



**Name: Dr. Rida Mohamed Elgaddafi**

**Rank: Assistant Professor - Petroleum Engineering**

## Personal Information

<b>Nationality:</b>	Libyan
<b>AU Joining Date:</b>	05 Sep 2021
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## Professional Information

<b>Education:</b>	<p>Qualification: Doctorate Major: Petroleum engineering College/University: University of Oklahoma Year: 2017</p> <p>Qualification: Masters Major: Petroleum engineering College/University: University of Oklahoma Year: 2011</p> <p>Qualification: Bachelor Major: Petroleum engineering College/University: University of Tripoli Year: 2007/2008</p>
<b>Specialization:</b>	<p>Drilling and Fracturing fluids' rheology and stability Wellbore cleanout and hydraulics Multiphase flow in pipe and annulus Well integrity and control Tubulars corrosion at HPHT Nanoparticles</p>
<b>Current Academic Position:</b>	Assistant Professor

<b>Current Professional Positions:</b>	NA
<b>Previous Administrative Position Held:</b>	NA
<b>Previous Academic Positions Held:</b>	<p>Assistant Professor Australian University      2021 - Present</p> <p>Teaching assistant University of Oklahoma      2012 - 2017</p>
<b>Fellowships And Honors:</b>	<p><b>Fellowships:</b></p> <ul style="list-style-type: none"> <li>- Postdoctoral Fellowship - University of Oklahoma - USA, 2017-2018.</li> <li>- Postdoctoral Fellowship - University of Oklahoma - USA, 2019-2020.</li> <li>- Co-ordinated project activities and supervising graduate research assistants (2019)</li> <li>- SPE - Society of Petroleum Engineers (member)</li> <li>- AADE - American Association of Drilling Engineers (member)</li> <li>- Reviewer in the below listed journals:</li> <li>- 2016 – current Technical Reviewer for Journal of Petroleum Science and Engineering (JPSE)</li> <li>- 2016 – current Technical Reviewer for Journal of Natural Gas Science and Engineering (JNGSE)</li> <li>- 2016 – current Technical Reviewer for Journal of Desalination and Water Treatment</li> <li>- 2016 – current Technical Reviewer for SPE Drilling and Completion Journal</li> <li>- 2017 – current Technical Reviewer for journal of Fuel</li> <li>- 2021 – current Technical Reviewer for Multidisciplinary Digital Publishing Institute (MDPI)</li> <li>- 2022 - current Technical Reviewer for Journal of Petroleum.</li> </ul> <p><b>Honors:</b></p> <ul style="list-style-type: none"> <li>- Excellence scholarship awarded by the BP-NOC (British Petroleum and National Oil Corporation), 2008 – 2011.</li> <li>- Distinguished Master Student Award (The University of Oklahoma 2012)</li> <li>- Distinguished Research Assistant Award (The University of Oklahoma 2015)</li> <li>- Distinguished Research Assistant Award (The University of Oklahoma 2016)</li> <li>- Outstanding Reviewer of the Year 2016, journal of natural gas science and engineering (JNGSE)</li> <li>- Outstanding Reviewer of the Year 2017, journal of petroleum science and engineering (JPSE)</li> </ul>

<p><b>Teaching Experience:</b></p>	<p>Assistant Professor Australian University      2021 - Present</p> <ul style="list-style-type: none"> <li>- 21SPTE410 Project Design and Evaluation</li> <li>- 21SPTE410 Fluid Mechanics</li> <li>- 21SPTE422 Environmental Protection (PBL)</li> <li>- 21SPTE412 Selected Topics (PBL)</li> <li>- 15FPTE120 Petroleum Engineering Material</li> <li>- 15FPTE213 Environmental issues in Oil and Gas Industry</li> <li>- 21SPTE420 Senior Petroleum Project</li> </ul> <p>Teaching assistant University of Oklahoma      2012 – 2017</p> <ul style="list-style-type: none"> <li>- PE 3313 Drilling I</li> <li>- PE 4323 Drilling II</li> <li>- PE 3223 Fluid Mechanics</li> <li>- PE 5353 Advanced Drilling</li> <li>- PE 4331 Drilling Engineering Laboratory</li> </ul>
<p><b>Industrial And Technical Experience:</b></p>	<p><u>Industrial Experience:</u></p> <p><b>Postdoctoral Research Associate</b> – Short-term projects (2018 and 2019) Well construction Technology Center, University of Oklahoma, USA</p> <p><b>Drilling Engineer</b> - Training Internship (2006) Waha Oil Company, E59 Gallo Field, Libya</p> <p><b>Drilling Engineer</b> - Training Internship (2005) Waha Oil Company, Onshore Oil Field, Libya</p> <p><u>Technical Experience:</u></p> <p>Participated as Postdoctoral Research associate and research assistant in the following projects:</p> <ol style="list-style-type: none"> <li>1. Advanced Study on Stability of Modern Drilling Foams, Postdoctoral Researcher Associate.</li> <li>2. Short-term industrial projects funded by service oil and gas companies (Shell, Baker Hughes, and Cimarex), Postdoctoral Researcher Associate.</li> <li>3. Removal of Oil from Produced Water Using Magnetic Nanoparticles, Postdoctoral Researcher Associate.</li> <li>4. Research and Development on Critical (Sonic) Flow of Multiphase Fluids through Wellbores in Support of Worst Case-Discharge Analysis for Offshore Wells, Postdoctoral Researcher Associate.</li> <li>6. Effect of H<sub>2</sub>H and CO<sub>2</sub> in HPHT wells on tubular and cement, Research Assistant</li> <li>7. Advanced Study on Rheology of Modern Drilling Foams, Research Assistant</li> <li>8. Fiber-containing Sweep Fluids for Ultra-Deepwater Drilling Applications, Research Assistant</li> <li>9. Production decline analysis for Intisar (103A) field</li> </ol>

<b>Research Interest:</b>	<p>Wellbore cleanout (cuttings/solids transport)                  Well integrity and control                  Drilling/fracturing fluid rheology and wellbore hydraulics                  Multiphase flow in pipe and annulus                  Flow assurance                  Application of nanoparticles for environmental protection in oil industry                  Degradation of cement and tubulars                  Computational fluid dynamic (CFD)                  Application of Machine Learning and Digital transformation in oil industry</p>
<b>Research Grants:</b>	<p>Laboratory Investigation of Using Recycled Tires Waste as an Alternative for Conventional Drilling Fluid Additives, 1300 KD, CO-PI.</p>
<b>Research and Publications including Journal and Books:</b>	<ol style="list-style-type: none"> <li>1. Osorio, J., Ahmed, R. and <b>Elgaddafi</b>, R., 2022. Oilfield-produced water treatment using bare maghemite nanoparticles. Results in Engineering, 16, p.100641.</li> <li>2. <b>Elgaddafi</b>, R., Ahmed, R., Kiran, R., Salehi, S. and Fajemidupe, O., 2022. Experimental and modeling studies of gas-liquid flow in vertical pipes at high superficial gas velocities. Journal of Natural Gas Science and Engineering, 106, p.104731.</li> <li>3. Jeon, J., Ahmed, R., <b>Elgaddafi</b>, R. and Teodoriu, C., 2022. Hydrogen embrittlement of high-strength API carbon steels in H<sub>2</sub>S and CO<sub>2</sub> containing environments. Journal of Natural Gas Science and Engineering, 104, p.104676.</li> <li>4. Kiran R., Salehi S., Ahmed R., <b>Elgaddafi</b> R. and Suri A. 2021. Characterization of Two-Phase Flow in Annulus using Image Processing and Estimation of Void Fraction, Chemical Engineering Research and Design (under review).</li> <li>5. Ahmed R. Jeon J., <b>Elgaddafi</b> R. and Teodoriu C. 2021. Hydrogen Embrittlement of High-Strength API Carbon Steels in H<sub>2</sub>S and CO<sub>2</sub> Containing Environments, Journal of Natural Gas Science and Engineering (under review).</li> <li>6. Tale, S., Ahmed, R., <b>Elgaddafi</b>, R. and Teodoriu, C., 2021. Sulfide Stress Cracking of C-110 Steel in a Sour Environment. Corrosion and Materials Degradation, 2(3), pp.376-396.</li> <li>7. <b>Elgaddafi</b>, R., Ahmed, R., Karami, H., Nasser, M. and Hussein, I., 2021. A Mechanistic Model for Wellbore Cleanout in Horizontal and Inclined Wells. SPE Drilling &amp; Completion, pp.1-17.</li> <li>8. <b>Elgaddafi</b>, R., Ahmed, R., Osisanya, S. 2021. Modeling and experimental study on the effects of temperature on the corrosion of API carbon steel in CO<sub>2</sub>-Saturated environment, Journal of Petroleum Science and Engineering, (19), p. 107816.</li> <li>9. <b>Elgaddafi</b>, R., Ahmed, R., Shah, S. 2021. The Effect of Fluid Flow on CO<sub>2</sub> Corrosion of High-Strength API Carbon Steel, Journal of Natural Gas Science and Engineering, Volume 86, 2021,103739, ISSN 1875-5100.</li> </ol>

10. Theurer J., Ajagbe, O., Osorio, J., **Elgaddafi** R., Ahmed R., Walters, K., and Abbott, B. 2020. Removal of Residual Oil from Produced Water Using Magnetic Nanoparticles, SPE Journal, SPE-199466-PA.
11. **Elgaddafi**, R., Ahmed, R. and Shah, S., 2021. Corrosion of carbon steel in CO<sub>2</sub> saturated brine at elevated temperatures. Journal of Petroleum Science and Engineering, 196, p.107638.
12. Kiran, R., **Elgaddafi**, R., Ahmed, R., Salehi, S., Griffith C. A., and Fajemidupe T. 2020. Wellbore fluid sonic conditions during blowouts, Journal of Petroleum Science and Engineering, (195), p. 107822.
13. Firoze Akhtar T., Ahmed R., **Elgaddafi** R., Shah S. and Amani M. 2018 Rheological Behavior of Aqueous Foams at High Pressure, Journal of Petroleum Science and Engineering 162, 214-224.
14. Rojas, S., Ahmed, R., **Elgaddafi**, R., and Matthew G. 2017. Flow of power-law fluid in a partially blocked eccentric annulus, Journal of Petroleum Science and Engineering, 157, 617–630.
15. **Elgaddafi** R., Ahmed R., and Shah S. 2017. Modeling and Experimental Studies on CO<sub>2</sub>-H<sub>2</sub>S Corrosion under High-Pressure, Journal of Petroleum Science and Engineering, 156, 682-696.
16. **Elgaddafi**, R., Ahmed, R. M., Shah, S. N., Hassani, S., Osisanya, S. O. 2016. Corrosion of C110 carbon steel in a high-pressure aqueous environment with mixed hydrocarbon and CO<sub>2</sub> gas, Journal of Petroleum Science and Engineering, 146,777–787.
17. **Elgaddafi**, R., Ahmed, R. M., Shah, S. 2016. N. Modeling CO<sub>2</sub>-H<sub>2</sub>S Corrosion of Tubular at Elevated Pressure and Temperature, Research Journal of Applied Sciences, Engineering and Technology, 13(7): 510-524.
18. **Elgaddafi**, R., Ahmed, R. M., and Growcock, F. 2016. Settling Behavior of Particles in Fibrous Herschel Buckley Fluid, Powder Technology, 301, 782-793.
19. **Elgaddafi**, R., Naidu, A., Ahmed, R. M., Shah, S. N., Hassani, S., Osisanya, S. O., Saasen, A. 2015. Modeling and experimental study of CO<sub>2</sub> corrosion on carbon steel at elevated pressure and temperature. Journal of Natural Gas Science and Engineering, 27, 1620–1629.
20. George, M., **Elgaddafi**, R., Ahmed, R., and Growcock, F. 2014. Performance of Fiber-Containing Synthetic-Based Sweep Fluids, Journal of Petroleum Science and Engineering, Vol. 119, July, Pages 185–195.
21. **Elgaddafi**, R., Ahmed, R., George, M., and Growcock, F. 2012. Settling behavior of spherical particles in fiber-containing drilling fluids, Journal of Petroleum Science and Engineering, Volumes 84–85, April 2012, Pages 20–28.

	<p><b>Selected Technical Research Reports</b></p> <ol style="list-style-type: none"> <li>Ahmed, R., Shah, S., Osisanya, S., Hassani, S., Omosebi, O., Elgaddafi, R., Maheshwari, H., Srivastava, A., Hwang, J., Sharma, M., Tale, S., Jeon, J., 2015. Effect of H<sub>2</sub>S and CO<sub>2</sub> in HPHT Wells on Tubulars and Cement, Final Report, BSEE Project: Award Number: E12PC00035, June 9, 2015, <a href="http://www.bsee.gov/Technology-and-Research/Technology-AssessmentPrograms/Projects/Project-691/">http://www.bsee.gov/Technology-and-Research/Technology-AssessmentPrograms/Projects/Project-691/</a></li> <li>Ahmed, R., Shah, S., Osisanya, S., Hassani, S., Omosebi, O., Elgaddafi, R., Maheshwari, H., Srivastava, A., Hwang, J., Sharma, M., Tale, S., Jeon, J., 2015. Effect of H<sub>2</sub>S and CO<sub>2</sub> in HPHT Wells on Tubulars and Cement, Monthly Reports, BSEE Project: Award Number: E12PC00035, August 2012 to March 2015, <a href="http://www.bsee.gov/Technology-and-Research/Technology-AssessmentPrograms/Projects/Project-691/">http://www.bsee.gov/Technology-and-Research/Technology-AssessmentPrograms/Projects/Project-691/</a>.</li> <li>Salehi, S., Ahmed, R., Elgaddafi, R., Kiran R., 2018. Research and Development on Critical (Sonic) Flow of Multiphase Fluids through Wellbores in Support of Worst Case-Discharge Analysis for Offshore Wells, Literature review report, BSEE Project: Award Number: M16PS00059, January 2018.</li> <li>Salehi, S., Ahmed, R., Elgaddafi, R., Kiran R., 2018. Research and Development on Critical (Sonic) Flow of Multiphase Fluids through Wellbores in Support of Worst Case-Discharge Analysis for Offshore Wells, CFD Simulation report, BSEE Project: Award Number: M16PS00059, March 2018.</li> <li>Salehi, S., Ahmed, R., Elgaddafi, R., Fajemidupe O., Kiran R., 2018. Research and Development on Critical (Sonic) Flow of Multiphase Fluids through Wellbores in Support of Worst Case-Discharge Analysis for Offshore Wells, Worst-Case Discharge – Computational Tool, BSEE Project: Award Number: M16PS00059, October. 2018.</li> </ol>
<p><b>Paper Presentations at Professional Conferences:</b></p>	<ol style="list-style-type: none"> <li>Elgaddafi, R., Ahmed, R. and Devegowda D. Modeling two-phase flow patterns and pressure gradient in the vertical and highly deviated wellbore during the blowout incidents: Machine learning method (Submitted Abstract).</li> <li>Elgaddafi, R., Ahmed, R., Karami, H., Nasser, M. and Hussein, I., 2021, March. Mechanistic Modeling of Wellbore Cleanout in Horizontal and Inclined Wells. In SPE/ICoTA Well Intervention Conference and Exhibition. 23-24 March, the Woodlands, Texas, USA.</li> <li>Thiessen, S., Han, O., Ahmed, R., and Elgaddafi R. 2021. An Experimental Study Of Coefficient of Discharge For Consistent Hole Perforating and The Effect on Limited Entry Designs, SPE Hydraulic Fracturing Technology Conference and Exhibition, 2-4 February 2021, Woodlands, Texas, USA.</li> <li>Elgaddafi, R.M., Soriano, V., Ahmed, R. and Osisanya, S., 2021, April. The Essence of Horizontal Drilling Challenges in Depleted Reservoirs. In SPE Western Regional Meeting, April 20–22, Virtual.</li> </ol>

	<p>5. Theurer J., Ajagbe, O., Osorio, J., Elgaddafi R., Ahmed R., Walters, K., and Abbott, B. 2020. Removal of Residual Oil from Produced Water Using Magnetic Nanoparticles, SPE International Conference and Exhibition on Health, Safety, Environment, and Sustainability, 27-31 July 2020, Virtual.</p> <p>6. Elgaddafi, R., and Ahmed R. 2020. Fibrous Cleanout Fluids in Horizontal and Inclined Wells. In SPE/ICoTA Well Intervention Conference and Exhibition. 24-25 March, the Woodlands, Texas, USA.</p> <p>7. Elgaddafi, R., Soriano, V., Ahmed, R., and Osisanya, S. 2021. The Essence of Horizontal Drilling Challenges in Depleted Reservoir, SPE Western Regional Meeting, April – 1 May 2021 in Bakersfield, California, USA.</p> <p>8. Phi, T. Elgaddafi, R., Al Ramadan M. Ahmed R. and Teodoriu, C. 2019. Well integrity Issues: Extreme High-Pressure High-Temperature Wells and Geothermal Wells (A Review). SPE Thermal Well Integrity and Design Symposium, 19-21 November, Banff, Alberta, Canada.</p> <p>9. Elgaddafi, R., Kiran, R., Ahmed, R. Saleh. S. 2020. Development of a Computational Tool for Worst-Case Discharge Rate. SPE Annual Technical Conference and Exhibition to be held 5 – 7 October 2020 in Denver, Colorado, USA.</p> <p><b>Technical Presentations:</b></p> <p>1. Elgaddafi, R. 2018. Modeling Two-Phase Flow and WCD Rate in Pipe, presented at the Final BOEM Project meeting, New Orleans, LA, Oct.12, 2018.</p> <p>2. Elgaddafi, R. 2015. Corrosion Behavior of Tubulars under Sour Gas Environment, presented at the Final BSEE Project meeting, Sterling, VA, May 28, 2015.</p> <p>3. Elgaddafi, R. 2014. Corrosion Behavior of Tubulars under Sour Gas Environment, presented at the BSEE Technical Advisory Board (TAB) meeting, Norman, OK, May 9, 2014.</p> <p>4. Elgaddafi, R. 2013. Corrosion Behavior of Tubulars under Sour Gas Environment, presented at the BSEE Technical Advisory Board (TAB) meeting, Houston, TX, Nov. 7, 2013.</p> <p>5. Elgaddafi, R. 2011. Settling Behavior of Spherical Particles in Fiber Containing Drilling Fluids, Presented at Graduate seminar, Norman, OK, November 2011</p> <p>6. Elgaddafi, R., Ahmed, R., George, M., and Growcock, F. Settling Behavior of Spherical Particles in fiber-containing Drilling Fluids, OTC Poster, 2011.</p>
<b>University Service including committee Membership:</b>	NA
<b>National Service:</b>	NA

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<b>University Committees:</b>	Department Council Project Based Learning (PBL) Committee Labs Committee PBL Committee Research & Faculty Development Committee Curriculum committee - Spring 2022 Chair of Lab committee - Fall 2022
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