Dr. Ahmed Bashir

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PERSONAL PROFILE

Mr. Bashir is a highly motivated Ph.D. holder with demonstrated more than 13 years' experience in research and development. My primary research interests are the experimental/theoretical analysis of fluid dynamics in subsurface rocks and wellbores as well as Enhanced Oil Recovery (EOR) especially the application of chemical and thermal flooding for heavy oil recovery in fractured reservoirs. Moreover, I have an experiences in drilling and Production and manage related laboratories. **Mr. Bashir's** Ph.D. was involved in designing and fabricating high-pressure and high-temperature experiment set-ups which included 2D &3D micromodels for different EOR processes. In recent years, **Mr. Bashir** has been managing/co-managing a range of R&D projects that attracted more than **£500k** on external grants.
Mr. Bashir has experience in teaching and technical work experiences. As an academician, he worked as a lecturer for undergraduate students teaching them petroleum modules. As an engineer, **Mr. Bashir** has vast experience in petroleum engineering for an instant, well testing, well interpretations, and water treatment in Sudan, Egypt, and the UK.

EDUCATION

Ph.D. in Petroleum Engineering*, *University of Aberdeen, UK ***Feb 2017 – Oct 2021***

- The focus of my research was on the experimental investigation (static and dynamic experiments) of foam application in enhanced oil recovery processes from unconventional reservoirs. I have designed and fabricated high-pressure and high-temperature experiment set-ups (3000 psi & 120 °C). I have investigated the static foam stability, foam rheology (dynamic foam viscosity) at different temperature conditions, and foam/hot solvent flooding process in a 2D matrix-fracture system in the presence of light and heavy oil.

Master of Business Administration, Sudan International University ***Aug 2014 – Dec 2016***

- **Modules:** Financial & Managerial Accounting, Financial Management, Principles of Economics, Entrepreneurship Development, Procurement Management, Marketing Management, Consumer Behaviour, Customer Relationship Management, Marketing of Services, Computer Application in Marketing, & International Marketing.

M.Sc. Environmental Engineering, University of Nottingham, UK ***Sept 2012 – Sept 2013***

- **Modules:** Wind Engineering and Energy, Power Generation and Carbon Capture, Process Risk-Benefit and Analysis, Water Treatment Engineering, Research Planning, Contaminated land, Petroleum Production Engineering, Advance Environmental Engineering**.**
- **Dissertation**: was two parts, the first part was a group project to design a wastewater treatment plant (WWTP) capable of treating wastewater generated from the retorting and condensation section of four oil shale production units in Jordan. The second part was an individual project aimed to determine the effect of different concentrations of Aluminium Sulfate on removing total suspended solids (TSS) and chemical oxygen demand (COD) from wastewater produced from oil shale processes.

B.Sc. Petroleum Engineering, University of Khartoum, Sudan ***Sept 2004 – Aug 2009***

- **Modules:** Calculus, Differential Equations & Math Techniques, Statistics, Mechanical and Victors, Analytical Geometry, Numerical Analyses, Complex Variable, Physics I&II, Chemistry I&II, Engineering Drawing I&II, Petroleum Production I&II, Drilling Engineering I&II, Reservoir Engineering I&II.
- **Dissertation**: The title was "Application of Production Data Analysis in Oil Well Performance and Reservoir Characterization ". As teamwork, we utilized the availability of production data recorders in oil wells to define an important reservoir characteristic based on the concepts which state that production data is a genetic representative of the reservoir. We have applied these concepts successfully in one of the Sudanese oil wells.

RELEVANT WORK EXPERIENCE

Lecturer, Department of petroleum and Natural Gas, (Full-time) ***Aug 2022 – up to date***
University of Khartoum, Sudan

- Assisted professors in teaching petroleum engineering courses for undergraduate students (average of 30 students as class size).
- Coordinated projects, seminars, presentations, sessions, etc.

- Coordinated final examinations, processed students' results, and prepared final grading system for all students in the department (average of 160 students).
- Write up research and prepare it for publication.

Postdoctoral Research Fellow (Full-time) ***Oct 2021 – Jul 2022***
University of Aberdeen, UK.

This research project is an experimental study on the 'flow of aqueous foams in vertical and inclined pipes for water unloading purposes'. The aim of the project is to develop a new functional material (nano-based foaming agent) that can increase the production of gas from low-energy gas wells. My responsibility in this project is to manage a team of Ph.D. students and research assistants to:

- Design and fabricate two physical models (small-scale and large-scale) that can simulate multiphase flow in gas wells.
- Formulate a nano-based foaming agent
- Conduct experiments on the performance of the foaming agent (foam characteristics and stability, rheological hydrodynamics, flow tests)
- Undertake modelling and analyses of foam flow in real gas wells.

Research Assistant (Part-time) ***Sept 2017 – Dec 2020***
University of Aberdeen, UK.

- Purchased the items required for the experimental studies project of foam flow in porous media, which includes accumulators, microfluidics device, fitting, and pressure transducers.
- Conducted experiments with other master students and reported the results.
- Summarized findings and publishing results in research journals.
- Conducted lab sessions on Enhanced Oil Recovery course for Master student as a part of M.Sc. of petroleum Engineering Program (40 students).
- Conducted lab sessions on Drilling and Well Engineering course for undergraduate students, as a part of the Petroleum Engineering program (70 students).

Lecturer, Department of petroleum and Natural Gas, (Full-time) ***Oct 2013 – Oct 2016***
University of Khartoum, Sudan

- Assisted professors in teaching petroleum engineering courses for undergraduate students (average of 30 students as class size).
- Coordinated projects, seminars, presentations, sessions, etc.
- Coordinated final examinations, processed students' results, and prepared final grading system for all students in the department (average of 160 students).
- Write up research and prepare it for publication.

Teaching Assistant, Department of petroleum and Natural Gas, (Full-time) ***Sept 2009 – Aug 2012***
University of Khartoum, Sudan

- Helped to design the course, construct tests, prepare materials, and grade assignments.
- Demonstrated to use of laboratory equipment and enforce laboratory rules.
- Graded tests, exams, essays, quizzes, and lab notebooks based on the department's and the University's policies on academic integrity.

PUBLICATIONS

Contributions to Conferences and Journals

- **Bashir, A**, Sharifi Haddad, A & Rafati, R 2018, Experimental Investigation of Nanoparticles/Polymer Enhanced CO_2- Foam in the Presence of Hydrocarbon at High-Temperature Conditions. in SPE International Heavy Oil Conference and Exhibition, 10-12 December, Kuwait City, Kuwait., SPE-193802-MS, Society of Petroleum Engineers, Kuwait City, Kuwait, SPE International Heavy Oil Conference and Exhibition, Kuwait City, Kuwait, 10/12/18. https://doi.org/10.2118/193802-MS.
- **Bashir, A**., Sharifi Haddad, A & Rafati, R 2019, 'Nanoparticle/polymer-enhanced alpha olefin sulfonate solution for foam generation in the presence of oil phase at high temperature conditions', Colloids and Surfaces.

A, Physicochemical and Engineering Aspects, vol. 582, 123875. https://doi.org/10.1016/j.colsurfa.2019.123875.

- Ahmed, A, Sharifi Haddad, A, Rafati, R, **Bashir, A**, AlSabagh, AM & Aboulrous, AA 2021, 'Developing a Thermally Stable Ester-Based Drilling Fluid for Offshore Drilling Operations by Using Aluminum Oxide Nanorods', Sustainability, vol. 13, no. 6, 3399. https://doi.org/10.3390/su13063399.
- **Bashir, A**, Sharifi Haddad, A & Rafati, R 2021, 'An Experimental Investigation of Dynamic Viscosity of Foam at Different Temperatures', Chemical Engineering Science. https://doi.org/10.1016/j.ces.2021.117262.
- **Bashir, A,** Sharifi Haddad, A & Rafati, R 2021, 'A review of fluid displacement mechanisms in surfactant-based chemical enhanced oil recovery processes: analyses of key influencing factors ', Petroleum Science. https://doi.org/10.1016/j.petsci.2021.11.021.
- **Bashir, A**, Sharifi Haddad, A., Sherratt, J., and Rafati, R., 2022, "An Investigation of Viscous Oil Displacement in a Fractured Porous Media Using Polymer-Enhanced Surfactant Alternating Foam Flooding, Journal of Petroleum Science and Engineering.

REFERENCES

- Available on request