

## **Dr. Zuleima Karpyn**

Associate Dean for Graduate Education and Research,  
Donohue Family Professor of Energy and Mineral Engineering  
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### **Education and Professional Career**

1997 B.S. Chemical Engineering, Universidad Central de Venezuela.  
2001 M.S. Petroleum and Natural Gas En., The Pennsylvania State University, USA  
2005 Ph.D Petroleum and Natural Gas Eng., The Pennsylvania State University, USA  
2005-2011 Assistant Professor, Petroleum and Natural Gas Eng., Penn State U.  
2011-2016 Associate Professor, Petroleum and Natural Gas Eng., Penn State U.  
Since 2016 Professor, Petroleum and Natural Gas Engineering, Penn State U.  
Since 2020 Associate Dean for Graduate Education and Research, College of Earth and Mineral Sciences, Penn State U.

### **Commitment, Appointments and Scientific Volunteer Jobs**

2009-2014 Associate Editor, Society of Petroleum Engineers Editorial Review Committee.  
2013-2014 Interim Director, EMS Energy Institute, College of Earth and Mineral Sciences, Penn State U.  
2010-2017 Director, Center for Quantitative X-ray Imaging, Penn State U.  
2014-2017 Assistant Editor-in-Chief, Journal of Petroleum Science and Engineering.  
2018-2019 Big Ten Academic Leadership Fellow, Big Ten Academic Alliance.  
2017-2020 Program Chair, Petroleum and Natural Gas Engineering, Penn State U.  
Since 1999 memberships in professional and learned societies: SPE (since 1999), AGU (since 2003), SCA (since 2005), AAAS (since 2020).  
Since 2005 Principal Investigator in top-ranking research projects funded by the U.S. Department of Energy, National Science foundation, and industry.  
Since 2018 Associate Editor, Transport in Porous Media.  
Since 2022 Deputy Editor, Deputy Editor of Geoenergy.

### **Professional Awards, Offers and Recognitions**

2021 Donohue Family Professorship in Petroleum Engineering, Penn State U.  
2018 Administrative Fellow, Office of the Executive Vice President and Provost, Penn State U.  
2016 Fulbright U.S. Scholar Award, Fulbright – Colciencias Innovation and Technology, Colombia.  
2014 Energí Simulation (formerly Foundation CMG) Chair in Fluid Behavior and Rock Interactions.  
2010 Quentin E. and Louise L. Wood Endowed Faculty Fellow in Petroleum and Natural Gas Engineering, Penn State U.  
2010 Wilson Award for Excellence in Teaching, Penn State U.  
2008 Faculty Early Career Development (CAREER) Award, US National Science Foundation.  
2008 Outstanding Service to the American Association of Petroleum Geologists - Eastern Section, as Technical Program Co-Chair of the AAPG-SPE 2008 Eastern Meeting, Pittsburgh, Pennsylvania.

### **Most important Publications**

- [1] Lou, X., Chakraborty, N., and Karpyn, Z., 2022, "Experimental Investigation of Shale Rock Properties Altering in-situ Gas Density and Storage Capacity," *Frontiers in Earth*, April.
- [2] Chakraborty, N., Lou, X., Enab, K., and Karpyn, Z., 2022, "Measurement of In-situ Fluid Density in Shales with Sub-Resolution Porosity using X-Ray Microtomography." *Transport in*

Porous Media. 141, 607–627.

- [3] Purswani, P., Johns, R., Karpyn, Z., and Blunt, M. 2021, "Predictive Modeling of Relative Permeability using a Generalized Equation-of-State," *SPE Journal*, 26(01), 191-205.
- [4] Zhang, M., Chakraborty, N., Karpyn, Z.T., and Emami-Meybodi, H. and Ayala. L., 2021, "Experimental and Numerical Study of Gas Diffusion and Sorption Kinetics in Ultratight Rocks," *Fuel*. 286, 1-12.
- [5] Chakraborty, N., Karpyn, Z., Liu, S., Yoon, H., and Dewers, T., 2020, "Experimental evidence of gas densification and enhanced storage in nanoporous shales." *Journal of Natural Gas Science & Engineering*. Volume 76.
- [6] Purswani, P., Tawfik, M., Karpyn, Z.T., & Johns, R. T., 2019, "On the Development of a Relative Permeability Equation of State". *Computational Geosciences*, 1-12.
- [7] Liu, S., Zhang, R., Karpyn, Z.T., Yoon, H., & Dewers, T., 2019, "Investigation of Accessible Pore Structure Evolution under Pressurization and Adsorption for Coal and Shale Using Small-Angle Neutron Scattering". *Energy & Fuels*, 33(2), 837-847.
- [8] Klise, K., Moriarty, D., Yoon, H., and Karpyn, Z.T., 2016. "Automated contact angle estimation for three-dimensional X-ray microtomography data". *Advances in Water Resources*, 95 (September): 152–160.
- [9] Cao, P., Karpyn, Z.T., and Li, L., 2016. "The role of host rock properties in determining potential CO<sub>2</sub> leakage pathways". *International Journal of Greenhouse Gas Control*, 45 (February): 18-26.
- [10] Li, X., Akbarabadi, M., Karpyn, Z.T., Piri, M. and Bazilevskaya, E., 2015. "Experimental investigation of carbon dioxide trapping due to capillary retention in saline aquifers". *Geofluids*, 15(1-2): 1-14.