

Sheng Peng

Professional Summary

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Business address: The University of Texas at Austin
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Professional Preparation

Academic Background

Ph.D. Soil, Water, and Environmental Sciences, University of Arizona, Tucson, December 2004

M.S. Environmental Sciences, Beijing Normal University, July 2000

B.E. Environmental Planning and Management, Suzhou Institute of Urban Construction & Environmental Protection, Suzhou, China, July 1997

Professional Appointments

Research Associate, Bureau of Economic Geology, UT Austin (November 2014-Present)

Present Position: Research Fellow, Bureau of Economic Geology, The University of Texas at Austin (February 2013 - Present).

Assistant Research Professor, The University of Texas at Arlington (January 2011 - January 2013). Performing research and teaching as guest lecturer in the areas of hydrogeology.

Assistant Professor, Beijing Normal University (September 2007 - December 2010). Teaching and performing research in the areas of contaminant hydrogeology and environmental science and engineering.

Project Hydrogeologist, GeoSystems Analysis, Inc., Tucson, Arizona (June 2005 - August 2007). GeoSystems Analysis is a consulting company focused on mine reclamation and mine environment, heap leach optimization, vadoze zone monitoring, and groundwater recharge..

Post-doctoral Researcher, University of Arizona (December 2004 - June 2005). Performing research in the area of contaminant hydrology.

Research Assistant, University of Arizona (August 2001 - December 2004). Performing research in the area of vadose zone and contaminant hydrology.

Assistant Engineer, Sound Environmental Engineering Group (July 2000 - July 2001). Sound Group is a leading company in China based in Beijing focused on waste water treatment and municipal solid waste disposal..

Theses

Air-water two-phase flow in vadose zone

Dissertations

Characterization of air-water interfacial area in unsaturated sandy porous materials using tracer techniques

Areas of Expertise

Areas of Expertise

Application of macroscopic continuum based model and pore-scale model for contaminant transport and remediation and fluid flow

Carbon geological sequestration and enhanced geothermal system

Fluid flow and transport property laboratory measurement and characterization

Pore structure and pore-scale multi-phase fluid distribution characterization in natural porous media with direct (imaging) and indirect probes

Soil and groundwater remediation of organic contaminants (NAPLs) and enhanced oil recovery using innovative techniques

Solute sorption and transport and fluid flow in unsaturated gravelly system

Unconventional petrophysics and fluid flow

Awards

Awards and Honorary Societies

2020 Society of Petroleum Engineers (SPE) Outstanding Reviewer Award, 2020

Research Assistant Fellowship, University of Arizona, 2001 - 2004

Outstanding Academic Research Award, Beijing Normal University, 2002

President's Prize for Outstanding Graduate, Suzhou University of Science and Technology, 1997

Service

University Committees

Scientific Facilities Planning & Safety Committee (SFPS), Bureau of Economic Geology, Bureau of Economic Geology, September 1, 2019-August 31, 2021

Bureau of Economic Geology (UT Austin) Seminar Coordinator, Responsible for organizing and hosting technical seminars held weekly during Spring and Fall semesters at BEG., September 1, 2016-May 31, 2017

External Committees Participation

Associate Editor, SPE Reservoir Evaluation & Engineering, Society of Petroleum Engineers (SPE), October 1, 2019-Present

Proposal Review Panels Participation

Fuel (Article), 2019

Hydrogeology Journal (Article), 2019

NIST beam time proposal (Proposal), 2019

DOE, Energy Frontier Research Center (2 Proposals), 2018

SPE Reservoir Evaluation & Engineering-Formation Evaluation (Article), 2018

ACS Petroleum Research Fund (Proposal), 2017

DOE, BES proposal (Proposal), 2017

Energy & Fuels (Article), 2017

Interpretation (Article), 2017

Solid Earth (Article), 2017

AAPG Bulletin (Article), 2016

Marine and Petroleum Geology (Article), 2016
Water Resources Research (Article), 2016
Advances in Water Resources (Article), 2015
Transport in Porous Media (Article), 2015
Environmental Earth Sciences (Article), 2013
Chinese Journal of Environmental Engineering (Article), 2012
Environmental Earth Sciences (Article), 2012
Geosystem Engineering (Article), 2012
Soil and Sediment Contamination (Article), 2012
Chemosphere (Article), 2011
Chinese Journal of Environmental Engineering (Article), 2011
Environmental Earth Sciences (Article), 2011
Environmental Pollution (Article), 2011
Environmental Pollution (Article), 2011
Journal of Environmental Radioactivity (Article), 2011
Soil and Sediment Contamination (Article), 2011
Transport in Porous Media (Article), 2011
Chinese Journal of Environmental Engineering (Article), 2010
Chinese Journal of Environmental Engineering (Article), 2009

Teaching and Advising

University Courses Taught

Micro-CT Imaging and Applications in Unconventional Oil and Gas Reservoirs: presented to UT Mechanical Engineering graduate level class, presented at ME379, Austin, TX, February 26, 2024.

Reservoir Characterization: Solute Transport and Imaging Techniques (Guest Lecturer): presented to graduate students, Department of Earth and Environmental Sciences, UT Arlington, February 1-March 1, 2012.

Selected Topics in Environmental Science and Engineering: presented to graduate students, School of Environment, Beijing Normal University, February 1-June 1, 2010.

Subsurface Contaminant Transport and Remediation: presented to graduate students, School of Environment, Beijing Normal University, February 1-June 1, 2010.

Hydrogeology and Its Application (short course): presented to School of Environment, Beijing Normal University, September 1-October 1, 2009.

Site Cleanup Techniques and Applications (short course): presented to graduate students, School of Environment, Beijing Normal University, September 1-November 1, 2007.

Continuing Education Courses Taught

Overview of Porosity and Permeability Measurements: presented at 2019 SEPM Short Course: Essentials for Understanding Unconventional Mudrock Plays, Houston, May 19, 2019.

Mudrocks: Porosity and Permeability (Relative Permeability): presented at MSRL 2019 Annual Meeting, Bureau of Economic Geology, The University of Texas at Austin, April 2, 2019.

Laboratory Measurement of Porosity and Permeability for Mudrock: Basics and Challenges: presented to Statoil Professional Development Course, Bureau of Economic Geology, The University of Texas at Austin, January 17, 2017.

Cochise County Groundwater Recharge Model: presented to county engineers, Geosystems Analysis, Inc, Tucson, Ariz., June 1-7, 2007.

Student Committee Supervision

Co-adviser, Mianmo Meng, Fluid-Rock Interaction in Shale, China University of Petroleum (Beijing) and Bureau of Economic Geology, UT Austin, 2018

Advisor, Ning Wang, Steam-enhanced injection to remove volatile organic contaminant in 2D flow cell with layered sand structure, School of Environment, Beijing Normal University, 2013

Advisor, Jianming Zhang, Sorption of Heavy Metals on Soils: Evaluation of Influences of Mixing Mode and Liquid/Soil Ratio, School of Environment, Beijing Normal University, 2012

Co-adviser, Wei Wu, Surfactant-Enhanced Soil Washing to Remove PAHs in a Contaminated Soil from a Coal Chemical Plant, School of Environment, Beijing Normal University, 2010

Student Committee Participation

Ph.D. thesis, External examiner, Zhiqi Zhong, Assessment of Archie Parameters in Shale, an Experimental Approach, Curtin University, Australia, 2021

Presentations

Invited Presentations

Carbon Storage and Utilization in Depleted Unconventional Reservoirs: An Overview: presented to University of Calgary, presented at University of Calgary CCS Panel Discussion, Virtual, September 14, 2023.

Shale Wettability and Its Impact on Fluid Flow: presented to Continental, presented at Virtual, July 18, 2023.

Mechanisms and Dynamics of Water-Oil Displacement and Hydrocarbon Production in Shale: presented to Chevron engineers, petrophysicists, water chemists, presented at Chevron webinar, July 27, 2022.

Liquid Permeability, Wettability, Relative Permeability, and EOR in Shale: presented to ConocoPhillips, Virtual, March 21, 2022.

About Relative Permeability in Shale: presented to INPEX, Virtual, February 24, 2022.

Water-Oil Displacement, Wettability, and Improved Oil Recovery in Shale: presented to Ovintiv (~25 audience), presented at Ovintiv invited presentation, Virtual, May 4, 2021.

Gas-Water Relative Permeability and Implications on Optimal Production Strategies in Unconventional Reservoirs: presented to Rocky Mountain Association of Geologists (RMAG), presented at RMAG/DWLS [Denver Well Logging Society] Fall Symposium 2020, Denver, Colo., virtual, October 27, 2020.

A Reliable and Fast Method of Accurate Measurement of Shale Matrix Permeability: presented to Schlumberger Reservoir Laboratories, Houston, February 1, 2019.

Multi-Phase Fluid Imbibition, Distribution, and Wettability in Shale through Synchrotron-Based Dynamic Micro-CT Imaging: presented to Applied Geoscience Conference, Houston, March 2018.

Microscale Investigation on CO₂ EOR in Unconventional Reservoir Rocks and Proposals on Conformance Control Strategies: presented to Oxy engineers, presented at Oxy Unconventional Technical Group, Virtual, September 27, 2023-Present.

Presentations

Potential Leakage Pathways and Laboratory Measurements and Evaluation: presented at SMRI 2023 Fall Workshop, Austin, Tex., October 4, 2023.

Does Liquid Slip Flow Occur in Unconventional Reservoir Rocks? A Laboratory Study of Liquid Permeability: presented at URTeC 2023, Denver, Colo., June 12-15, 2023.

Feasibility of CO₂ Storage in Depleted Unconventional Reservoirs: Capacity, Microscale Mechanism, Injectivity, Fault Stability, and Monitoring: presented at URTeC 2023, Denver, Colo., June 14, 2023.

Revisiting Mississippian Barnett Shale: Lithological and Geochemical Control on Varied Reservoir Heterogeneity and Fluid Saturation from Late Oil to Dry Gas Window, Fort Worth Basin, Texas: presented to AAPG, presented at AAPG SWS, Wichita Falls, Texas, May 9, 2023.

Evaluating Liquid Permeability with a Transient Flow Method: presented to MSRL sponsors, presented at MSRL Annual Meeting, Austin, Tex., April 14, 2023.

Fluid flow and CO₂-EOR in Unconventional Reservoirs: presented to MSRL sponsors, presented at MSRL Annual Meeting, Austin, Tex., April 14, 2023.

Liquid Permeability in Shale: Does Slip Flow Occur?: presented to MSRL sponsors, presented at MSRL Annual Meeting, Austin, Tex., April 14, 2023.

Revisiting Barnett Shale: Barnett in Condensate Window & Verification of Measured Porosity and Permeability in the Mississippian Barnett Shale, Wise and Denton Co., Texas: presented to MSRL Annual Meeting, presented at MSRL Annual Meeting, Austin, Texas, April 13, 2023.

Fluid flow and carbon utilization in unconventional reservoirs: presented to BEG Seminar, presented at BEG Seminar, Austin, Tex., February 24, 2023.

Pore Systems and Fluid Flow in Unconventional Reservoir Rocks: Key Characteristic Parameters and Properties: presented to MSRL members, presented at MSRL Winter Short Course 2022, Austin, December 1-2, 2022.

Shale Wettability and Its Implications on Enhanced Oil Recovery Strategy: presented to MSRL members, presented at MSRL Winter Short Course and Core Workshop 2022, Austin, December 1-2, 2022.

Verification of Measured Porosity and Permeability using SEM Micropetrography in the Mississippian Barnett Shale, Wise and Denton Co., Texas: presented to Tight Oil Resource Assessment (TORA), presented at TORA Annual Meeting and Technical Conference, Austin, Texas, November 6-7, 2022.

Water Saturation, Porosity & Permeability, Wettability in the Mississippian Barnett Shale, Wise and Denton Co., TX: presented to BKV STARR, Austin, Tex., August 22, 2022.

Water Imbibition and Oil Recovery in Shale: Dynamics and Mechanisms Using Integrated Cm-to-Nm-Scale Imaging.: presented to URTeC, presented at URTeC 2022, Houston, June 20-22, 2022.

Gas Flow and Permeability in Shale under Different Pressures and Water Saturations: presented to MSRL members, presented at Mudrock Systems Research Laboratory Annual Meeting, Houston, April 12, 2022.

Shale Wettability: Untangling the Elusive Property with an Integrated Imbibition and Imaging Technique: presented to MSRL members, presented at Mudrock Systems Research Laboratory Annual Meeting, Houston, April 12, 2022.

Water Imbibition and Oil Recovery in Shale: Dynamics and Mechanisms Through Integrated Cm-to-nm-scale Imaging: presented to MSRL members, presented at Mudrock Systems Research Laboratory Annual Meeting, Houston, April 12, 2022.

Gas Flow and Permeability in Shale under Different Pressures and Water Saturations: presented to MSRL members, presented at Mudrock Systems Research Laboratory (MSRL) Annual Meeting, Houston, Tex., April 11-12, 2022.

Shale wettability: untangling the elusive property with an integrated imbibition and imaging technique: presented to MSRL consortium members, presented at MSRL Annual Meeting, Houston, Tex., April 11-12, 2022.

Shale Wettability: Untangling the Elusive Property with an Integrated Imbibition and Imaging Technique: presented to MSRL members, presented at Mudrock Systems Research Laboratory (MSRL) Annual Meeting, Houston, Tex., April 11-12, 2022.

Unconventional Petrophysics Laboratory: Overview and Capacities: presented to MSRL members, presented at Mudrock Systems Research Laboratory (MSRL) Annual Meeting, Houston, Tex., April 11-12, 2022.

Water Imbibition and Oil Recovery in Shale: Dynamics and Mechanisms Through Integrated Cm-to-Nm-Scale Imaging: presented to MSRL members, presented at Mudrock Systems Research Laboratory (MSRL) Annual Meeting, Houston, Tex., April 11-12, 2022.

Petrophysical Parameters and Fluid Flow in Shale Matrix: presented to MSRL members, presented at MSRL Winter Short Course 2021, Virtual, December 9, 2021.

Petrophysical Parameters and Fluid Flow in Shale Matrix: presented to MSRL members, presented at MSRL Winter Short Course 2021, Virtual, December 9, 2021.

Processes and Controls of Water-Oil/Gas Flow in a Shale Matrix for Improved Oil Recovery: presented to MSRL members, presented at MSRL Winter Core Workshop, Houston, Tex., December 7, 2021.

Water-Oil Displacement in Shale: New Insights from a Comparative Study Integrating Imbibition Tests and Multiscale Imaging: presented to URTeC, presented at URTeC 2021, Virtual, July 26-28, 2021.

Overview of measurement of gas permeability, relative permeability, and their pressure dependence in unconventional reservoir rocks: presented to MSRL members, presented at Mudrock Systems Research Laboratory Spring Short Course, Virtual, May 11, 2021.

Gas-Water Relative Permeability in Unconventional Reservoirs: Hysteresis and Impact on Productions: presented to MSRL members, presented at Mudrock Systems Research Laboratory (MSRL) Annual Meeting, virtual, April 6-8, 2021.

Pressure-Dependent Gas Permeability, Diffusivity, and Relative Permeability in Unconventional Reservoirs: presented to MSRL members, presented at Mudrock Systems Research Laboratory (MSRL) Annual Meeting, virtual, April 6-8, 2021.

Water-Oil Displacement, Wettability, and Improved Oil Recovery in Shale: presented to MSRL members, presented at Mudrock Systems Research Laboratory (MSRL) Annual Meeting, online conference, April 6-8, 2021.

Porosity and Permeability Study of the Austin Chalk: presented to Reservoir Characterization Research Laboratory sponsor meeting, presented at Reservoir Characterization Research Laboratory 2020 Annual Meeting, virtual, October 16, 2020.

Gas-Water Relative Permeability: Direct Measurements and Implications for Water and Gas Production: presented to American Association of Petroleum Geologists (AAPG), presented at AAPG Annual Convention 2020, Online conference, September 29-October 1, 2020.

Gas-Water Relative Permeability of Unconventional Reservoir Rocks: Hysteresis and Influence on Production after Shut-in: presented at Unconventional Resource Technique Conference 2020, Austin, TX, July 20-22, 2020.

Gas-Water Relative Permeability and Implications on Optimal Production Strategies in

Unconventional Reservoir: presented to MSRL members, presented at Mudrock Systems Research Laboratory Annual Meeting, Austin, TX, April 8-10, 2020.

Oil Recovery by Water Imbibition and Wettability in Shale: presented to MSRL members, presented at Mudrock Systems Research Laboratory Annual Meeting, Austin, TX, April 8-10, 2020.

Overview of Porosity and Permeability in Shale: presented to MSRL members, presented at Mudrock Systems Research Laboratory Annual Meeting Short Course, Austin, TX, April 8-10, 2020.

Pore Connectivity, Porosity, Permeability, and Influence of TOC and Mineralogy in Shale: presented to MSRL members, presented at Mudrock Systems Research Laboratory Annual Meeting, Austin, TX, April 8-10, 2020.

Gas relative permeability and evolution during water imbibition in unconventional reservoir rocks: direct laboratory measurement and a conceptual model: presented at Unconventional Resources Technology Conference, Denver, Colo., July 22-24, 2019.

Water/oil displacement by spontaneous imbibition through multiscale imaging and implication on wettability in Wolfcamp Shale: presented at Unconventional Resources Technology Conference, Denver, Colo., July 22-24, 2019.

Tracer-guided characterization of dominant pore network and implications on permeability and wettability in shale: presented at AAPG Annual Convention, San Antonio, Tex., May 21, 2019.

Direct laboratory measurement of gas relative permeability in unconventional reservoir rocks: presented at Mudrock Systems Research Laboratory Annual Meeting, Bureau of Economic Geology, UT Austin, Austin, Tex., April 6, 2019.

Tracer-guided characterization of dominant pore network and wettability in shale: presented to Statoil, Austin, Tex., May 8, 2018.

New progress in measurement of matrix permeability for mudrock: presented at Mudrock Systems Research Laboratory Annual Meeting, Bureau of Economic Geology, UT Austin, Austin, Tex., March 6, 2018.

Investigation on multi-phase fluid imbibition in shale through synchrotron based dynamic micro-CT imaging: presented at Mudrock Systems Research Laboratory Annual Meeting, Bureau of Economic Geology, UT Austin, Austin, Tex., March 2, 2017.

Application of mercury injection capillary pressure in mudrock: conformance and compression corrections: presented at Mudrock Systems Research Laboratory Annual Meeting, Bureau of Economic Geology, UT Austin, Austin, Tex., March 1, 2017.

Mudrock porosity: different results from different methods: presented at Mudrock Systems Research Laboratory Annual Meeting, Bureau of Economic Geology, UT Austin, Austin, Tex., March 3, 2016.

Pore and organic matter evolution from dynamic nano-CT imaging: presented at Mudrock Systems Research Laboratory Annual Meeting, Bureau of Economic Geology, UT Austin, Austin, Tex., March 3, 2016.

Matrix permeability in shale: particle/plug size effect and implications: presented at Mudrock Systems Research Laboratory Annual Meeting, Bureau of Economic Geology, UT Austin, Austin, Tex., March 2, 2016.

Application of imaging analysis and pore modeling on carbonates: from 3D to 2D: presented at Reservoir Characterization Research Laboratory Annual Meeting, Bureau of Economic Geology, UT Austin, Austin, Tex., October 5, 2015.

Laboratory permeability measurement of mudrocks: what are we measuring?: presented at Mudrock Systems Research Laboratory Annual Meeting, Bureau of Economic Geology, UT

Austin, Austin, Tex., April 16, 2015.

Permeability Measurement for Mudrocks with a Modified GRI Method Under In-situ Confining Stress: presented at Mudrock Systems Research Laboratory Annual Meeting 2014, Bureau of Economic Geology, The University of Texas at Austin, April 2015.

Upscaling of Pore Network and Permeability from Micron to Millimeter Scale in Organic-Pore Dominated Mudstones: presented at AAPG Annual Convention, Houston, April 7, 2014.

An Integrated Method for Upscaling of Pore Network Characterization and Permeability Estimation for Barnett Shale: presented at Mudrock Systems Research Laboratory Annual Meeting, Austin, Tex., March 6, 2014.

Pore structure characterization of Berea sandstone using synchrotron X-ray microtomography: resolution effect and comparison with MIP: presented at The University of Texas at Arlington, Arlington, Texas, November 2012.

Air-water interfacial area measurement using different tracer techniques and X-ray microtomography: presented at College of Engineering, Peking University, Beijing, China, September 2011.

Cochise County Flood Control and Urban Runoff Recharge Plan: presented at Regional Water Symposium, Tucson, Arizona, August 2007.

Air-water interfacial area in unsaturated soils: measurement and modeling: presented at University of Arizona, Tucson, Arizona, October 2005.

Activities of a Professional Nature

Professional Societies

American Association of Petroleum Geologists

American Geophysical Union

Funding

Research Support

Co-Investigator: Multiscale Pore Characterization and Porosity Measurement of Carbonaceous Chondrites in Preparation for Returned Samples from Bennu and Ryugu, NASA (2021-2024; \$497,866, pending).

PI: Gas Slippage and Adsorption and Their Impact on Gas Flow in Aramco Shale Reservoirs (October 1, 2022-September 31, 2023; \$144,479).

Principal Investigator: Surface and Structure Control on Two-Phase Flow in Shale, DOE, BES (2019-2022; \$996,549, pending).

Principal Investigator: High Water-Cut Source in Permian Basin: Assessment and Mitigation, University Lands (2019-2021; \$200,000, pending).

Principal Investigator (Task 6a): Multifaceted Study of Water Cut in the Permian Wolfcamp in the Delaware Basin, West Texas, Shell UT Unconventional Research (SUTUR2) project (January 2016-January 2018; \$154,264).

Principal Investigator: Investigation of Multiphase Flow in Shale using Multi-Scale Synchrotron-Based X-ray Tomographic Dynamic Imaging and Lattice Boltzmann Modeling, DOE, BES (2017; \$675,400. Declined.).

Principal Investigator: Dynamic imaging of shale evolution using in-situ nano-CT under high pressure and temperature conditions, Jackson School of Geosciences (UT Austin) Seed Grant (2016; \$17,600).

Principal Investigator: Removal of NAPL with Steam-Enhanced Air Injection in Layered Soil

Structure: Mechanisms and Effectiveness (40902072), China's National Natural Science Foundation (January 2010 - January 2013, 530,000 Yuan RMB).

Co-investigator: Beijing Key Science and Technology Project: Development of Integrated Ex-Situ Soil Remediation Technology (SF2008-02), Beijing Municipal Science and Technology Commission (January 2009 - January 2011, 150,000 Yuan RMB).

Co-investigator: Baiyangdian Lake Project (2008ZX07209-007): Baiyangdian Lake Non-Point Pollution Control, China's Major Science and Technology Program for Water Pollution Control and Treatment (January 2008 - January 2011, 180,000 Yuan RMB).

Publications

Peer Reviewed Journal Articles

Peng, S., Ates, H., Zhang, T., Eichmann, S. L., and Gupta, A., 2024, Impact of gas adsorption of nitrogen, argon, methane, and CO₂ on gas permeability in nanoporous rocks: Gas Science and Engineering, v. 131, no. 205478, 9 p., <http://doi.org/10.1016/j.jgsce.2024.205478>.

Peng, S., 2023, Evaluating the accuracy of liquid permeability measurements in shale and tight rocks using transient flow method and comparison with gas permeability: Marine and Petroleum Geology, v. 157, no. 106491, 10 p., <http://doi.org/10.1016/j.marpetgeo.2023.106491>.

Peng, S., LaManna, J., Periwai, P., and Shevchenko, P., 2023, Water imbibition and oil recovery in shale: dynamics and mechanisms using integrated centimeter-to-nanometer-scale imaging: SPE Reservoir Evaluation & Engineering, v. 26, no. SPE-210567-PA, p. 51-63, <http://doi.org/10.2118/210567-PA>.

Peng, S., Shevchenko, P., and Ko, L. T., 2023, Shale wettability: untangling the elusive property with an integrated imbibition and imaging technique and a new hypothetical theory: SPE Reservoir Evaluation & Engineering, v. 26, no. SPE-212276-PA, p. 40-50, <http://doi.org/10.2118/212276-PA>.

Loucks, R. G., Peng, S., Hattori, K. E., Periwai, P., Lambert, J. R., Zahm, C. K., and Ko, L. T., 2022, Depositional systems, lithofacies, and reservoir characterization of the Upper Cretaceous Austin Chalk, Brookeland and Burr Ferry fields in East Texas and western Louisiana: GCAGS Journal, v. 11, p. 37-57.

Loucks, R. G., and Peng, S., 2021, Matrix reservoir quality of the Upper Cretaceous Austin Chalk Group and evaluation of reservoir-quality analysis methods; northern onshore gulf of Mexico, U.S.A.: Marine and Petroleum Geology, v. 134, no. 105323, 11 p., <http://doi.org/10.1016/j.marpetgeo.2021.105323>.

Loucks, R. G., Zahm, C. K., Larson, T. E., Zahm, L. C., and Peng, S. [erroneously credited as "Peng Zeng"], 2021, Stratal architecture, lithofacies, environmental setting, depositional processes, and associated geological characteristics of the Upper Cretaceous Austin Chalk in Louisiana: GCAGS Journal, v. 10, p. 47-75.

Peng, S., 2021, Advanced understanding of gas flow and the Klinkenberg effect in nanoporous rocks: Journal of Petroleum Science and Engineering, v. 206, no. 109047, 14 p., <http://doi.org/10.1016/j.petrol.2021.109047>.

Peng, S., Shevchenko, P., Periwai, P., and Reed, R. M., 2021, Water-oil displacement in shale: new insights from a comparative study integrating imbibition tests and multiscale imaging: Society of Petroleum Engineers Journal, v. 26, no. 5, paper no. SPE-205515-PA, p. 3285-3299, <http://doi.org/10.2118/205515-PA>.

Loucks, R. G., Larson, T. E., Zheng, C. Y. C., Zahm, C. K., Ko, L. T., Sivil, J. E., Peng, S., Ruppel, S. C., and Ambrose, W. A., 2020, Geologic characterization of the type cored section for the Upper Cretaceous Austin Chalk Group in southern Texas: a combination fractured and unconventional reservoir: AAPG Bulletin, v. 104, no. 10, p. 2209-2245, <http://doi.org/10.1306/04222019197>.

- Peng, S., 2020, Gas-water relative permeability of unconventional reservoir rocks: hysteresis and influence on production after shut-in: *Journal of Natural Gas Science and Engineering*, v. 82, no. 103511, 11 p., <http://doi.org/10.1016/j.jngse.2020.103511>.
- Peng, S., 2019, Gas relative permeability and its evolution during water imbibition in unconventional reservoir rocks: direct laboratory measurement and a conceptual model: *SPE Reservoir Evaluation & Engineering*, v. 22, no. 4, p. 1346-1359, <http://doi.org/10.2118/198896-PA>.
- Peng, S., Reed, R. M., Xiao, X., Yang, Y., and Liu, Y., 2019, Tracer-guided characterization of dominant pore networks and implications for permeability and wettability in shale: *Journal of Geophysical Research: Solid Earth*, v. 124, p. 1459-1479, <http://doi.org/10.1029/2018JB016103>.
- Peng, S., Ren, B., and Meng, M., 2019, Quantifying the influence of fractures for more-accurate laboratory measurement of shale matrix permeability using a modified gas-expansion method: *SPE Reservoir Evaluation & Engineering*, v. 22, no. 4, p. 1293-1304, <http://doi.org/10.2118/195570-PA>.
- Ko, L. T., Loucks, R. G., Ruppel, S. C., Zhang, T., and Peng, S., 2017, Origin and characterization of Eagle Ford pore networks in the south Texas Upper Cretaceous shelf: *AAPG Bulletin*, v. 101, no. 3, p. 387-418, <http://doi.org/10.1306/08051616035>.
- Ko, L., Loucks, R. G., Milliken, K., Liang, Q., Zhang, T., Sun, X., Hackley, P. C., Ruppel, S. C., and Peng, S., 2017, Controls on pore types and pore-size distribution in the Upper Triassic Yanchang Formation, Ordos Basin, China: implications for pore-evolution models of lacustrine mudrocks: *Interpretation*, v. 5, no. 2, p. SF127-SF148, <http://doi.org/10.1190/INT-2016-0115.1>.
- Loucks, R. G., Ruppel, S. C., Wang, X., Ko, L., Peng, S., Zhang, T., Rowe, H. D., and Smith, P. L., 2017, Pore types, pore-network analysis, and pore quantification of the lacustrine shale-hydrocarbon system in the Late Triassic Yanchang Formation in the southeastern Ordos Basin, China: *Interpretation*, v. 5, no. 2, p. SF63-SF79, <http://doi.org/10.1190/INT-2016-0094.1>.
- Peng, S., and Xiao, X., 2017, Investigation of multiphase fluid imbibition in shale through synchrotron-based dynamic micro-CT imaging: *Journal of Geophysical Research: Solid Earth*, v. 122, no. 6, p. 4475-4491, <http://doi.org/10.1002/2017JB014253>.
- Peng, S., Zhang, T., Loucks, R. G., and Shultz, J., 2017, Application of mercury injection capillary pressure to mudrocks: conformance and compression corrections: *Marine and Petroleum Geology*, v. 88, p. 30-40, <http://doi.org/10.1016/j.marpetgeo.2017.08.006>.
- Peng, S., and Loucks, R. G., 2016, Permeability measurements in mudrocks using gas-expansion methods on plug and crushed-rock samples: *Marine and Petroleum Geology*, v. 73, p. 299-310, <http://doi.org/10.1016/j.marpetgeo.2016.02.025>.
- Peng, S., Hassan, A., and Loucks, R. G., 2016, Permeability estimation based on thin-section image analysis and 2D flow modeling in grain-dominated carbonates: *Marine and Petroleum Geology*, v. 77, p. 763-775, <http://doi.org/10.1016/j.marpetgeo.2016.07.024>.
- Peng, S., Yang, J., Xiao, X., Loucks, R. G., Ruppel, S. C., and Zhang, T., 2015, An integrated method for upscaling pore-network characterization and permeability estimation: example from the Mississippian Barnett Shale: *Transport in Porous Media*, v. 109, no. 2, p. 359-376, <http://doi.org/10.1007/s11242-015-0523-8>.
- Peng, S., Marone, F., and Dultz, S., 2014, Resolution effect in X-ray microcomputed tomography imaging and small pore's contribution to permeability for a Berea sandstone: *Journal of Hydrology*, v. 510, p. 403-411, <http://doi.org/10.1016/j.jhydrol.2013.12.028>.
- Peng, S., Wang, N., and Chen, J., 2013, Steam and air co-injection in removing residual TCE in unsaturated layered sandy porous media: *Journal of Contaminant Hydrology*, v. 153, p. 24-26.
- Peng, S., and Hamamoto, S., 2012, Gas diffusivity in rocks: measurement and its correlation to porosity, pore-size distribution, and permeability: *Water Resources Research*, v. 48, W02507, 9

p., doi:10.1029/2011WR011098.

Peng, S., and Hu, Q., 2012, LA-ICP-MS Calibrations for intact rock samples with internal standard and modified constant-sum methods: *American Journal of Analytical Chemistry*, v. 3, p. 168-174.

Peng, S., Hu, Q., Ewing, R. P., Liu, C., and Zachara, J. M., 2012, Quantitative 3-D elemental mapping by LA-ICP-MS of basalt from the Hanford 300 area: *Environmental Science & Technology*, v. 46, p. 2035-2042.

Peng, S., and Brusseau, M. L., 2011, Air-water interfacial area and capillary pressure: porous-medium texture effects and empirical function: *Journal of Hydraulic Engineering*, v. 17, no. 7, p. 829-832.

Peng, S., Wu, W., and Chen, J., 2011, Removal of PAHs with surfactant enhanced soil washing: Influencing factors and removal effectiveness: *Chemosphere*, v. 82, p. 1173-1177.

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