Maryam Mirabolghasemi
Associate Professor
Dave C. Swalm School of Chemical Engineering
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Education

2011 – 2017: Ph.D. in Petroleum Engineering, The University of Texas at Austin, TX, USA
Dissertation Title: Micro-scale modeling of formation damage
Advisor: Dr. Maša Prodanović

2011 – 2015: M.Sc. in Petroleum Engineering, The University of Texas at Austin, TX, USA

2003 – 2005: B.Sc. in Petroleum Engineering, Sharif University of Technology, Tehran, Iran

2001 – 2005: B.Sc. in Mechanical Engineering, Sharif University of Technology, Tehran, Iran

Appointments

2024 - present	Associate Professor, Mississippi State University
2017 – 2024	Assistant Professor, Mississippi State University
2011 – 2017	Graduate Research Assistant, Department of Petroleum and Geosystems Engineering, The University of Texas at Austin, USA
2006 – 2011	Production Engineer, Schlumberger, Iran
2005 – 2006	Reservoir Simulation Expert, MAPSA Inc., Iran

Professional Society Membership

American Geophysical Union, Society of Petroleum Engineers, American Society of Engineering Education, Society of Applied Geoscientists & Engineers, American Chemical Society

Research Interests and Activities

- Subsurface CO_2 storage sustainability
- Produced water management scenarios
- Closed-loop systems for geothermal energy extraction
- Virtual reality applications in subsurface engineering education
- Micro-scale modeling of particulate flow in porous and fractured media

Honors and Awards

Faculty Travel Award, 2021 & 2023 - 2024
S.P. Yates Graduate Fellowship, 2016
Honorable mention, Ben Caudle Simple Concepts Contest, 2015

The University of Texas at Austin Graduate School Travel Award, 2012 & 2013
First place award, Simple Concepts Contest, 2012
The ConocoPhillips Fellowship for 2011-2012 academic year, 2011

Academic Service

Application reviewer: ASEE eFellows program, 2021

Member:

- Bagley College of Engineering Course and Curriculum Committee, Mississippi State University, 2022 – present
- Dave C. Swalm School of Chemical Engineering, Undergraduate Affairs Committee, 2024 - present
- Faculty Advisory Council, Switch Competition, 2024

Founder: Mississippi State University's Academic Craigslist on Microsoft Teams, 2022

Host Site Coordinator: ASEE-SE 2025 Conference

Judge:

- Undergraduate Research Symposium, Mississippi State University, 2021
- Graduate Research Symposium, Mississippi State University, 2019 – 2021 & 2023 - 2024
- Cockrell School Poster Exhibition on Engineering Research (PEER), The University of Texas at Austin, 2016
- UT Energy Week Student Research Competition, The University of Texas at Austin, 2016
- 5th Annual Cockrell School Undergraduate Poster Exhibition, The University of Texas at Austin, 2015

Moderator:

- National Conference on Undergraduate Research (NCUR), April 2021 & 2022
- Dave C. Swalm School of Chemical Engineering Research Symposium, August 2021

Panel reviewer: NSF Reviewer 2021, 2025

Peer reviewer: Advances in Water Resources, Advanced Powder Technology, The 2017 International conference on Water Resource and Environment, International Conference on Material Strength and Applied Mechanics, Journal of Natural Gas Science & Engineering, ASEE Annual Conference and Exposition, Transport in Porous Media, International Journal of Multiphase Flow, National Conference on Undergraduate Research

Proposal reviewer:

- Petroleum Research Fund, American Chemical Society, 2021 & 2023
- Office of Research and Economic Development Advancing Collaborative Research Program, Mississippi State University, 2022

Undergraduate Coordinator: Petroleum Engineering program, Mississippi State University (2017 – present)

Swalm School Representative: Student Success Kickoff Carnival, Fall 2023

Event Organizer: Fueling the Future: A Film Exploration, Mississippi State Universtiy, March 2024

Evaluator: Graduate Teaching Assistant Workshop, Mississippi State University, August 2024

Refereed Journal Publications

M. Zhang, Prodanović, M., Mirabolghasemi, M., and Zhao, J.:"3D Microscale Flow Simulation of Shear-Thinning Fluids in a Rough Fracture," *Transport in Porous Media*, Feb. 2019.

Khan, H.J., Mirabolghasemi, M., Yang, H., Prodanović, M., DiCarlo, D.A., and Balhoff, M.T.:"Study of formation damage caused by retention of bi-dispersed particles using combined pore-scale simulations and particle flooding experiments," *Journal of Petroleum Science and Engineering*. Aug. 2017.

Rodolfo, R.A., Mirabolghasemi, M., Bryant, S.L., and Prodanović, M.: "Minimum divergence viscous flow simulation through finite difference and regularization techniques," *Advances in Water Resources.* Feb. 2016.

Mirabolghasemi, M., Prodanović, M., DiCarlo, D., and Ji, H.: "Prediction of empirical properties using direct pore-scale simulation of straining through 3D microtomography images of porous media," *Journal of Hydrology*. Oct. 2015.

Refereed Conference Proceedings

Mirabolghasemi, M. (2023, June). A Survey of Alternative Modes of Technical Communication in Engineering Laboratory Courses. *2023 ASEE Annual Conference & Exposition*, 25-28 June, Baltimore, Maryland.

Quan, L., Crane, K. and Mirabolghasemi, M. (2022, March). Induced seismicity by CO2–sensitive polyacrylamide solution injection for CCS applications. *SAGE Record* 049, 16 p., Oral presentation at SAGE 2022, 23–25 March, Lafayette, Louisiana, and Virtual.

Mirabolghasemi, M., Heshmati, M., Thorn, D., Shelton, B., and Diop, F. (2021, November). Repurposing End-of-Life Wells for Geothermal Energy Production: An Evaluation of Mississippi Wells. In *SPE Symposium: Decommissioning and Abandonment*. Society of Petroleum Engineers.

Dickerson, C., and Mirabolghasemi, M. (2020, November). A Comparative Produced Water Management Decision Making WorkFlow: MSEEL Case Study. In *SPE Western Regional Meeting*. Society of Petroleum Engineers.

Mirabolghasemi, M., M.A. Hamilton, P. Jones, D. Cole, E.S. Wall, and R. Jaradat (2019, June). Understanding the Effectiveness of Using VR to Support Teaching Drilling Trajectory Concepts. *American Society for Engineering Education 126 Annual Conference & Exposition*, Tampa, FL.

Khan, H., M. Mirabolghasemi, H. Yang, M. Prodanović, D. DiCarlo, M. Balhoff, and K. Gray. (2016, February). SPE 178930-MS - Comparative Study of Formation Damage due to Straining and Surface Deposition in Porous Media. *SPE International Conference and Exhibition on Formation Damage Control*, Lafayette, LA.

Bahrami, H., A. Hosseinian, V. Rasouli, J. Siavoshi, M. Mirabolghasemi, B. Sinanan, and B. Bagherian. (2010, June). SPE 132830 – Prediction of Downhole Flow Regimes in Deviated Horizontal Wells for Production Log Interpretation. *Trinidad and Tobago Energy Resources Conference*, Port of Spain, Trinidad and Tobago.

Conference Presentations

Roberson, C., & Mirabolghasemi, M. Conversion of Subsurface-Stored CO2 via Gas Fermentation. *2025 ASEE SOUTHEASTERN SECTION ANNUAL CONFERENCE*. Starkville, MS. (Poster presentation)

Matthews, S., Smith, C., Heshmati, M., Elmore, B., and Mirabolghasemi, M. (2025, March). From Heat to Electricity: Design and Development of a Hands-On Geothermal Energy Project for First-Year Engineering Students. *2025 ASEE SOUTHEASTERN SECTION ANNUAL CONFERENCE.* Starkville, MS. (Poster presentation)

Quan, L., & Mirabolghasemi, M. (2024, April). SPE 218947-MS - Exploration of CO_2-Sensitive Chemicals as Potential Sealing Agents for Subsurface CO2 Storage. *SPE Western Regional Meeting,* Palo Alto, CA.

Roberts, B., and Mirabolghasemi, M. (2023, August). NMR for Hydrolysis of Methenamine to Formaldehyde. *Undergraduate Research Symposium, Mississippi State University*. (Poster presentation)

Roberts, B., and Mirabolghasemi, M. (2023, July). NMR for Hydrolysis of Methenamine to Formaldehyde. *MAS Summer Science & Engineering Symposium*, Mississippi State, MS. (Poster presentation)

Rogers, W., and Mirabolghasemi, M. (2021, August). Measurement of the Rate of Capillary Rise in Tight Rocks Using Electrical Resistivity. *Undergraduate Research Symposium, Mississippi State University*. (Poster presentation)

Thorn, D., Diop, N., Heshmati, M., and Mirabolghasemi, M. (2021, August). Converting Oil and Gas wells of Mississippi into Enhanced Geothermal Resources. *Undergraduate Research Symposium, Mississippi State University*. (Poster presentation)

Shelton, B., and Mirabolghasemi, M. (2021, April). Investigation of the Potential of Geothermal Energy Production from Abandoned Oil and Gas Wells in Mississippi. *Undergraduate Research Symposium, Mississippi State University*. (Poster presentation)

Al Otmi, M., and Mirabolghasemi, M. (2019, April). Experimental study of the performance of the N,N'-di (carboxymethyl) dithiocarbamate chelating resin in removing heavy metals from oilfield waste water. *Mississippi Water Resources Conference,* Jackson, MS. (Poster presentation)

Al Otmi, M., and Mirabolghasemi, M. (2019, April). Experimental study of the performance of the N,N'-di (carboxymethyl) dithiocarbamate chelating resin in removing heavy metals from oilfield waste water. *Undergraduate Research Symposium, Mississippi State University* (Poster presentation)

Prodanovic, M., Zhang, M., Mirabolghasemi, M., & Zhao, J. (2018, December). Direct 3D simulation of non-Newtonian fluid flow in a rough fracture. In *AGU Fall Meeting Abstracts* (Vol. 2018, pp. H44F-01). (Poster presentation)

Mirabolghasemi, M., M. Prodanović, R. C. Choens II, and T. A. Dewers. (2016, December). Role of Grain Crushing in the Alteration of Mechanical and Flow Properties of Sandstones during Mechanical Failure. *American Geophysical Union Fall Meeting,* San Francisco, CA. (Poster presentation)

Mirabolghasemi, M., M. Prodanović, and D. DiCarlo. (2015, February). Numerical and Experimental Estimation of Filtration Parameters. *UT Austin Engineering Graduate and Industry Networking Event,* Austin, TX. (Poster presentation)

Mirabolghasemi, M., M. Prodanović, D. DiCarlo, and H. Ji. (2015, September). Understanding Formation Damage - a Pore-scale Perspective. *Research Showcase in Petroleum and Geosystems Engineering,* The University of Texas at Austin, Austin, TX. (Poster presentation)

Mirabolghasemi, M., and M. Prodanović. (2013, December). Understanding Deep Bed Filtration by Direct Micro-scale Particulate Flow Modelling. *American Geophysical Union Fall Meeting,* San Francisco, CA. (Oral presentation)

Mirabolghasemi, M., and M. Prodanović. (2012, December). Coupled Fluid and Solid Mechanics Study for Improved Permeability Estimation of Fines' Invaded Porous Materials. *American Geophysical Union Fall Meeting,* San Francisco, CA. (Poster presentation)

Mirabolghasemi, M., SPD-3 (South Pars Development – 3) platform production unit full flow assurance and production enhancement feasibility study. (2010, June). *Schlumberger-Iran Reservoir Symposium,* Tehran, Iran. (Oral presentation)