will be reviewed periodically to ensure that it remains relevant and effective in the face of changing technologies and emerging concerns. Changes to the policy will be communicated in a timely and transparent manner.

Journal Consolidation
In January 2024, all peer-reviewed papers will be published under an expanded *SPE Journal*. The new journal will cover fundamental research and applications in drilling, completion, production, operations, reservoir engineering, and formation evaluation, as well as new and emerging topics such as energy transition, sustainability, and data science. More information can be found here.

Transition Timeline.

- **1 May 2023,** *SPE Journal* will accept papers under its new, expanded scope and we will no longer allow transfers out of *SPE Journal.* We encourage all authors of *SPE Drilling & Completion, SPE Production & Operations,* and *SPE Reservoir Evaluation & Engineering* to submit new papers to *SPE Journal* at that time (https://mc.manuscriptcentral.com/spej).

- **1 June 2023,** *SPE Drilling & Completion, SPE Production & Operations,* and *SPE Reservoir Evaluation & Engineering* will no longer accept new submissions (only revisions will be received). All new papers must be submitted to *SPE Journal*.

- **1 July 2023,** *SPE Drilling & Completion, SPE Production & Operations,* and *SPE Reservoir Evaluation & Engineering* will no longer accept new submissions or revisions and all active papers within these journals will be transferred to the *SPE Journal* site to complete the peer review process.