

Geomechanics and Coupled Flow

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SPE-199983-PA (Direct to Peer)

Coupled Flow/Geomechanics Modeling of Interfracture Water Injection To Enhance Oil Recovery in Tight Reservoirs

Y. Liu, L. Liu, J. Y. Leung, K. Wu, and G. Moridis

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SPE-193825-PA

A Cohesive-Zone Model for Simulating Hydraulic-Fracture Evolution within a Fully Coupled Flow/Geomechanics-Simulation System

F. O. Alpak

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SPE-200501-PA (Direct to Peer)

Effective-Stress Coefficients of Porous Rocks Involving Shocks and Loading/Unloading Hysteresis

F. Civan

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SPE-195947-PA

Poroelectric Solution for the Nonlinear Productivity Index of Wells in Stress-Sensitive Reservoir Rocks

W. Zhang and A. Mehrabian

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SPE-201195-PA (Direct to Peer)

Deterministic and Statistical Modeling of a New Thermal Breakout Technology for Measuring the Maximum Horizontal In-Situ Stress

S. Voegeli, J. Nopola, D. Moos, and T. Doe

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SPE-195968-PA

Geomechanical Characterization of Inclined Heterolithic Stratification Lithosome and Its Permeability Evolution under SAGD Stress Paths

M. Khademi and R. Chalaturnyk

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SPE-202485-PA (Direct to Peer)

An Infill Well Fracturing Model and Its Microseismic Events Barrier Effect: A Case in Fuling Shale Gas Reservoir

H. Zhu, X. Tang, Y. Song, K. Li, J. Xiao, M. B. Dusseault, and J. D. McLennan

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SPE-201224-PA (Direct to Peer)

Liquid Nitrogen Fracturing in Boreholes under True Triaxial Stresses: Laboratory Investigation on Fractures Initiation and Morphology

R. Yang, C. Hong, Z. Huang, H. Wen, X. Li, P. Huang, W. Liu, and J. Chen

Reservoir Physics

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SPE-195468-PA

A New Multiphysics Method for Simultaneous Assessment of Permeability and Saturation-Dependent Capillary Pressure in Hydrocarbon-Bearing Rocks

A. Posenato Garcia and Z. Heidari

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SPE-200767-PA (Direct to Peer)

An Alternative Parameterization of Relative Permeability and Capillary Pressure Curves

F. Civan

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SPE-200410-PA

Predictive Modeling of Relative Permeability Using a Generalized Equation of State

P. Purswani, R. T. Johns, Z. T. Karpyn, and M. Blunt

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SPE-202495-PA (Direct to Peer)

Low- and High-Resolution X-Ray Tomography Helping on Petrophysics and Flow-Behavior Modeling

J. M. Plata Chaves and R. Barros Zanoni Lopes Moreno

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SPE-200593-PA

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A Unified Approach to the Nonlinearity of the Diffusivity Equation and Assessment of Pseudotime

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Proppants and Hydraulic Fracturing

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Study of Degradable Fibers with and without Guar Gum as a Proppant Transport Agent Using Large-Scale Slot Equipment

J. Yong Kim, L. Zhou, and N. Morita

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Y. Pei, P. Zhao, H. Zhou, D. Li, X. Liao, L. Shao, S. Zhang, F. Tian, Y. Zhao, N. Zhang, and L. Zhao

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An Equivalent Representation of Multiple Hydraulic Fractures with a Fewer Number of Fractures

E. Dontsov and R. Suarez-Rivera

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Field-Scale Numerical Investigation of Proppant Transport among Multicluster Hydraulic Fractures

S. Mao, Z. Zhang, T. Chun, and K. Wu

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Experimental and Numerical Investigations of the Role of Proppant Embedment on Fracture Conductivity in Narrow Fractures

M. Fan, Z. Li, Y. Han, Y. Teng, and C. Chen

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Impact of Proppant Pumping Schedule on Well Production for Slickwater Fracturing

S. Mao, P. Siddhamshetty, Z. Zhang, W. Yu, T. Chun, J. Sang-II Kwon, and K. Wu

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SPE-204225-PA (Direct to Peer)

**Hydraulic-Fracture-Width Inversion Using Low-Frequency Distributed-Acoustic-Sensing Strain Data—
Part I: Algorithm and Sensitivity Analysis**

Y. Liu, G. Jin, K. Wu, and G. Moridis

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SPE-204210-PA (Direct to Peer)

Physical Simulation of Hydraulic Fracturing of Large-Sized Tight Sandstone Outcrops

T. Guo, S. Tang, S. Liu, X. Liu, J. Xu, N. Qi, and Z. Rui

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SPE-202484-PA (Direct to Peer)

Study of Wellbore Breakdown under Fluid Injection in Transversely Isotropic Poroelastic Formations

C. Huang and S. Chen

Unconventional Reservoirs

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Fracture Hits in Unconventional Reservoirs: A Critical Review

I. Gupta, C. Rai, D. Devegowda, and C. H. Sondergeld

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**A New Method for Correcting Shale High-Pressure Adsorption Curves Based on Instantaneous
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X. Duan, Z. Hu, C. Cai, W. Li, J. Chang, R. Shen, and Q. Cao

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Effect of Surface Force on Nanoconfined Shale-Gas Flow in Slit Channels

Y. Gao, K. Wu, Z. Chen, J. Li, Q. Li, X. Dong, W. Tian, Y. Liu, Q. Zhu, and J. Bi

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SPE-203841-PA (Direct to Peer)

**A Local-Effective-Viscosity Multirelaxation-Time Lattice Boltzmann Pore-Network Coupling Model for
Gas Transport in Complex Nanoporous Media**

W. Song, Y. Yin, C. J. Landry, M. Prodanovic, Z. Qu, and J. Yao

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SPE-204224-PA

A New Ensemble Machine-Learning Framework for Searching Sweet Spots in Shale Reservoirs

J. Tang, B. Fan, L. Xiao, S. Tian, F. Zhang, L. Zhang, and D. Weitz

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SPE-200341-PA

Quantifying Oil-Recovery Mechanisms during Natural-Gas Huff ‘n’ Puff Experiments on Ultratight Core Plugs

S. Tran, M. R. Yassin, S. Eghbali, M. H. Doranehgard, and H. Dehghanpour

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Enhanced Oil Recovery in the Wolfcamp Shale by Carbon Dioxide or Nitrogen Injection: An Experimental Investigation

F. D. Tovar, M. A. Barrufet, and D. S. Schechter

Editorial Notes

SPE Journal readers will notice some changes in 2021, beginning with the enhanced functionality and reading experience in OnePetro. As well as providing a new modern look, OnePetro offers improved search and browsing functions along with the ability to read articles in screen view without the need to download PDFs.

We also note changes in our Editorial Board by offering our thanks and appreciation to outgoing Editor-in-Chief Russell Johns, Pennsylvania State University, for his service to SPE journals and the improvements made under his guidance, and welcome incoming EIC Birol Dindoruk, University of Houston.

The Executive Editor team of Roberto Aguilera, Reza Fassihi, and Luis Ayala will continue to bring you thoughtfully constructed issues and high-quality papers under the updated scope of the journal, which covers novel theories and emerging concepts (not including review articles or multi-part articles) spanning all aspects of engineering for oil and gas exploration and production, including drilling and completions, geomechanics, production and facilities, oilfield chemistry, CO₂ sequestration and injection, reservoir evaluation and engineering, numerical simulation, data analytics, economics and externalities including health, safety, environment, and sustainability.

SPE Journal Impact Factor: 3.372

Average time to first decision: 29 days

Executive Summary

This is our first issue of 2021—which marks a year since the first opportunity I had to write to all of you in our *SPE Journal* readership. It continues to be an honor to serve as a member of *SPE J*'s executive editorial team. With every issue, it becomes even more clear to me all the immense dedication required from all SPE volunteers and our fantastic SPE staff to make it happen. We remain thankful for their utmost professionalism, which has remained unabated in the middle of these challenging times.

In this new issue, *SPE Journal* publishes 30 manuscripts with a good cross-section of the latest novel insights and developments in oil and gas upstream reservoir operations. Not surprisingly, unconventional reservoirs feature predominantly within all categories, which feature a good degree of overlap as a result. These 30 manuscripts are organized in four general categories: Geomechanics and Coupled Flow (8 papers), Reservoir Physics (6 papers), Proppants and Hydraulic Fracturing (9 papers), and Unconventional Reservoirs (7 papers). Please join me in thanking all authors for their efforts in bringing their best results to you.

SPE Journal remains strong, and it is also because of you. We will always need your support. For all our authors, please continue to submit your brightest ideas and the work that makes you most proud to *SPE J*. For our readership at large, please consider volunteering as a member of our editorial review team as a technical reviewer or an associate editor. Expertise in all areas are welcome, but our greatest needs now are found in areas of drilling and completions, production engineering, and data analytics. Those interested in volunteering as an associate editor can contact any one of the journal's executive editors or the SPE Peer account at peer@spe.org. Please keep in mind that SPE Associate Editors must have 10+ years professional expertise in any of the particular areas mentioned above or covered by the journal.

I hope you find the new insights published in this issue useful for your practice. And again, do not hesitate to reach out if you would like to volunteer as part of our editorial team!

Luis F. Ayala, *SPE J*. Executive Editor,
The Pennsylvania State University

Thank You to Our 2020 Reviewers

SPE Journal extends its sincere appreciation to everyone who provided a technical review for at least one paper during 2020. Many of our reviewers contributed their expertise to more than one paper during the year. We recognize the time commitment these individuals have made in agreeing to review papers and appreciate the impact that their efforts have had on the published papers throughout the year. Volunteers such as these individuals are essential to ensuring that the journal publishes manuscripts of high quality and lasting value. Thank you to our dedicated reviewers for their contributions.

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