Ajay Mandal, Ph.D., CChem, FRSC
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Dr. Ajay Mandal, is presently working as Professor (HAG) in the Department of Petroleum Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad. Dr Mandal is conducting research in reservoir engineering, enhanced oil recovery, and other areas of petroleum engineering, with over 275 research papers, books, and book chapters, more than 18,300 citations, and a stellar H-Index of over 80. He is an outstanding Academician and Researcher in the field of Petroleum Engineering. His work focuses on the synthesis of a wide variety of surfactants, polymers, and nanoparticles for their application in enhanced oil recovery. He developed innovative formulations of microemulsions, nanoemulsions, nanofluids, Pickering emulsions, and stabilised foams for enhanced oil recovery applications. Prof. Mandal is also working in the fields of carbon dioxide sequestration and gas hydrate recovery. He published several papers on the thermodynamics of gas hydrate formation and dissociation, which significantly contributed to the development of technology for producing gas from gas hydrate reservoirs. As an active member of the "Enhanced Recovery" committee within the Ministry of Oil and Natural Gas, he evaluates various enhanced oil recovery projects in India, considering technical feasibility, economic viability, and environmental impact. Dr Mandal has been awarded 24 sponsored R&D projects, primarily focused on enhanced oil recovery, and 22 consultancy projects from various government funding agencies and the oil & gas sector. Dr. Mandal received a number of awards like DAAD (German Academic Exchange Service Fellowship), two SPE south Asia regional awards (2015 SPE South Asia Regional Distinguished Achievement Award for Petroleum Engineering Faculty and 2019 SPE Reservoir Dynamics and Description Regional Award for South Asia and Pacific region), IIChE (Indian Institute of Chemical Engineers) National Award for the Year 2017, Fellow of RSC, and many more. He is actively associated with several foreign universities for collaborative research worldwide. He guided 30 Doctoral students, and many are working. Dr. Mandal has been ranked within the top 2% of researchers in the field of energy for six consecutive years (2020–2026), according to an independent global study conducted by scientists at Stanford University. He also ranked #1 in Enhanced Oil Recovery and highly-ranked scholar lifetime in Petroleum Engineering globally by ScholarGPS (Powering Scholarly Analytics, 2024-2026). His global rank as a scientist is 108184 in SCIRANK 2026. His world rank in enhanced oil recovery is 6th, according to the Scholarly Index in 2026. Dr. Mandal is on the editorial board of a number of journals in the field of petroleum engineering and is a reviewer of more than 50 journals.

Sl. No.	Publications	Publisher	IF
1.	Prakash, S. and Mandal, A., 2025. Validation of Empirical Minimum Miscibility Pressure Correlations Using the Vanishing Interfacial Tension Method:	**ACS**	6.0 Q1

	Applications in CO2-Enhanced Oil Recovery and Carbon Capture, Utilization, and Storage. Energy & Fuels. https://doi.org/10.1021/acs.energyfuels.5c04728		
2.	Vishal Kumar, Lavisha Jangid, Shubham Prakash, Soumyadip Dey, Suresh Kumar Yatirajula and Ajay Mandal, Design and Performance Evaluation of Moringa Gum–Based Polymeric Surfactant for Chemical EOR in Sandstone Reservoirs, Petroleum Exploration and Development, 2026.	**Elsevier**	8.0 Q1
3.	Kandukuri, Rakesh ; Prakash, Shubham ; Dey, Soumyadip ; Jangid, Lavisha ; Joshi, Dinesh; Al-Shalabi, Emad ; Mandal, Ajay, "Synthesis, Characterization, and Application of 2D MXene Nanoparticles for Surfactant-Assisted Enhanced Oil Recovery", ACS Applied Energy Materials, 2026.	**ACS**	5.5 Q1
4.	Rao, G.L.P., Pal, N. and Mandal, A., 2026. Graphene Oxide-Stabilized Polymeric Nanofluids for Enhanced Oil Recovery. Energy & Fuels, 40(18), pp.9841-9863.https://doi.org/10.1021/acs.energyfuels.6c00569	**ACS**	6.0 Q1
5.	Shubham Prakash, Srasti Singh, Ajay Mandal.CO2 Foam Stability in the Presence of Oil Salinity, Pressure, and Porous Media: Experimental Insights for Enhanced Oil Recovery and Subsurface CO2 Storage. Energy Fuels, 2026, https://doi.org/10.1021/acs.energyfuels.5c06257	**ACS**	6.0 Q1
6.	Prakash S, Singh S, Mandal A. Mechanistic investigation of CO2-foam stability: implications to CO2 storage and enhanced oil recovery. Fuel. 2026 Aug 15;418:138713.https://doi.org/10.1016/j.fuel.2026.138713	**Elsevier**	7.8 Q1
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8.	Jangid, L., Ojha, K. and Mandal, A., 2026. Application of green Gemini surfactants synthesized from Brassica juncea for enhanced oil recovery from high saline and high temperature reservoirs. Journal of the Taiwan Institute of Chemical Engineers, 179, p.106462.https://doi.org/10.1016/j.jtice.2025.106462.	**Elsevier**	**6.9** Q1
9.	Pasivedala Raj Kumar, Lavisha Jangid, Ajay Mandal, Acid-Based Chemical Slugs for Enhanced Oil Recovery: Interfacial Tension Reduction, Wettability Alteration, and Emulsion Stabilization, Can J Chem Eng. 2026;1–17. wileyonlinelibrary.com/journal/cjce © 2026 DOI: 10.1002/cjce.70301.	**Wiley**	**2.2** **Q3**
10.	Dey, S., Khan, M.A., Prakash, S., Jangid, L., Joshi, D. and Mandal, A., 2025. Synthesis and Physicochemical Evaluation of an Olive Oil-Derived Anionic Surfactant: Effects on Interfacial Tension, Wettability Alteration, and Oil Recovery Efficiency. Industrial & Engineering Chemistry Research, 64(33), pp.16375-16392.https://doi.org/10.1021/acs.iecr.5c00323.	**ACS**	3.9 Q2
11.	Saw, R.K. and Mandal, A., 2025. Impact of phosphate ions on ion-tuned low salinity water flooding in carbonate reservoirs. Advances in Colloid and Interface Science, p.103539.https://doi.org/10.1016/j.cis.2025.103539.	Elsevier	**23.7** Q1
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16.	Chakraborty R, Jangid L, Pandey R, Pasivedala RK, Shaw T, Dutta R, Mandal A. Synergistic Effects of Nonionic Surfactant and Organic Alkali for Enhanced Oil Recovery: Optimizing Interfacial Tension Reduction, Emulsion Stability, and Corrosion Control under Optimal Salinity Conditions. Energy & Fuels 2025, 39, 7, 3462–3476; https://doi.org/10.1021/acs.energyfuels.4c06294.	ACS	6.0 Q1
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20.	Ray D, Jangid L, Joshi D, Prakash S, Ojha K, Manor O, Mandal A. Formulation of Polymer-Augmented Surfactant-Based Oil–Water Microemulsions for Application in Enhanced Oil Recovery. ACS Omega 2024, 9, 50, 50024–50040; https://doi.org/10.1021/acsomega.4c09829.	ACS	4.3 Q2
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33.	Maiti, M., Bhaumik, A.K. and Mandal, A., 2023. Experimental and kinetic modelling studies on the gas hydrate inhibition effect of PVP K-90 in drilling fluids. Gas Science and Engineering, 115, p.205015.	Elsevier	5.5 Q1
34.	Saw, R.K. and Mandal, A., 2023. Experimental investigation on fluid/fluid and rock/fluid interactions in enhanced oil recovery by low salinity water flooding for carbonate reservoirs. Fuel, 352, p.129156.	Elsevier	7.2 Q1
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