

Publications

List Of Research Publications (only in Peer-reviewed Journals)

1. **Prakash, R., Majumder, S. K., & Singh, A. (2018).** Flotation technique: Its mechanisms and design parameters. *Chemical Engineering and Processing-Process Intensification*, 127, 249-270. <https://doi.org/10.1016/j.cep.2018.03.029>
2. **Prakash, R., Majumder, S. K., & Singh, A. (2020).** Bubble size distribution and specific bubble interfacial area in two-phase microstructured dense bubbling bed. *Chemical Engineering Research and Design*, 156, 108 - 130. <https://doi.org/10.1016/j.cherd.2020.01.032>
3. **Prakash, R., Hembrom, K. & Majumder, S. K. (2022).** Interpretation of induction time and particle recovery in a microstructured counter-current flow column. *Chemical Engineering and Processing-Process Intensification*, 176, 108931. <https://doi.org/10.1016/j.cep.2022.108931>
4. **Deb Barma, S., Sathish, R., Rao, D. S., & Prakash, R. (2021).** Mechanistic investigation on the microwave-assisted leaching of low-grade coal for low-ash coal production. *Separation Science and Technology*, 56 (18), 3151-3166. <https://doi.org/10.1080/01496395.2021.1878374>
5. **Gavrilovic, N., Carbonneau, X., Moschetta, J. M., Prakash, R., Schimpf, J., & Kim, S. Y. (2025).** Ground testing and analysis of a liquid-hydrogen propulsion system for UAVs. *International Journal of Hydrogen Energy*, 187, 151960. <https://doi.org/10.1016/j.ijhydene.2025.151960>
6. **Lee, J., Prakash, R., Kim, S. H., Lee, H. Y., & Lee, J. (2025).** Investigating the Influence of Cationic Surfactants with Varied Alkyl Chain Lengths on Nanobubble Characteristics. *Journal of Molecular Liquids*, 424, 127061. <https://doi.org/10.1016/j.molliq.2025.127061>
7. **Pradhan, D., Lee, J., Prakash, R., Chauhan, R., & Lee, J. (2025).** Tailored slip length: Investigating the effect of solid-liquid interfacial tension. *Physics of Fluids*, 37, 022146. <https://doi.org/10.1063/5.0256691>
8. **Hyeokgyun, M., Prakash, R., Than, M.M., Oh, B., Cho, G., and Lee, J. (2026).** Numerical and experimental analysis of thermal design of a drying chamber for roll-to-roll (R2R) printing devices. *Flexible and Printed Electronics*, 11 (2), 025010. <https://doi.org/10.1088/2058-8585/ae666b>
9. **Prakash, R., Lee, J., Kim, S. H., Lee, H. Y., & Lee, J. (2024).** Insight into the interaction between ionic nanobubbles and cyanobacteria: Elucidating the role of surfactant and zeta potential in the inactivation of harmful cyanobacteria. *Chemical Engineering Science*, 287, 119699. <https://doi.org/10.1016/j.ces.2023.119699>

10. **Prakash, R.**, Majumder, S. K., Lee, J., Nedeltchev, S. (2024). Quality of Mixedness Using Information Entropy in a Counter-Current Three-Phase Bubble Column. *Processes*, 12, 281. <https://doi.org/10.3390/pr12020281>
11. **Prakash, R.**, Lee, J., Moon, Y., Pradhan, D., Kim, S-H., Lee, H-Y, & Lee, J. (2023) Experimental Investigation of Cavitation Bulk Nanobubbles Characteristics: Effects of pH and Surface-active Agents. *Langmuir*, 39, 1968-1986. <https://doi.org/10.1021/acs.langmuir.2c03027>
12. **Prakash, R.**, Sangtam, B. T., Hembrom, K., & Majumder, S. K. (2022). Bubble size analysis in a two-phase countercurrent flow in the narrow rectangular column. *Physics of Fluids*, 34 (4), 043305. <https://doi.org/10.1063/5.0083749>
13. **Prakash, R.**, Bhattacharyya, A., & Majumder, S. K. (2022). Experimental investigation and its analysis of gas holdup in a three-phase counter-current microstructured bubble column. *Journal of Dispersion Science and Technology*, 43 (2), 243-258. <https://doi.org/10.1080/01932691.2020.1839480>
14. Fahad, M. K., **Prakash, R.**, Majumder, S. K., & Ghosh, P (2022). Investigation of the Induction Time and Recovery in a Flotation Column: A Kinetic Analysis. *Separation Science and Technology*, 57 (18), 2937-2954. <https://doi.org/10.1080/01496395.2022.2084629>
15. Lee, J., Lee, S., Lee, M., **Prakash, R.**, Kim, H., Cho, G., & Lee, J. (2022). Enhancing Mixing Performance in a Rotating Disk Mixing Chamber: A Quantitative Investigation of the Effect of Euler and Coriolis Forces. *Micromachines*, 13(8), 1218. <https://doi.org/10.3390/mi13081218>
16. Sangtam, B. T., **Prakash, R.**, & Majumder, S. K. (2021). Mixing characteristics of liquid-liquid dispersion in a jet-driven mixing column: Developed for separation of organic pollutants. *Industrial & Engineering Chemistry Research*, 60 (49), 18166 – 18182. <https://doi.org/10.1021/acs.iecr.1c03733>
17. Sangtam, B. T., **Prakash, R.**, & Majumder, S. K. (2021). Drop sizes and its distribution in jet-driven liquid-liquid mixing column: substantial application for the liquid-liquid extraction process. *Chemical Engineering Research and Design*, 172, 186 – 203. <https://doi.org/10.1016/j.cherd.2021.02.029>
18. Fahad, M. K., **Prakash, R.**, Majumder, S. K., & Ghosh, P. (2021). Dispersion characteristics in a gas-liquid–coal slurry flotation column and its analysis by the velocity distribution model, *Journal of Dispersion Science and Technology*, 42 (9), 1259-1273. <https://doi.org/10.1080/01932691.2020.1737105>
19. **Prakash, R.** & Majumder, S. K. (2020). Effect of particle size and concentration on bubble size distribution and aspect ratio in a counter-current microstructured three-phase bubble column, *Journal of Industrial and Engineering Chemistry*, 90, 105 - 116. <https://doi.org/10.1016/j.jiec.2020.07.002>

20. **Prakash, R.**, Majumder, S. K., & Singh, A. (2020). Bubble-slurry interfacial shear stress and frictional pressure drop in a rectangular column in the presence and absence of a surface-active agent. *Powder Technology*, 366, 761-775. <https://doi.org/10.1016/j.powtec.2020.03.015>
21. **Prakash, R.**, Majumder, S. K., & Singh, A. (2020). Dispersion characteristics in a counter-current microstructured slurry bubble column and its analysis based on the turbulence and circulation. *Industrial & Engineering Chemistry Research*, 59 (16), 8093-8111. <https://doi.org/10.1021/acs.iecr.0c00834>
22. **Prakash, R.**, Majumder, S. K., & Singh, A. (2019). Particle-laden bubble size and its distribution in microstructured bubbling bed in the presence and absence of a surface active agent. *Industrial & Engineering Chemistry Research*, 58 (8), 3499-3522. <https://doi.org/10.1021/acs.iecr.8b05625>
23. Fahad, M. K., **Prakash, R.**, Majumder, S. K., & Ghosh, P. (2019). Gas holdup in the gas-liquid-coal slurry flow in a flotation column in presence of surface active agent. *Multiphase Science and Technology*, 31 (3), 199 – 214. [10.1615/MultScienTechn.2019029957](https://doi.org/10.1615/MultScienTechn.2019029957)
24. Fahad, M. K., **Prakash, R.**, Majumder, S. K., & Ghosh, P. (2019). Frictional pressure drop in a flotation column: an experimental investigation in continuous mode and its prediction by a general model. *Multiphase Science and Technology*, 31(3), 235 - 254. [10.1615/MultScienTechn.2019031051](https://doi.org/10.1615/MultScienTechn.2019031051)
25. **Prakash, R.**, Majumder, S. K., & Singh, A. (2018). Gas holdup and frictional pressure drop contributions in microstructured two-and three-phase bubbling bed with Newtonian and non-Newtonian liquids: Effect of coarse and fine particles with surface active agent. *Chemical Engineering and Processing-Process Intensification*, 133, 40-57. <https://doi.org/10.1016/j.cep.2018.09.020>
26. **Prakash, R.**, & Majumder, S. K. (2017). Analysis of particle recovery in flotation column based on information entropy theory. *Transactions of the Indian Institute of Metals*, 70(2), 403-410. <https://doi.org/10.1007/s12666-016-0994-5>

Papers in conference abstract volumes / presented

1. **Prakash, R.**, Stepien, P.R., Schimpf, J.K., Kim, S.Y. (2025). Analytical modeling and experimental validation of a liquid hydrogen drone tank system. Korean Society of Mechanical Engineers, South Korea.
2. **Prakash, R.**, Schimpf, J.K., Kim, S.Y. (2024). Experimental validation of a 600 liter liquid hydrogen tank dedicated for heavy duty vehicles. Korean Society of Mechanical Engineers, Gangwon-do, South Korea.
3. Than, M., **Prakash, R.**, Cho, Gyoujin, Kim, Yoonhyun, Oh, Bukuk, Lee J. (2024). Enhancing homogeneous air distribution in drying chamber for Roll-to-Roll printing

through numerical simulation. Korean Society of Visualization, May 1 -3, Hanyang University, Ansan, South Korea.

4. Than, M., Moon, Hyeokgyun, **Prakash. R.**, Kim, Yoonhyun, Oh, Bukuk, Cho, Gyoujin, Lee J. (2024). Experimental and numerical study on improvement of air distribution inside a drying chamber for Roll-to-Roll printing application. Korea Flexible & Printed Electronics Society, March 27 -29, South Korea.
5. Lee, J., **Prakash, R.**, & Lee, J. (2023). Ionic Nanobubble-Mediated Inactivation of Harmful Cyanobacteria. Korean Society of Mechanical Engineers (KSME), November 1 – 3, Songdo Convensia, Incheon, South Korea.
6. Than, M., **Prakash. R.**, Gyoujin Cho, Yoonhyun Kim, Bukuk Oh, Lee J. (2023). Analysing drying chamber for roll-to-roll printing using numerical and experimental investigations. Korea Flexible Printed Electronics Society, October 18 -20, Gangneung, South Korea.
7. Lee, J., **Prakash, R.**, & Lee, J. (2023). Mechanistic insight of bulk nanobubbles in various liquid medium. American Society of Mechanical Engineers (ASME), July 9 - 13, Osaka, Japan.
8. Than, M., **Prakash. R.**, Lee J. (2023). Computational and experimental thermal analysis of a drying chamber for Roll-to-Roll printing application. Korean Society of Mechanical Engineers (KSME), November 1 -3, Songdo Convensia, Incheon, Republic of Korea.
9. Lee, J., **Prakash, R.**, & Lee, J. (2023). Effect of carbon chain length of the cationic surfactant on Nanobubbles characteristics. KSME Micro/Nanoengineering Division Spring Conference, April 19 – 22, Busan, South Korea.
10. **Prakash R.**, Sangtam, B. T., Majumder S.K., Singh, A. (2023). Effect of surfactant concentration and gas velocity on holdup characteristics in a semi-batch 2-D column. Springer, Singapore, *Fluid Mechanics and Fluid Power*, 2, 463-466. https://doi.org/10.1007/978-981-19-6970-6_77
11. Lee, J., **Prakash, R.**, & Lee, J. (2022). Analysis of the nanobubbles stability in various media. Korean Society of Visualization, Korea Advanced Institute of Science and Technology (KAIST), December 1, South Korea.
12. Lee, J. **Prakash, R.**, Lee, J. (2022). Investigation of cavitation bulk nanobubbles in various pH and surfactant concentrations. Bulletin of the American Physical Society, 75th Annual Meeting of the Division of Fluid Dynamics, November 20 – 22, Indianapolis, Indiana, USA.
13. Lee, J. **Prakash, R.**, Lee, J. (2022). Analysis of Nanobubbles characteristics in various pH and surfactant solutions. KSME Micro/Nanoengineering Division Spring Conference, May 18 – 20, Busan, South Korea.

14. Lee, J. **Prakash, R.**, Lee, J. (2022). Characterization of cavitation bulk nanobubbles: Inspired by pistol-shrimp. KSME Bioengineering Division Spring Conference, April 20 – 22, South Korea.
15. **Prakash, R.**, Sangtam, B. T., Majumder, S. K. and Singh, A. (2021). Effect of surfactant concentration and gas velocity on holdup characteristics in a semi-batch 2-d column. 48th National Conference on Fluid Mechanics and Fluid Power, December 27 – 29, Department of Mechanical Engineering, BITS Pilani, Rajasthan, India.
16. **Prakash, R.**, Fahad, M. K., and Majumder, S. K. (2021). Particle recovery study in a laboratory scale flotation column. 74th Annual Session of Indian Institute of Chemical Engineers CHEMCON, December 27 – 30, IMMT Bhubneswar, India.
17. **Prakash, R.**, Sangtam, B. T., and Majumder, S. K. (2021). Bubble size distribution in a semi-batch slurry bubble column. Complex Fluids and Soft Matter, December 13-15, IIT Gandhinagar, Gandhinagar, India.
18. **Prakash, R.**, Sangtam, B. T., Barma, S. D., Hembrom, K., Majumder, S. K. and Singh, A. (2020). Bubble size analysis in a two-phase counter-current flow in the 2-d column. Proceedings of the 8th International and 47th National Conference on Fluid Mechanics and Fluid Power (FMFP), December 9-11, IIT Guwahati, India.
19. **Prakash, R.**, Majumder, S. K., and Singh, A. (2020). A study of bubble size and its distribution in a flotation column. *RECYCLE*, 3rd international conference on waste management, 13 – 14 February, IIT Guwahati, India.
20. **Prakash, R.**, Majumder, S. K., and Singh, A. (2020). Dispersion characteristics in a counter-current three-phase column. International Conference on *Advances in Chemical Engineering* (AdChE), February 5 – 7, Department of Chemical Engineering, University of Petroleum and Energy Studies (UPES), Dehradun, Uttarakhand, India.
21. **Prakash, R.**, Majumder, S. K., and Singh, A. (2019). Dispersion characteristics in a microstructured slurry bubble column. *First National Student Conference on “Advances in Chemical Engineering”*, August 30, Department of Chemical Engineering, Assam Engineering College, Guwahati, Assam, India.
22. **Prakash, R.**, Majumder, S. K., and Singh, A. (2019). Particle-laden bubble size distribution in a microstructured slurry bubble column. *Research Conclave*, 14 – 17 March, IIT Guwahati, India.
23. **Prakash, R.**, Majumder, S. K., and Singh, A. (2018). Pressure drop characteristics in the presence of solid particles. *Research Conclave*, 8 – 11 March, IIT Guwahati, India.
24. **Prakash, R.**, Majumder, S. K., and Singh, A. (2018). Gas holdup and bubble size distribution in microstructured flotation column. *XVII International Seminar on Mineral Processing Technology*, 10 – 12 October, IIT (ISM) Dhanbad, India.

25. **Prakash, R.**, Majumder, S. K., and Singh, A. (2017). Hydrodynamic characteristics in microstructure flotation column (MFC). *Mineral Processing Technology (MPT)*, February 1 – 3 at Mahabalipuram, Chennai, India.
26. **Prakash, R.**, Majumder, S. K., and Singh, A., (2017). Bubble size & its distribution in the presence of solid particles. *Research Conclave*, 16 -19 Marc, IIT Guwahati, India.
27. **Prakash R.** and Samanta A. N. (2015). Energy integration study in Petlyuk distillation column. *Indian Chemical Engineering Congress (CHEMCON)*, December 27 -30, IIT Guwahati, India.
28. **Prakash R.** and Samanta A. N. (2014). Energy integration study in distillation column. *67th Annual Session of Indian Institute of Chemical Engineers (IChE)*, (CHEMCON), December 27 – 30 at Dr. S. S. Bhatnagar University Institute Chemical Engineering & Technology, Panjab University, Chandigarh.
29. **Prakash R.** & Majumder S. K. (2013). Quality of mixing and its effect on particle separation in a flotation column. *At 26th International Mineral Processing Congress*, 3107-3116.