

DAFTAR PUSTAKA

- Ab Rasid, S. A., Mahmood, S. M., Kechut, N. I., & Akbari, S. (2022). A review on parameters affecting nanoparticles stabilized foam performance based on recent analyses. *Journal of Petroleum Science and Engineering*, 208(PB), 109475. <https://doi.org/10.1016/j.petrol.2021.109475>
- Ahmadi, M. A., & Shadizadeh, S. R. (2013). Induced effect of adding nano silica on adsorption of a natural surfactant onto sandstone rock: Experimental and theoretical study. *Journal of Petroleum Science and Engineering*, 112, 239–247. <https://doi.org/10.1016/j.petrol.2013.11.010>
- Ahmadi, M. A., Shadizadeh, S. R., & Chen, Z. (2018). Thermodynamic analysis of adsorption of a naturally derived surfactant onto shale sandstone reservoirs. *European Physical Journal Plus*, 133(10). <https://doi.org/10.1140/epjp/i2018-12264-x>
- Ahmadi Nadooshan, A., Eshgarf, H., & Afrand, M. (2018). Evaluating the effects of different parameters on rheological behavior of nanofluids: A comprehensive review. *Powder Technology*, 338, 342–353. <https://doi.org/10.1016/j.powtec.2018.07.018>
- Al-Anssari, S., Barifcani, A., Wang, S., Maxim, L., & Iglauer, S. (2016). Wettability alteration of oil-wet carbonate by silica nanofluid. *Journal of Colloid and Interface Science*, 461, 435–442. <https://doi.org/10.1016/j.jcis.2015.09.051>
- Ali, J. A., Kalhury, A. M., Sabir, A. N., Ahmed, R. N., Ali, N. H., & Abdullah, A. D. (2020). A state-of-the-art review of the application of nanotechnology in the oil and gas industry with a focus on drilling engineering. *Journal of Petroleum Science and Engineering*, 191(March), 107118. <https://doi.org/10.1016/j.petrol.2020.107118>
- Ali, J. A., Kolo, K., Manshad, A. K., & Stephen, K. D. (2019). Potential application of low-salinity polymeric-nanofluid in carbonate oil reservoirs: IFT reduction, wettability alteration, rheology and emulsification characteristics. *Journal of Molecular Liquids*, 284, 735–747. <https://doi.org/10.1016/j.molliq.2019.04.053>
- Almahfood, M., & Bai, B. (2018). The synergistic effects of nanoparticle-surfactant nanofluids in EOR applications. *Journal of Petroleum Science and Engineering*, 171(May), 196–210. <https://doi.org/10.1016/j.petrol.2018.07.030>
- Almohsin, A. M., Alabdulmohsen, Z., Bai, B., & Neogi, P. (2018). Experimental study

- of crude oil emulsion stability by surfactant and nanoparticles. *Society of Petroleum Engineers - SPE EOR Conference at Oil and Gas West Asia 2018, 2018-March*, 26–28. <https://doi.org/10.2118/190440-ms>
- Alvarado, V., & Manrique, E. (2010). Enhanced Oil Recovery. *World Petroleum Council*, 64–69. <https://doi.org/10.1016/C2009-0-30583-8>
- Anderson, W. G. (1987). Wettability Literature Survey---Part 5: The Effects of Wettability on Relative Permeability. *Society of Petroleum Engineers of AIME, (Paper) SPE, November*, 1453–1468.
- Asl, H. F., Zargar, G., Manshad, A. K., Takassi, M. A., Ali, J. A., & Keshavarz, A. (2020). Effect of SiO₂ nanoparticles on the performance of L-Arg and L-Cys surfactants for enhanced oil recovery in carbonate porous media. *Journal of Molecular Liquids*, 300, 112290. <https://doi.org/10.1016/j.molliq.2019.112290>
- Atta, D. Y., Negash, B. M., Yekeen, N., & Habte, A. D. (2021). A state-of-the-art review on the application of natural surfactants in enhanced oil recovery. *Journal of Molecular Liquids*, 321, 114888. <https://doi.org/10.1016/j.molliq.2020.114888>
- Ayirala, S. C., & Rao, D. N. (2004). Multiphase flow and wettability effects of surfactants in porous media. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 241(1–3), 313–322. <https://doi.org/10.1016/j.colsurfa.2004.04.047>
- Azis, M. M., Febrina, F., Anindia, I., Darmawati, G. A., Fenyka, D. A., Purwono, S., & Rochmadi. (2021). Development of ultralow interfacial tension lignosulfonate from kraft black liquor for enhanced oil recovery. *Journal of Engineering and Technological Sciences*, 53(2). <https://doi.org/10.5614/j.eng.technol.sci.2021.53.2.10>
- Azis, M. M., Rachmadi, H., Wintoko, J., Yuliansyah, A. T., Hasokowati, W., Purwono, S., Rochmadi, W., & Murachman, B. (2017). On the use of sodium lignosulphonate for enhanced oil recovery. *IOP Conference Series: Earth and Environmental Science*, 65(1). <https://doi.org/10.1088/1755-1315/65/1/012030>
- Behera, U. S., & Sangwai, J. S. (2021). Nanofluids of silica nanoparticles in low salinity water with surfactant and polymer (SMART LowSal) for enhanced oil recovery. *Journal of Molecular Liquids*, 342, 117388. <https://doi.org/10.1016/j.molliq.2021.117388>
- Belhaj, A. F., Elraies, K. A., Mahmood, S. M., Zulkifli, N. N., Akbari, S., & Hussien, O. S. E. (2020). The effect of surfactant concentration, salinity, temperature, and pH on surfactant adsorption for chemical enhanced oil recovery: a review. *Journal of*

- Petroleum Exploration and Production Technology*, 10(1), 125–137.
<https://doi.org/10.1007/s13202-019-0685-y>
- Binks, B. P. (2002). Particles as surfactants - Similarities and differences. *Current Opinion in Colloid and Interface Science*, 7(1–2), 21–41.
[https://doi.org/10.1016/S1359-0294\(02\)00008-0](https://doi.org/10.1016/S1359-0294(02)00008-0)
- BP. (2011). *Statistical Review of World Energy* (Issue June).
- Bubble, A., Fluid, R., Wasan, D. T., & Nikolov, A. D. (2003). Spreading of nanofluids on solids.PDF. *Nature*, 423(May), 156–159.
- Chen, H., Ding, Y., & Tan, C. (2007). Rheological behaviour of nanofluids. *New Journal of Physics*, 9. <https://doi.org/10.1088/1367-2630/9/10/367>
- Chengara, A., Nikolov, A. D., Wasan, D. T., Trokhymchuk, A., & Henderson, D. (2004). Spreading of nanofluids driven by the structural disjoining pressure gradient. *Journal of Colloid and Interface Science*, 280(1), 192–201.
<https://doi.org/10.1016/j.jcis.2004.07.005>
- Cheraghian, G. (2017). Evaluation of clay and fumed silica nanoparticles on adsorption of surfactant polymer during enhanced oil recovery. *Journal of the Japan Petroleum Institute*, 60(2), 85–94. <https://doi.org/10.1627/jpi.60.85>
- Chowdhury, S., Shrivastava, S., Kakati, A., & Sangwai, J. S. (2022). Comprehensive Review on the Role of Surfactants in the Chemical Enhanced Oil Recovery Process. *Industrial & Engineering Chemistry Research*, 61(1), 21–64.
<https://doi.org/10.1021/acs.iecr.1c03301>
- Daghbandan, A., Shahrabadi, A., & Arabiyou, M. (2022). Adsorption of Glycyrrhiza glabra natural nonionic surfactant onto the carbonate reservoir rock in the presence of SiO₂ nanoparticles surface: Towards enhanced oil recovery. *Journal of Environmental Chemical Engineering*, 10(1), 107109.
<https://doi.org/10.1016/j.jece.2021.107109>
- Dai, C., Wang, X., Li, Y., Lv, W., Zou, C., Gao, M., & Zhao, M. (2017). Spontaneous Imbibition Investigation of Self-Dispersing Silica Nanofluids for Enhanced Oil Recovery in Low-Permeability Cores. *Energy and Fuels*, 31(3), 2663–2668.
<https://doi.org/10.1021/acs.energyfuels.6b03244>
- Dampang, S., Azis, M. M., Yuliansyah, A. T., & Purwono, S. (2024). On the Influence of Silica Nanoparticles for Enhanced Oil. *AIP Conference Proceedings*, 060012.
- Dandekar, A. Y. (2013). Petroleum reservoir rock and fluid properties, second edition. In *Petroleum Reservoir Rock and Fluid Properties, Second Edition*. CRC Press,



Taylor & Francis Group.

- Dandekar, A. Y. (2015). *Petroleum Reservoir Rock and Fluid Properties* (Second). CRC Press, Taylor & Francis Group, New York.
- DAS, S. K., Choi, S. U. S., YU, W., & Pradeep, T. (2008). *Nanofluids science and technology* (p. 407).
- Dauyltayeva, A., Mukhtarov, A., Sagandykova, D., Shakeel, M., Pourafshary, P., & Musharova, D. (2023). Screening of Chemicals to Enhance Oil Recovery in a Mature Sandstone Oilfield in Kazakhstan: Overcoming Challenges of High Residual Oil. *Applied Sciences (Switzerland)*, 13(18). <https://doi.org/10.3390/app131810307>
- Ehrlich, R., Etris, E. L., Brumfield, D., Yuan, L. P., & Crabtree, S. J. (1991). Petrography and reservoir physics III: physical models for permeability and formation factor. In *American Association of Petroleum Geologists Bulletin* (Vol. 75, Issue 10, pp. 1579–1592). <https://doi.org/10.1306/0c9b299d-1710-11d7-8645000102c1865d>
- El-Diasty, A. I., & Aly, A. M. (2015). Understanding the mechanism of nanoparticles applications in enhanced oil recovery. *Society of Petroleum Engineers - SPE North Africa Technical Conference and Exhibition 2015, NATC 2015*, 000, 944–962. <https://doi.org/10.2118/175806-ms>
- Eltoum, H., Yang, Y. L., & Hou, J. R. (2021). The effect of nanoparticles on reservoir wettability alteration: a critical review. *Petroleum Science*, 18(1), 136–153. <https://doi.org/10.1007/s12182-020-00496-0>
- Fritzsche, J., & Peuker, U. A. (2015). Wetting and adhesive forces on rough surfaces - An experimental and theoretical study. *Procedia Engineering*, 102, 45–53. <https://doi.org/10.1016/j.proeng.2015.01.105>
- Griffith, C., & Daigle, H. (2018). Manipulation of Pickering emulsion rheology using hydrophilically modified silica nanoparticles in brine. *Journal of Colloid and Interface Science*, 509, 132–139. <https://doi.org/10.1016/j.jcis.2017.08.100>
- Gu, Z., Lu, T., Li, Z., & Xu, Z. (2022). Experimental investigation on the SiO₂ nanoparticle foam system characteristics and its advantages in the heavy oil reservoir development. *Journal of Petroleum Science and Engineering*, 214(November 2021), 110438. <https://doi.org/10.1016/j.petrol.2022.110438>
- Hashmi, A. W., Mali, H. S., & Meena, A. (2022). Experimental investigation of an innovative viscometer for measuring the viscosity of Ferrofluid. *Materials Today: Proceedings*, 50, 2037–2043. <https://doi.org/10.1016/j.matpr.2021.09.404>

- Hasokowati, W., Rochmadi, Purwono, S., Murachman, B., Wintoko, J., Yuliansyah, A. T., & Azis, M. M. (2020). Application of Surfactant-Polymer Flooding for Improving Oil Recovery in the Indonesian Oil Field. *IOP Conference Series: Materials Science and Engineering*, 778(1), 012102. <https://doi.org/10.1088/1757-899X/778/1/012102>
- Hendraningrat, L., Li, S., & Torsæter, O. (2013a). Effect of some parameters influencing enhanced oil recovery process using Silica Nanoparticles: An experimental investigation. *Society of Petroleum Engineers - SPE Reservoir Characterisation and Simulation Conference and Exhibition, RCSC 2013: New Approaches in Characterisation AndModelling of Complex Reservoirs*, 1, 186–195. <https://doi.org/10.2118/165955-ms>
- Hendraningrat, L., Li, S., & Torsæter, O. (2013b). A coreflood investigation of nanofluid enhanced oil recovery. *Journal of Petroleum Science and Engineering*, 111, 128–138. <https://doi.org/10.1016/j.petrol.2013.07.003>
- Hocine, S., Pousset, B., Courtaud, T., & Degre, G. (2018). Long term thermal stability of chemical EOR surfactants. *Society of Petroleum Engineers - SPE EOR Conference at Oil and Gas West Asia 2018, 2018-March*(March), 26–28. <https://doi.org/10.2118/190361-ms>
- Hou, B., Jia, R., Fu, M., Li, L., Xu, T., & Jiang, C. (2020). Mechanism of Synergistically Changing Wettability of an Oil-Wet Sandstone Surface by a Novel Nanoactive Fluid. *Energy and Fuels*, 34(6), 6871–6878. <https://doi.org/10.1021/acs.energyfuels.0c00521>
- Jafari Daghlilian Sofla, S., Anne James, L., & Zhang, Y. (2019). Toward a mechanistic understanding of wettability alteration in reservoir rocks using silica nanoparticles. *E3S Web of Conferences*, 89, 1–8. <https://doi.org/10.1051/e3sconf/20198903004>
- Jha, N. K., Iglauer, S., Barifcani, A., Sarmadivaleh, M., & Sangwai, J. S. (2019). Low-Salinity Surfactant Nanofluid Formulations for Wettability Alteration of Sandstone: Role of the SiO₂ Nanoparticle Concentration and Divalent Cation/SO₄²⁻ Ratio [Research-article]. *Energy and Fuels*, 33(2), 739–746. <https://doi.org/10.1021/acs.energyfuels.8b03406>
- Jiang, L., Li, S., Yu, W., Wang, J., Sun, Q., & Li, Z. (2016). Interfacial study on the interaction between hydrophobic nanoparticles and ionic surfactants. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 488, 20–27.

<https://doi.org/10.1016/j.colsurfa.2015.10.007>

- Joshi, D., Maurya, N. K., Kumar, N., & Mandal, A. (2022). Experimental investigation of silica nanoparticle assisted Surfactant and polymer systems for enhanced oil recovery. *Journal of Petroleum Science and Engineering*, 216(June), 110791. <https://doi.org/10.1016/j.petrol.2022.110791>
- K. V. Sarkanen. (1971). Occurrence, Formation, Structure and Reactions. In C. H. L. K. V. Sarkanen (Ed.), *Lignins* (p. 916). Wiley-Interscience.
- Kakati, A., & Sangwai, J. S. (2017). Effect of monovalent and divalent salts on the interfacial tension of pure hydrocarbon-brine systems relevant for low salinity water flooding. *Journal of Petroleum Science and Engineering*, 157(March), 1106–1114. <https://doi.org/10.1016/j.petrol.2017.08.017>
- Kalam, S., Abu-Khamsin, S. A., Kamal, M. S., & Patil, S. (2021). A review on surfactant retention on rocks: mechanisms, measurements, and influencing factors. *Fuel*, 293(March), 120459. <https://doi.org/10.1016/j.fuel.2021.120459>
- Kamal, M. S., Adewunmi, A. A., Sultan, A. S., Al-Hamad, M. F., & Mehmood, U. (2017). Recent advances in nanoparticles enhanced oil recovery: Rheology, interfacial tension, oil recovery, and wettability alteration. *Journal of Nanomaterials*, 2017. <https://doi.org/10.1155/2017/2473175>
- Kesarwani, H., Sharma, S., & Mandal, A. (2021). Application of Novel Colloidal Silica Nanoparticles in the Reduction of Adsorption of Surfactant and Improvement of Oil Recovery Using Surfactant Polymer Flooding. *ACS Omega*, 6(17), 11327–11339. <https://doi.org/10.1021/acsomega.1c00296>
- Kuang, W., Saraji, S., & Piri, M. (2018). A systematic experimental investigation on the synergistic effects of aqueous nanofluids on interfacial properties and their implications for enhanced oil recovery. *Fuel*, 220(July 2017), 849–870. <https://doi.org/10.1016/j.fuel.2018.01.102>
- Lake, L. (1989). *Enhanced Oil Recovery*. Prentice Hall, New Jersey.
- Lashari, N., Ganat, T., Elraies, K. A., Ayoub, M. A., Kalam, S., Chandio, T. A., Qureshi, S., & Sharma, T. (2022). Impact of nanoparticles stability on rheology, interfacial tension, and wettability in chemical enhanced oil recovery: A critical parametric review. *Journal of Petroleum Science and Engineering*, 212(November 2021), 110199. <https://doi.org/10.1016/j.petrol.2022.110199>
- Le, N. Y. T., Pham, D. K., Le, K. H., & Nguyen, P. T. (2011). Design and screening of synergistic blends of SiO₂ nanoparticles and surfactants for enhanced oil recovery



- in high-temperature reservoirs. *Advances in Natural Sciences: Nanoscience and Nanotechnology*, 2(3). <https://doi.org/10.1088/2043-6262/2/3/035013>
- Lim, S. S. S., Elochukwu, H., Nandong, J., Hamid, M. A., & Bennour, Z. (2023). Wettability alteration and surfactant adsorption study of methyl ester sulphonate/nano-silica nanofluid on sandstone reservoir rock. *MATEC Web of Conferences*, 377, 01001. <https://doi.org/10.1051/mateconf/202337701001>
- Liu, Z., Bode, V., Hedayati, P., Onay, H., & Sudhölter, E. J. R. (2020). Understanding the stability mechanism of silica nanoparticles: The effect of cations and EOR chemicals. *Fuel*, 280, 118650. <https://doi.org/10.1016/j.fuel.2020.118650>
- Madani, M., Zargar, G., Takassi, M. A., Daryasafar, A., Wood, D. A., & Zhang, Z. (2019). Fundamental investigation of an environmentally-friendly surfactant agent for chemical enhanced oil recovery. *Fuel*, 238(October 2018), 186–197. <https://doi.org/10.1016/j.fuel.2018.10.105>
- Maghzi, A., Mohammadi, S., Ghazanfari, M. H., Kharrat, R., & Masihi, M. (2012). Monitoring wettability alteration by silica nanoparticles during water flooding to heavy oils in five-spot systems: A pore-level investigation. *Experimental Thermal and Fluid Science*, 40, 168–176. <https://doi.org/10.1016/j.expthermflusci.2012.03.004>
- Mao, J., Wang, D., Yang, X., Zhang, Z., Yang, B., & Zhang, C. (2019). Adsorption of surfactant on stratum rocks: Exploration of low adsorption surfactants for reservoir stimulation. *Journal of the Taiwan Institute of Chemical Engineers*, 95, 424–431. <https://doi.org/10.1016/j.jtice.2018.08.016>
- Melle, S., Lask, M., & Fuller, G. G. (2005). Pickering emulsions with controllable stability. *Langmuir*, 21(6), 2158–2162. <https://doi.org/10.1021/la047691n>
- Metin, C. O., Baran, J. R., & Nguyen, Q. P. (2012). Adsorption of surface functionalized silica nanoparticles onto mineral surfaces and decane/water interface. *Journal of Nanoparticle Research*, 14(11). <https://doi.org/10.1007/s11051-012-1246-1>
- Miranda, C. R., de Lara, L. S., & Tonetto, B. C. (2012). Stability and Mobility of Functionalized Silica Nanoparticles for Enhanced Oil Recovery Applications. *Society of Petroleum Engineers - SPE, June*, 311–321. <https://doi.org/10.2118/157033-MS>
- Morrow, N. R. (1990). Wettability and Its Effect on Oil Recovery. *Society of Petroleum Engineers - SPE, December*.
- Negin, C., Ali, S., & Xie, Q. (2016). Application of nanotechnology for enhancing oil

- p recovery – A review.
- Petroleum*
- , 2(4), 324–333.
-
- <https://doi.org/10.1016/j.petlm.2016.10.002>
-
- Novriansyah, A., Bae, W., Park, C., Permadi, A. K., & Riswati, S. S. (2020). Optimal design of alkaline-surfactant-polymer flooding under low salinity environment.
- Polymers*
- , 12(3).
- <https://doi.org/10.3390/polym12030626>
-
- Pal, N., & Mandal, A. (2020). Enhanced oil recovery performance of gemini surfactant-stabilized nanoemulsions functionalized with partially hydrolyzed polymer/silica nanoparticles.
- Chemical Engineering Science*
- , 226, 115887.
- <https://doi.org/10.1016/j.ces.2020.115887>
-
- Pal, S., Mushtaq, M., Banat, F., & Al Sumaiti, A. M. (2018). Review of surfactant-assisted chemical enhanced oil recovery for carbonate reservoirs: challenges and future perspectives.
- Petroleum Science*
- , 15(1), 77–102.
- <https://doi.org/10.1007/s12182-017-0198-6>
-
- Paryoto, S., Romdoni, Y., Kurnia, I., Muraza, O., & Khalil, M. (2023). Synergy of surfactant mixtures and Fe
- ₃
- O
- ₄
- nanoparticles for Enhanced oil recovery (EOR).
- Inorganic Chemistry Communications*
- , 155.
- <https://doi.org/10.1016/j.inoche.2023.111125>
-
- Pillai, P., Saw, R. K., Singh, R., Padmanabhan, E., & Mandal, A. (2019). Effect of synthesized lysine-grafted silica nanoparticle on surfactant stabilized O/W emulsion stability: Application in enhanced oil recovery.
- Journal of Petroleum Science and Engineering*
- , 177(January), 861–871.
- <https://doi.org/10.1016/j.petrol.2019.03.007>
-
- Purwono, S., & Murachman, B. (2001). Development of non petroleum base chemicals for improving oil recovery in Indonesia.
- SPE - Asia Pacific Oil and Gas Conference*
- .
- <https://doi.org/10.2523/68768-ms>
-
- Purwono, S., Murachman, B., Rohmadi, Hasokowati, W., Wintoko, J., Yuliansyah, A. T., & Azis, M. M. (2023).
- Development of Surfactants and Polymers to Enhance Oil Recovery (EOR)*
- (A. Nanik (ed.); 1st ed.). Gadjah Mada University Press.
-
- Rahimi, K., & Adibifard, M. (2015). Experimental study of the nanoparticles effect on surfactant absorption and oil recovery in one of the Iranian oil reservoirs.
- Petroleum Science and Technology*
- , 33(1), 79–85.
- <https://doi.org/10.1080/10916466.2014.950382>
-
- Rattanaudom, P., Alimin, A. A., Shiau, B. J. Ben, Harwell, J. H., Suriyapraphadilok, U., & Charoensaeng, A. (2023). Experimental investigation of hydrophobic and

- hydrophilic silica nanoparticles on extended surfactant properties: Micro-emulsion, viscosity, and adsorption behaviors. *Geoenergy Science and Engineering*, 223(February), 211582.
<https://doi.org/10.1016/j.geoen.2023.211582>
- Rattanaudom, P., Shiau, B.-J., Suriyapraphadilok, U., & Charoensaeng, A. (2021). Effect of pH on silica nanoparticle-stabilized foam for enhanced oil recovery using carboxylate-based extended surfactants. *Journal of Petroleum Science and Engineering*, 196, 107729. <https://doi.org/10.1016/j.petrol.2020.107729>
- Rezaei, N., & Firoozabadi, A. (2014). Macro- and microscale waterflooding performances of crudes which form w/o emulsions upon mixing with brines. *Energy and Fuels*, 28(3), 2092–2103. <https://doi.org/10.1021/ef402223d>
- Rosen, M. J., Wang, H., Shen, P., & Zhu, Y. (2005). Ultralow interfacial tension for enhanced oil recovery at very low surfactant concentrations. *Langmuir*, 21(9), 3749–3756. <https://doi.org/10.1021/la0400959>
- Saha, R., Tiwari, P., & Uppaluri, R. V. S. (2021). *Chemical Nanofluids in Enhanced Oil Recovery, "Fundamentals and Applications"*. CRC Press, Taylor & Francis Group.
- Saxena, N., Kumar, A., & Mandal, A. (2019). Adsorption analysis of natural anionic surfactant for enhanced oil recovery: The role of mineralogy, salinity, alkalinity and nanoparticles. *Journal of Petroleum Science and Engineering*, 173(September 2018), 1264–1283. <https://doi.org/10.1016/j.petrol.2018.11.002>
- Sharma, T., Iglaier, S., & Sangwai, J. S. (2016). Silica Nanofluids in an Oilfield Polymer Polyacrylamide: Interfacial Properties, Wettability Alteration, and Applications for Chemical Enhanced Oil Recovery. *Industrial and Engineering Chemistry Research*, 55(48), 12387–12397. <https://doi.org/10.1021/acs.iecr.6b03299>
- Sharma, T., Kumar, G. S., & Sangwai, J. S. (2015). Viscoelastic properties of oil-in-water (o/w) pickering emulsion stabilized by surfactant-polymer and nanoparticle-surfactant-polymer systems. *Industrial and Engineering Chemistry Research*, 54(5), 1576–1584. <https://doi.org/10.1021/ie504501a>
- Sheng, J. J. (2011). *Modern Chemical Enhanced Oil Recovery: Theory and Practice*. United States, Elsevier.
- Siggel, L., Radloff, M., Reimann, S., Hansch, M., Nowak, M., Ranft, M., Weiss, H., Schreiner, E., & Brand, F. (2014). TPM's: A new class of viscoelastic solutions for enhanced oil recovery. *Society of Petroleum Engineers - SPE EOR Conference at Oil and Gas West Asia 2014: Driving Integrated and Innovative EOR*, 331–



341. <https://doi.org/10.2118/169689-ms>
- Skauge, T., Spildo, K., & Skauge, A. (2010). Nano-sized particles for EOR. *SPE - DOE Improved Oil Recovery Symposium Proceedings*, 2(April), 1281–1290.
<https://doi.org/10.2523/129933-ms>
- SKK Migas. (2014). *Buletin SKK Migas*.
- SKK Migas. (2020). *Laporan Tahunan*.
- Sugihardjo, S. (2008). Surfactant Properties Evaluation for Chemical Flooding. *Scientific Contributions Oil and Gas*, 31(3), 34–39.
<https://doi.org/10.29017/scog.31.3.1014>
- Suleimanov, B. A., Ismailov, F. S., & Veliyev, E. F. (2011). Nanofluid for enhanced oil recovery. *Journal of Petroleum Science and Engineering*, 78(2), 431–437.
<https://doi.org/10.1016/j.petrol.2011.06.014>
- Sun, X., Zhang, Y., Chen, G., & Gai, Z. (2017). Application of Nanoparticles in Enhanced Oil Recovery: A Critical Review of Recent Progress. *Energies*, 10(3), 345.
<https://doi.org/10.3390/en10030345>
- Suresh, R., Kuznetsov, O., Agrawal, D., Darugar, Q., & Khabashesku, V. (2018). Reduction of surfactant adsorption in porous media using silica nanoparticles. *Proceedings of the Annual Offshore Technology Conference*, 2, 984–992.
<https://doi.org/10.4043/28879-ms>
- Sze Lim, S. S., Elochukwu, H., Nandong, J., Bennour, Z., & Hamid, M. A. (2023). A review on the mechanisms of low salinity water/surfactant/nanoparticles and the potential synergistic application for c-EOR. *Petroleum Research*, 8(3), 324–337.
<https://doi.org/10.1016/j.ptlrs.2023.02.001>
- Tavakkoli, O., Kamyab, H., Junin, R., Ashokkumar, V., Shariati, A., & Mohamed, A. M. (2022). SDS-Aluminum Oxide Nanofluid for Enhanced Oil Recovery: IFT, Adsorption, and Oil Displacement Efficiency. *ACS Omega*, 7(16), 14022–14030.
<https://doi.org/10.1021/acsomega.2c00567>
- Tian, S., Gao, W., Liu, Y., Kang, W., & Yang, H. (2020). Effects of surface modification Nano-SiO₂ and its combination with surfactant on interfacial tension and emulsion stability. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 595(January), 124682. <https://doi.org/10.1016/j.colsurfa.2020.124682>
- Van De Graaff, W. J. ., & Ealey, P. . (1989). Geological Modeling for Simulation Studies. *AAPG Bulletin*, 73(11), 1436–1444. <https://doi.org/10.1306/44B4AA64-170A-11D7-8645000102C1865D>

- Wasan, D., Nikolov, A., & Kondiparty, K. (2011). The wetting and spreading of nanofluids on solids: Role of the structural disjoining pressure. *Current Opinion in Colloid and Interface Science*, 16(4), 344–349. <https://doi.org/10.1016/j.cocis.2011.02.001>
- Wu, Y., Chen, W., Dai, C., Huang, Y., Li, H., Zhao, M., He, L., & Jiao, B. (2017). Reducing surfactant adsorption on rock by silica nanoparticles for enhanced oil recovery. *Journal of Petroleum Science and Engineering*, 153(April), 283–287. <https://doi.org/10.1016/j.petrol.2017.04.015>
- Yamagata, C., Ricco Elias, D., Rafaela Soares Paiva, M., Matos Misso, A., & Regina Homem Mello Castanho, S. (2012). Influence of the Precursor Concentration on the Characteristics of Silica Powder Obtained from Na_2SiO_3 by a Facile Low Temperature Synthesis Process. *Journal of Materials Science and Engineering B*, 2(8), 429–436.
- Yekeen, N., Idris, A. K., Manan, M. A., Samin, A. M., Risal, A. R., & Kun, T. X. (2017). Bulk and bubble-scale experimental studies of influence of nanoparticles on foam stability. *Chinese Journal of Chemical Engineering*, 25(3), 347–357. <https://doi.org/10.1016/j.cjche.2016.08.012>
- Yekeen, N., Manan, M. A., Idris, A. K., Samin, A. M., & Risal, A. R. (2017). Experimental investigation of minimization in surfactant adsorption and improvement in surfactant-foam stability in presence of silicon dioxide and aluminum oxide nanoparticles. *Journal of Petroleum Science and Engineering*, 159(August), 115–134. <https://doi.org/10.1016/j.petrol.2017.09.021>
- Zargartalebi, M., Barati, N., & Kharrat, R. (2014). Influences of hydrophilic and hydrophobic silica nanoparticles on anionic surfactant properties: Interfacial and adsorption behaviors. *Journal of Petroleum Science and Engineering*, 119, 36–43. <https://doi.org/10.1016/j.petrol.2014.04.010>
- Zargartalebi, M., Kharrat, R., & Barati, N. (2015). Enhancement of surfactant flooding performance by the use of silica nanoparticles. *Fuel*, 143, 21–27. <https://doi.org/10.1016/j.fuel.2014.11.040>
- Zhang, G., Yu, J., Du, C., & Lee, R. (2015). Formulation of Surfactants for Very Low/High Salinity Surfactant Flooding without Alkali. *Day 1 Mon, April 13, 2015, 1*, 399–414. <https://doi.org/10.2118/173738-MS>
- Zhang, H., Nikolov, A., & Wasan, D. (2014). Enhanced Oil Recovery (EOR) Using Nanoparticle Dispersions: Underlying Mechanism and Imbibition Experiments.



- Energy & Fuels*, 28(5), 3002–3009. <https://doi.org/10.1021/ef500272r>
- Zhang, J., Wang, D., & Olatunji, K. (2016). Surfactant adsorption investigation in ultra-lower permeable rocks. *Society of Petroleum Engineers - SPE Low Perm Symposium*, 5–6. <https://doi.org/10.2118/180214-ms>
- Zhang, T., Davidson, A., Bryant, S. L., & Huh, C. (2010). Nanoparticle-stabilized emulsions for applications in enhanced oil recovery. *SPE - DOE Improved Oil Recovery Symposium Proceedings*, 2, 1009–1026. <https://doi.org/10.2523/129885-ms>
- Zhao, Y., Yin, S., Seright, R. S., Ning, S., Zhang, Y., & Bai, B. (2021). Enhancing heavy-oil-recovery efficiency by combining low-salinity-water and polymer flooding. *SPE Journal*, 26(3), 1535–1551. <https://doi.org/10.2118/204220-PA>
- Zhong, X., Chen, J., An, R., Li, K., & Chen, M. (2021). A state-of-the-art review of nanoparticle applications with a focus on heavy oil viscosity reduction. *Journal of Molecular Liquids*, 344, 117845. <https://doi.org/10.1016/j.molliq.2021.117845>
- Zhou, Y., Wu, X., Zhong, X., Sun, W., Pu, H., & Zhao, J. X. (2019). Surfactant-Augmented Functional Silica Nanoparticle Based Nanofluid for Enhanced Oil Recovery at High Temperature and Salinity. *ACS Applied Materials and Interfaces*, 11(49), 45763–45775. <https://doi.org/10.1021/acsami.9b16960>