



Anthony Kavscek

Keleen and Carlton Beal Professor of Petroleum Engineering and Senior Fellow
at the Precourt Institute for Energy
Energy Science & Engineering

Bio

ACADEMIC APPOINTMENTS

- Professor, Energy Science & Engineering
- Senior Fellow, Precourt Institute for Energy
- Affiliate, Precourt Institute for Energy

ADMINISTRATIVE APPOINTMENTS

- Chair, Energy Resources Engineering, (2012-2018)
- Professor of Energy Science & Engineering, Stanford University, (2022- present)
- Professor of Energy Resources Engineering, Stanford University, (2010-2022)
- Associate Professor of Energy Resources Engineering, Stanford University, (2006-2010)
- Associate Professor of Petroleum Engineering, Stanford University, (2003-2006)
- Assistant Professor of Petroleum Engineering, Stanford University, (1996-2003)
- Postdoctoral Scholar, Earth Sciences Division, Lawrence Berkeley National Laboratory, (1994-1996)

HONORS AND AWARDS

- Member, U.S. National Academy of Engineering (2023)
- John Franklin Carll Award for Distinguished Contributions to Engineering, Society of Petroleum Engineers (2021)
- Keleen and Carlton Beal Professorship, Stanford University (2015)
- Lester C Uren Award for Distinguished Achievement, Society of Petroleum Engineers (2015)
- Distinguished Member, Society of Petroleum Engineers (2015)
- Distinguished Lecturer. Carbon Sequestration, Global Climate and Energy Project, Stanford University (2008)
- SPE Distinguished Achievement Award for Petroleum Engineering Faculty, Stanford University (2006)
- School of Earth Sciences Award for Excellence in Teaching, Stanford University (1997-1998)
- Tau Beta Pi, Univ. of Washington (1988)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Chair of Energy Resources Engineering, Stanford University (2012 - 2018)
- Breadth Governance Board, Ways of Thinking and Doing, Stanford University (2012 - 2014)
- Codirector of SCCS, Stanford Center for Carbon Storage Affiliates, Stanford University (2011 - present)
- Chair, Faculty Search Committee Energy Resources Engineering, Stanford University (2011 - 2011)

- Invited Speaker, China University of Petroleum, Beijing China (2011 - 2011)
- Technical Program Committee, SPE Western Regional Meeting, Society of Petroleum Engineers (2011 - 2011)
- Cochair of Steering Committee, SPE Forum, Digital Rocks: Realizing Step Change in the Value of Laboratory Data (2010 - 2011)
- Invited Speaker: Department of Chemical Engineering, University of California at Santa Barbara, et al. (2010 - 2010)
- Technical Program Committee, SPE Western Regional Meeting, Society of Petroleum Engineers (2010 - 2010)
- Invited Speaker, Department of Petroleum and Geosystems Engineering, University of Texas and Chemical Engineering and Materials Science, University of Southern California (2009 - 2009)
- Executive Editor, SPE Journal, Society of Petroleum Engineers (2009 - 2012)
- Associate Chairman, Energy Resources Engineering, Stanford University (2008 - 2011)
- Chair, Faculty Search Committee, Energy Resources Engineering, Stanford University (2008 - 2008)
- Marshall, 117th Commencement June 15, Stanford University (2008 - 2008)
- Technical Program Committee, SPE Western Regional Meeting, Society of Petroleum Engineers (2008 - 2009)
- Organizing Committee, SPE Forum, Maximizing Oil Recovery in the 21st Century, Colorado Springs, CO., Society of Petroleum Engineers (2008 - 2009)
- Society of Petroleum Engineers, Books Development Committee, Society of Petroleum Engineers (2008 - 2009)
- Technical Program Committee, SPE Western Regional Meeting, Society of Petroleum Engineers (2007 - 2008)
- Member, Faculty Search Committee, Energy Resources Engineering, Stanford University (2007 - 2007)
- SPE Publications Coordinating Committee, Society of Petroleum Engineers (2007 - 2008)
- Steering Committee, 6th Annual Conference on Carbon Capture and Sequestration, Pittsburg, PA, Conference on Carbon Capture and Sequestration (2007 - 2007)
- Editorial Board, SPE Reservoir Evaluation & Engineering, Society of Petroleum Engineers (2006 - 2009)
- Member, American Geophysical Union (AGU), American Geophysical Union (2006 - present)
- Member, Energy Committee, Woods Institute for the Environment at Stanford University (2005 - present)
- Chair, Energy Resources Engineering Admissions Committee, Stanford University (2005 - present)
- Chair of Steering Committee, SPE Forum, Enhanced Oil Recovery: What's Next?, Society of Petroleum Engineers (2005 - 2006)
- Invited Speaker, BP Anchorage, AK, and ExxonMobil Research and Engineering Co. Clinton, NJ (2005 - 2005)
- Steering Committee Member, 4th Annual Conference on Carbon Capture and Sequestration, Alexandria, VA, Conference on Carbon Capture and Sequestration (2005 - 2005)
- SPE Western Regional Meeting Program Committee and Session Chair, Society of Petroleum Engineers (2005 - 2005)
- Freshman Advisor, Stanford University (2004 - 2008)
- Marshall, 113th Commencement, June 13, Stanford University (2004 - 2004)
- Invited Speaker: Petroleum Technology Transfer Council, SPE Advanced Technology Workshop on Reservoir Physics, Gordon Research Conference--Flow and Transport in Permeable Media, Society of Petroleum Engineers (2004 - 2004)
- Journal of Petroleum Technology, Editorial Committee, Journal of Petroleum Technology (2004 - present)
- Chair, SPE Continuing Education Committee, Society of Petroleum Engineers (2004 - 2005)
- Invited Speaker: Department of Chemical Engineering, University of California, Berkeley,, University of California, Berkeley, PetroChina, Beijing China, Aera Energy LLC, Bakersfield, CA (2003 - 2003)
- Organizer, ACS Award in Colloid Chemistry Symposium Honoring Clayton J. Radke, American Chemical Society (2003 - 2003)
- Editor of a Special Issue of the Journal of Petroleum Science and Engineering honoring Professor W. E. Brigham, Journal of Petroleum Science and Engineering (2003 - 2003)
- Member, Faculty Search Committee, Petroleum Engineering, Stanford University (2002 - 2003)
- Invited Speaker: Department of Civil Engineering, University of California, Berkeley, Huainan Institute of Technology, Anhui China, University of California, Berkeley and Huainan Institute of Technology, Anhui China (2002 - 2002)

- Session Chairman: SPE/DOE Improved Oil Recovery Symposium, Society of Petroleum Engineers and Department of Energy (2002 - 2002)
- Invited Speaker, Petroleum Technology Transfer Council (2001 - 2001)
- Invited Panelist, DOE Multiscale Reservoir Investigation Symposium, Organizer SPE Western Region Student Paper Contest, Department of Energy and Society of Petroleum Engineers (2001 - 2001)
- Faculty Search Committee, Geological and Environmental Sciences, Stanford University (2000 - 2000)
- Member, Earth Systems Advisory Committee, Stanford University (2000 - present)
- Invited Speaker, Chevron Petroleum Technology Co. (2000 - 2000)
- Technical Editor, SPE Reservoir Engineering and Evaluation (2000 - 2006)
- Member, Continuing Education Committee, SPE, Society of Petroleum Engineers (2000 - present)
- Technical Program Committee/Session Chairman: SPE/DOE Improved Oil Recovery Symposium, SPE Western Regional Meeting, Society of Petroleum Engineers and Department of Energy (2000 - 2000)
- Instructor, Stanford Science and Engineering Academy (1999 - 1999)
- Speaker, The President's Fund Dinner, Stanford University (1999 - 1999)
- Faculty Advisor, SPE student chapter, Stanford University (1998 - present)
- Member, Petroleum Engineering Department Admissions Committee, Stanford University (1998 - 2002)
- Invited speaker, Mobil Technology Company, Imperial Oil Resources (1998 - 1998)
- Session Chairman: SPE/DOE 11th Symposium on Improved Oil Recovery, 7th UNITAR Conference on Heavy Crude Oil, Society of Petroleum Engineers and Department of Energy (1998 - 1998)
- Freshman and Sophomore advisor, Stanford University (1997 - 2003)
- Organizing Committee: Stanford and Heriot Watt University Forum on Reservoir Description and Modeling, Stanford University and Heriot Watt University (1997 - 1997)
- Member, American Chemical Society (1997 - present)
- Chairman, Petroleum Engineering Department Safety Committee, Stanford University (1996 - 2008)
- Member, School of Earth Sciences Faculty Library Committee, Stanford University (1996 - present)
- Member, Society of Petroleum Engineers (1994 - present)

PROFESSIONAL EDUCATION

- Ph.D., Univ. of California, Berkeley Chemical Engineering (1994)
- B.S., Univ. of Washington, Chemical Engineering (1989)

LINKS

- SUETRI-A: <https://suetri-a.github.io>
- Google Scholar Profile: <https://scholar.google.com/citations?hl=en&user=CQ1koU8AAAAJ>
- Center for Mechanistic Control of Unconventional Formations (CMC-UF): <https://efrc-shale.stanford.edu>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research

Together with my research group, I develop and apply advanced imaging techniques, experimentation, and models to understand complex multiphase flows of gas, water, and organic phases in natural and manufactured porous media with applications in carbon storage, increased utilization of carbon dioxide for subsurface applications, hydrogen storage, and water reuse. In all of our work, physical observations, obtained mainly from laboratory and field measurements, are interwoven with theory.

Teaching

My teaching interests center broadly around education of students to meet the energy challenges that we will face this century. I teach undergraduate courses that examine the interplay of energy use and environmental issues including renewable energy resources and sustainability. At the graduate level, I offer classes on renewable energy processes based on heat and the thermodynamics of hydrocarbon mixtures.

Professional Activities

Member, American Geophysical Union, Society of Petroleum Engineers, and the American Chemical Society.

Teaching

COURSES

2025-26

- Busting Energy Myths: ENERGY 30N (Aut)
- Fundamentals of Energy Processes: EE 293B, ENERGY 201B (Win)
- Fundamentals of Renewable Power: EARTHSYS 102, ENERGY 102 (Spr)
- Senior Project and Seminar in Energy Science and Engineering: ENERGY 199 (Spr)
- Service Learning Practicum: EDUC 98SI (Win)
- Thermodynamics of Equilibria: ENERGY 251 (Aut)

2024-25

- Busting Energy Myths: ENERGY 30N (Aut)
- ESE Master's Graduate Seminar: ENERGY 351 (Spr)
- ESE PhD Graduate Seminar: ENERGY 352 (Spr)
- Fundamentals of Energy Processes: EE 293B, ENERGY 201B (Win)
- Fundamentals of Renewable Power: EARTHSYS 102, ENERGY 102 (Spr)
- Senior Project and Seminar in Energy Science and Engineering: ENERGY 199 (Spr)

2023-24

- Busting Energy Myths: ENERGY 30N (Aut)
- Fundamentals of Energy Processes: EE 293B, ENERGY 201B (Win)
- Fundamentals of Renewable Power: EARTHSYS 102, ENERGY 102 (Spr)
- Senior Project and Seminar in Energy Science and Engineering: ENERGY 199 (Spr)
- Thermodynamics of Equilibria: ENERGY 251 (Aut)

2022-23

- Busting Energy Myths: ENERGY 30N (Win)
- ERE Master's Graduate Seminar: ENERGY 351 (Spr)
- ERE PhD Graduate Seminar: ENERGY 352 (Spr)
- Fundamentals of Energy Processes: EE 293B, ENERGY 293B (Win)
- Fundamentals of Renewable Power: EARTHSYS 102, ENERGY 102 (Spr)
- Senior Project and Seminar in Energy Resources: ENERGY 199 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Richard Chen, Lama El Halabi, Jiayuan Huang, Ke Qin

Postdoctoral Faculty Sponsor

Laura Froute, Sandeep Yadav

Doctoral Dissertation Advisor (AC)

Marwah AlSinan, Jimin Zhou

Master's Program Advisor

Isabela Beine, Matthew Jackson, Danny Kim, Warisa Nuntaprayoon, Siradon Prateepswangwong, Erick Rodriguez, Braylyn To, Asia Zhang

Doctoral Dissertation Co-Advisor (AC)

Catherine Callas

Doctoral (Program)

Quinn Bennett, Emma Li, Lisa Li, Ge Zhang

Publications

PUBLICATIONS

- **Techno-economic assessment of advanced amine-based CO₂ capture for blue SMR hydrogen production: Impacts of process integration, solvent choice, and optimization** *INTERNATIONAL JOURNAL OF HYDROGEN ENERGY*
Yadav, S., Saltzer, S. D., Kavscek, A. R.
2026; 219
- **Benchmarking CO₂ storage simulations: Results from the 11th Society of Petroleum Engineers Comparative Solution Project** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Nordbotten, J. M., Fern, M. A., Flemisch, B., Kavscek, A. R., Lie, K., Both, J. W., Moyner, O., Sandve, T., Ahusborde, E., Bauer, S., Chen, Z., Class, H., Di, et al
2025; 148
- **Thermal diffusion of hydrogen-containing gas mixtures: applications to underground hydrogen storage** *SUSTAINABLE ENERGY & FUELS*
Zhou, J. D., Jessen, K., Kavscek, A. R.
2025
- **Elastic and creep behavior of fractured shale caprocks in the presence of argon and CO₂** *INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES*
Kamali-Asl, A., Kavscek, A. R.
2025; 195
- **Pore-scale mechanisms of salt precipitation in heterogeneous media under geological carbon storage conditions.** *Lab on a chip*
Zhang, G., Burger, J., Schembre-McCabe, J., Kavscek, A. R.
2025
- **Microfluidics for geosciences: metrological developments and future challenges.** *Lab on a chip*
Roman, S., Rembert, F., Kavscek, A. R., Poonosamy, J.
2025
- **Hydrogeochemical modeling of hydrogen storage in depleted gas reservoirs: Insights from local and global sensitivity analysis** *APPLIED ENERGY*
Huang, Z., Maher, K., Kavscek, A. R.
2025; 391

- **Analysis of mixing dynamics and the development of miscibility in microchannels** *PHYSICS OF FLUIDS*
Nazari, N., Dai, T., Sampaio, L. E. B., Kovscek, A. R.
2025; 37 (7)
- **Assessment of spatial monitoring of geological carbon storage using InSAR** *GAS SCIENCE AND ENGINEERING*
Li, Y., Leezenberg, P. B., Kovscek, A. R.
2025; 138
- **Image processing and segmentation open source codes applied to FIB-SEM images of ultra-tight gas shales samples: Enhanced pore space representativeness and mineral identification** *GAS SCIENCE AND ENGINEERING*
Lasnel, R., Froute, L., Kovscek, A. R., Jolivet, I. C., Creux, P.
2025; 138
- **Assessment of CO₂ leakage through existing wells and faults for a prospective storage site in the Southern San Joaquin Basin, California** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Kim, T., Li, Y., Kohli, A. H., Kovscek, A. R.
2025; 144
- **Hydrogen Generation and Serpentinization of Olivine Under Flow Conditions** *GEOPHYSICAL RESEARCH LETTERS*
Ross, C. M., Vega, B., Froute, L., Kim, T., Kovscek, A. R.
2025; 52 (6)
- **History-Matching of imbibition flow in fractured porous media Using Physics-Informed Neural Networks (PINNs)** *COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING*
Abbasi, J., Moseley, B., Kurotori, T., Jagtap, A. D., Kovscek, A. R., Hiorth, A., Andersen, P.
2025; 437
- **Identification of Vaca Muerta shale microlithofacies using convolutional neural networks with characterization by electron microscopy** *GAS SCIENCE AND ENGINEERING*
Froute, L., Nazarova, M., Jolivet, I. C., Creux, P., Chaput, E., Kovscek, A. R.
2025; 134
- **Enhancing prediction of fluid-saturated fracture characteristics using deep learning super resolution** *APPLIED COMPUTING AND GEOSCIENCES*
Murugesu, M., Krishnan, V., Kovscek, A. R.
2024; 24
- **Impact of supercritical carbon dioxide on the frictional strength of and the transport through thin cracks in shale** *JOURNAL OF ROCK MECHANICS AND GEOTECHNICAL ENGINEERING*
Al Shafloot, T., Kohli, A., Kim, T., Kovscek, A. R.
2024; 16 (12): 4990-5003
- **Optimizing Injection Well Trajectory to Maximize CO₂ Storage Security and Minimize Geomechanical Risk** *SPE JOURNAL*
Li, Y., Oneal, R., Whitezell, M., Kovscek, A. R.
2024; 29 (11): 6547-6562
- **In-situ study of CO₂-saturated 2-saturated brine reactive transport in carbonates considering the efficiency of wormhole propagation** *ADVANCES IN WATER RESOURCES*
Aljawad, M., Kim, T., Al Shafloot, T., Kovscek, A. R.
2024; 192
- **Scale translation yields insights into gas adsorption under nanoconfinement** *PHYSICS OF FLUIDS*
Liu, L., Froute, L., Kovscek, A. R., Aryana, S. A.
2024; 36 (7)
- **Assessment of hydrogen storage potential in depleted gas fields and power-to-hydrogen conversion efficiency: A northern California case study** *INTERNATIONAL JOURNAL OF HYDROGEN ENERGY*
Okoroafor, E. R., Nazari, N., Kim, T. W., Watkins, H. Y., Saltzer, S. D., Kovscek, A. R.
2024; 71: 982-998
- **Criteria and workflow for selecting saline formations for carbon storage** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*

- Callas, C., Davis, J., Saltzer, S. D., Hashemi, S. S., Wen, G., Gold, P. O., Zoback, M. D., Benson, S. M., Kavscek, A. R.
2024; 135
- **The 11th Society of Petroleum Engineers Comparative Solution Project Problem Definition** *SPE JOURNAL*
Nordbotten, J. M., Ferno, M. A., Flemisch, B., Kavscek, A. R., Lie, K.
2024; 29 (5): 2507-2524
 - **Molecular Assessment of Storage Capacity and Enthalpy of Adsorption in Organic-Rich Shale Gas Reservoirs** *ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING*
Afangwu, C., Glatz, G., Alafnan, S., Raza, A., Mahmoud, M. A., Sultan, A., Kavscek, A. R.
2024
 - **A Methodology for Fueling Mobility Markets with Hydrogen from Natural Gas plus Carbon Capture and Sequestration** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Okoroafor, E. R., Bracci, J., Boness, N. L., Saltzer, S. D., Shrimali, G., Hennessy, E. M., Kim, T., Seamon, A., Benson, S. M., Zoback, M. D., Kavscek, A. R.
2024; 133
 - **In Situ pH Measurement in Microfluidic Porous Media Indicated by Surfaces Functionalized with Polyaniline (PANI)** *COLLOIDS AND INTERFACES*
Zhang, G., Nazari, N., Kavscek, A. R.
2024; 8 (1)
 - **Scaling Up FluidFlow Results for Carbon Dioxide Storage in Geological Media** *TRANSPORT IN POROUS MEDIA*
Kavscek, A. R., Nordbotten, J. M., Ferno, M. A.
2024
 - **Coupled Transport, Reactivity, and Mechanics in Fractured Shale Caprocks** *WATER RESOURCES RESEARCH*
Murugesu, M. P., Vega, B., Ross, C. M., Kurotori, T., Druhan, J. L., Kavscek, A. R.
2024; 60 (1)
 - **Induced Seismicity Hazard Assessment for a Potential CO₂ Storage Site in the Southern San Joaquin Basin, CA** *GEOHAZARDS*
Kohli, A., Li, Y., Kim, T., Kavscek, A. R.
2023; 4 (4): 421-436
 - **Evaluation of Electron Tomography Capabilities for Shale Imaging.** *Microscopy and microanalysis : the official journal of Microscopy Society of America, Microbeam Analysis Society, Microscopical Society of Canada*
Frouté, L., Boigné, E., Jolivet, I. C., Chaput, E., Creux, P., Ihme, M., Kavscek, A. R.
2023
 - **Assessing the impact of dip angle on carbon storage in saline reservoirs to aid site selection** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Callas, C., Kavscek, A. R., Benson, S. M.
2023; 129
 - **Core-scale numerical simulation and comparison of breakdown of shale and resulting fractures using sc-CO₂ and water as injectants** *GAS SCIENCE AND ENGINEERING*
Yang, J., Tchelepi, H. A., Kavscek, A. R.
2023; 118
 - **Assessing the impact of dip angle on carbon storage in saline reservoirs to aid site selection** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Callas, C., Kavscek, A. R., Benson, S. M.
2023; 129
 - **Intercomparison of numerical simulation models for hydrogen storage in porous media using different codes** *ENERGY CONVERSION AND MANAGEMENT*
Okoroafor, E., Sampaio, L., Gasanzade, F., Claro, Y., Zhou, J. D., Saltzer, S. D., Bauer, S., Kavscek, A. R.
2023; 292

- **Analysis of gas storage and transport in Eagle Ford shale using pressure pulse decay measurements with He, Kr and CO₂** *GEOENERGY SCIENCE AND ENGINEERING*
Lyu, Y., Elkady, Y., Kavscek, A. R., Jessen, K.
2023; 228
- **Scoring, ranking, and technoeconomics of carbon capture and storage opportunities in the central valley of California** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Kim, T., Yaw, S., Kavscek, A. R.
2023; 128
- **Micro X-ray fluorescence reveals pore space details and spatially-resolved porosity of rock-based microfluidic devices.** *Lab on a chip*
Froute, L., Guan, K. M., Yun, W., Lewis, S. J., Stripe, B. D., Yang, X., Lapene, A., Kavscek, A. R., Creux, P.
2023
- **Environmental impact of solution pH on the formation and migration of iron colloids in deep subsurface energy systems.** *The Science of the total environment*
Spielman-Sun, E., Bland, G., Wielinski, J., Frouté, L., Kavscek, A. R., Lowry, G. V., Bargar, J. R., Noël, V.
2023: 166409
- **Quantification of the Impact of Acidified Brine on Fracture-Matrix Transport in a Naturally Fractured Shale Using in Situ Imaging and Modeling** *ENERGY & FUELS*
Zahasky, C., Murugesu, M., Kurotori, T., Sutton, C., Druhan, J. L. L., Vega, B., Benson, S. M. M., Kavscek, A. R. R.
2023
- **Flow characteristics and regime transition of aqueous foams in porous media over a wide range of quality, velocity, and surfactant concentration** *PETROLEUM SCIENCE*
Li, B., Zhang, M., Li, Z., Kavscek, A., Xin, Y., Li, B.
2023; 20 (2): 1044-1052
- **Comparative Analysis of Imaging and Measurements of Micrometer-Scale Fracture Aperture Fields Within a Heterogeneous Rock Using PET and X-ray CT** *TRANSPORT IN POROUS MEDIA*
Kurotori, T., Zahasky, C., Gran, M., Kavscek, A. R., Benson, S. M.
2023
- **Pore-scale study of microbial hydrogen consumption and wettability alteration during underground hydrogen storage** *FRONTIERS IN ENERGY RESEARCH*
Liu, N., Kavscek, A. R., Ferno, M. A., Dopffel, N.
2023; 11
- **The motion of long bubbles in microchannels using a meter-long, rectangular capillary on a chip.** *Journal of colloid and interface science*
Nazari, N., Yun, W., Kavscek, A. R.
2023; 638: 149-160
- **Multimodal study of the impact of stimulation pH on shale pore structure, with an emphasis on organics behavior in alkaline environments** *FUEL*
Medina-Rodriguez, B. X., Froute, L., Alvarado, V., Kavscek, A. R.
2023; 331
- **Mixed imbibition controls the advance of wetting fluid in multiscale geological media** *Advances in Water Resources*
Kurotori, T., Murugesu, M. P., Zahasky, C., Vega, B., Druhan, J. L., Benson, S. M., Kavscek, A. R.
2023
- **Effects of Supercritical CO₂ Injection on the Shale Pore Structures and Mass Transport Rates** *ENERGY & FUELS*
Medina, B. X., Kohli, A., Kavscek, A. R., Alvarado, V.
2022
- **Dynamic development of geochemical reaction fronts during hydraulic stimulation of shale** *APPLIED GEOCHEMISTRY*
Noel, V., Druhan, J. L., Gundogar, A., Kavscek, A. R., Brown Jr, G. E., Bargar, J. R.
2023; 148
- **Criteria and workflow for selecting depleted hydrocarbon reservoirs for carbon storage** *APPLIED ENERGY*

Callas, C., Saltzer, S. D., Davis, J., Hashemi, S. S., Kavscek, A. R., Okoroafor, E. R., Wen, G., Zoback, M. D., Benson, S. M.
2022; 324

- **Toward underground hydrogen storage in porous media: Reservoir engineering insights** *INTERNATIONAL JOURNAL OF HYDROGEN ENERGY*
Okoroafor, E., Saltzer, S. D., Kavscek, A. R.
2022; 47 (79): 33781-33802
- **Pore level foam generation in the presence of residual oil in porous media** *FUEL*
Almajid, M. M., Kavscek, A. R.
2022; 324
- **A micro-scale rheometer to study foam texture and flow resistance in planar fractures.** *Lab on a chip*
Nazari, N., Kavscek, A. R.
2022
- **Probing multiscale dissolution dynamics in natural rocks through microfluidics and compositional analysis.** *Proceedings of the National Academy of Sciences of the United States of America*
Ling, B., Sodwatana, M., Kohli, A., Ross, C. M., Jew, A., Kavscek, A. R., Battiato, I.
2022; 119 (32): e2122520119
- **Long-term permeability evolution of shale seal rocks with argon and scCO₂** *JOURNAL OF NATURAL GAS SCIENCE AND ENGINEERING*
Karnali-Asl, A., Kavscek, A. R., Zoback, M. D.
2022; 104
- **Optimization and uncertainty quantification of in situ combustion chemical reaction models** *FUEL*
Anderson, T. I., Kavscek, A. R.
2022; 319
- **Chemical and Reactive Transport Processes Associated with Hydraulic Fracturing of Unconventional Oil/Gas Shales.** *Chemical reviews*
Jew, A. D., Druhan, J. L., Ihme, M., Kavscek, A. R., Battiato, I., Kaszuba, J. P., Bargar, J. R., Brown, G. E.
2022
- **Mechanistic modeling and measurement of foamed gas flow resistance in fractures** *ADVANCES IN WATER RESOURCES*
Nazari, N., Almajid, M. M., Kavscek, A. R.
2022; 162
- **Analysis and comparison of in-situ combustion chemical reaction models** *FUEL*
Anderson, T., Kavscek, A. R.
2022; 311
- **Assessment of oil and gas fields in California as potential CO₂ storage sites** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Kim, T., Callas, C., Saltzer, S. D., Kavscek, A. R.
2022; 114
- **Fractal Characterization of Multimodal, Multiscale Images of Shale Rock Fracture Networks** *ENERGIES*
Vega, B., Kavscek, A. R.
2022; 15 (3)
- **Pore-scale bubble population dynamics of CO₂-foam at reservoir pressure** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
Benali, B., Foyen, T. L., Alcorn, Z., Haugen, M., Gauteplass, J., Kavscek, A. R., Ferno, M. A.
2022; 114
- **Striving to translate shale physics across ten orders of magnitude: What have we learned?** *EARTH-SCIENCE REVIEWS*
Mehmani, Y., Anderson, T., Wang, Y., Aryana, S. A., Battiato, I., Tchelepi, H. A., Kavscek, A. R.
2021; 223
- **Reconstructing porous media using generative flow networks** *COMPUTERS & GEOSCIENCES*
Guan, K. M., Anderson, T. I., Creux, P., Kavscek, A. R.
2021; 156

- **2D-to-3D image translation of complex nanoporous volumes using generative networks.** *Scientific reports*
Anderson, T. I., Vega, B., McKinzie, J., Aryana, S. A., Kavscek, A. R.
2021; 11 (1): 20768
- **Pore-merging methodology for reactive transport and mineral dissolution in pore-network models** *ADVANCES IN WATER RESOURCES*
Esteves, B. F., Lage, P. L. C., Couto, P., Kavscek, A. R.
2021; 155
- **In-Situ Combustion Frontal Stability Analysis** *SPE JOURNAL*
Zhu, Z., Liu, Y., Liu, C., Kavscek, A.
2021; 26 (4): 2271-2286
- **Multiphysics Investigation of Geochemical Alterations in Marcellus Shale Using Reactive Core-Floods** *ENERGY & FUELS*
Gundogar, A. S., Ross, C. M., Jew, A. D., Bargar, J. R., Kavscek, A. R.
2021; 35 (13): 10733-10745
- **Multimodal Visualization of Vaca Muerta Shale Fabric Before and After Maturation** *ENERGY & FUELS*
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