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RESEARCH INTEREST

Clouds and raindrops, Interfacial fluid dynamics, Viscosity-stratified flows, Hydrodynamic instability

EDUCATION

- PhD in Fluid Mechanics, JNCASR, Bengaluru, India (2003 - 2007)
- MS in Fluid Mechanics, JNCASR, Bengaluru, India (2001 - 2003)
- BE in Mechanical Engineering, UCE Burla, Odisha, India (1997 - 2001)

EMPLOYMENT HISTORY

- Professor (HAG), Chemical Engineering, IIT Hyderabad, India (April 2024-Present)
- Professor, Chemical Engineering, IIT Hyderabad, India (April 2018 - April 2024)
- Associate Professor, Chemical Engineering, IIT Hyderabad (December 2013 - April 2018)
- Assistant Professor, Chemical Engineering, IIT Hyderabad (May 2010 - December 2013)
- Visiting Assistant Professor, IIT Hyderabad, India (October 2009 - May 2010)
- Research Associate, Imperial College London, UK (October 2006 - September 2009)

AWARDS AND RECOGNITIONS

Fellowships

- Fellow, Indian Academy of Sciences (2023)
- Fellow, Institute of Physics, United Kingdom (2021)

Awards

- VASVIK Award (2021)
- Research Excellence Award - IIT Hyderabad (2021)
- Medal for Young Scientists (2013) - Indian National Science Academy (INSA)
- Young Scientist Platinum Jubilee Award (2012) - National Academy of Sciences India (NASI)
- Young Associate Award (2012 - 2015) - Indian Academy of Sciences (IAS)
- Visiting Professor, Ritsumeikan University, Japan (December 2015)
- IUSSTF (Indo-US Science and Technology Forum) Research Fellow (2011)
- NVIDIA Professor Partnership (2011)
- DST Young Scientist Award (2011)

International Recognitions

- Member, External Affairs Committee - American Physical Society, Division of Fluid Dynamics (2023-2026)
- Invited Speaker, 26th International Congress of Theoretical and Applied Mechanics (ICTAM2024), Daegu, South Korea, 2024
- STAIR Outstanding Researcher Award (2021); Amongst Researchers from 24 Countries
- Listed in Stanford University's Ranking of the World's Top 2% of Scientists (Since 2021)

SCIENTIFIC LEADERSHIP

- Associate Editor, Industrial & Engineering Chemistry Research, American Chemical Society (2024-Present)
- Editorial Advisory Board, Langmuir, American Chemical Society (2023 - Present)
- Associate Editor, Journal of Engineering Mathematics, Springer (2018 - 2023)
- Associate Editor, Fluid Dynamics and Materials Processing, Tech Science Press (2020 - 2023)

- Session Moderator - Drops, bubbles and interfaces at 6th International Congress of Theoretical and Applied Mechanics (ICTAM2024), Korea, 2024.
- Editor, IUTAM Procedia, Elsevier, Vol. 15, Pages 1-320 (2015)

PUBLICATIONS

Summary

- Patents: 2 (granted)
- Books Chapters: 3
- Journal Publications: 134 (89 as the corresponding author)
- Refereed Conference Publications: 21
- [Google Scholar](#): Total citations: 4250, h-index: 36, i10-index: 100

Patents (Granted)

1. A system to recreate dynamic weather conditions. Indian Patent No: 484707; Application No: 202341038384; Date of Filing: 05/06/2023; Date of Grant: 18/12/2023.
2. Direct paper-based fuel cells for micro-nano system. Indian Patent No: 504402; Application No: 3515/CHE/2015; Date of Filing: 09/07/2015; Date of Grant: 29/01/2024.

Book Chapters

3. Biswas, G., and Sahu, K. C. (2021). Recent Advances in Free Surface Flows. Mechanical Sciences, 121-144. In: *Dixit U., Dwivedy S. (eds) Mechanical Sciences*, 2021, Publisher: Springer, Singapore. (https://doi.org/10.1007/978-981-15-5712-5_6).
4. Sahu, K. C. (edt.) (2015). Multiphase Flows with Phase Change: Challenges and Opportunities. *IUTAM Procedia*, 15, 1 - 320, Publisher: Elsevier. (<https://www.sciencedirect.com/journal/procedia-iutam/vol/15>).
5. Sahu, K. C., and Govindarajan, R. (2012). Double-diffusive instability at high Schmidt number. *Special issue (Karnataka State Higher Education Council) for Prof. CNR Rao's 78th Birthday*.

Journal Papers (Published/Accepted)

2024

6. Bhadra, S., Sane, A., Ghosh, A., Ghosh, S., and Sahu, K. C.* (2024). Cracking of submerged beds. **Journal of Fluid Mechanics**, (Accepted).
7. Ade, S. S., Gupta, D., Chandrala, L. D. and Sahu, K. C.* (2024). Application of deep learning and inline holography to estimate the droplet size distribution. **International Journal of Multiphase Flow**, 177, 104853.
8. Anirudh, N. V., Behera, S., and Sahu, K. C.* (2024). Coalescence of a nonspherical drop in a liquid surface at moderate Weber numbers. **International Journal of Multiphase Flow**, 175, 104800.
9. Pillai, D. S., and Sahu, K. C.* (2024). Universal scaling law for electrified sessile droplets on a lyophilic surface. **Physical Review E (Letter)**, 109, L013101.
10. Pal, A. K., Sahu, K. C., De., S., and Biswas, B (2024). Collision of two drops moving in the same direction. **Physics of Fluids**, 36, 012122.
11. Pal, A. K., Sahu, K. C., and Biswas, G. (2024). Modeling binary collision of evaporating drops. **International Journal of Heat and Mass Transfer**, 221, 125048.
12. Dake, P. G., Mukherjee, J., Sahu, K. C.*, and Pandit, A. B. (2024). Computational fluid dynamics in cardiovascular engineering: A comprehensive review. **Transactions of the Indian National Academy of Engineering**, 9, 335-362.
13. Rudolph, M. L., Sahu, K. C., Savva, N., et al. (2024). Bubble ascent and rupture in mud volcanoes. **Royal Society Open Science**, (Accepted).

2023

14. Ade, S. S., Chandrala, L. D., and Sahu, K. C.* (2023). Size distribution of a drop undergoing breakup at moderate Weber numbers. **Journal of Fluid Mechanics**, 959, A38.
15. Ade, S. S., Kirar, P. K., Chandrala, L. D., and Sahu, K. C.* (2023). Droplet size distribution in a swirl airstream using in-line holography technique. **Journal of Fluid Mechanics**, 954, A39.

16. Maharana, S. N., Sahu, K. C., and Mishra, M. (2023). Reaction-induced Kelvin-Helmholtz instability in a layered channel flow. **Journal of Fluid Mechanics**, 955, A36.
17. Kavuri, S., Karapetsas, G., Sharma, C. S., and Sahu, K. C.* (2023). Freezing of sessile droplet and frost halo formation. **Physical Review Fluids**, 8, 124003.
18. Paul, A., Ray, B., Sahu, K. C., and Biswas, B (2023). An investigation on the impact of two vertically aligned drops on a liquid surface. **International Journal of Multiphase Flow**, 168, 104588.
19. Maharana, S. N., Sahu, K. C., and Mishra, M. (2023). Stability of a layered reactive channel flow. **Proceedings of the Royal Society A**, 479, 20220689.
20. Ankush, Narayana, P. A. L., and Sahu, K. C.* (2023). Mixed convection instability in a viscosity stratified flow in a vertical channel. **Physics of Fluids**, 35, 064114.
21. Mondal, R., Lama, H., and Sahu, K. C.* (2023). Physics of drying complex fluid drop: flow field, pattern formation, and desiccation cracks. **Physics of Fluids**, 35, 061301.
22. Katre, P., Banerjee, S., Balusamy, S., and Sahu, K. C.* (2023). Stability and retention force factor for binary-nanofluid sessile droplets on an inclined substrate. **Industrial & Engineering Chemistry Research**, 62, 45, 19073-19083.
23. Dubey, A. K., Sahu, K. C., and Biswas, G. (2023). Dynamics of an evaporating drop migrating in a Poiseuille flow. **ASME Journal of Heat and Mass Transfer**, 145, 121602.

2022

24. Kirar, P. K., Soni, S. K., Kolhe, P., and Sahu, K. C.* (2022). An experimental investigation of droplet morphology in swirl flow. **Journal of Fluid Mechanics**, 938, A6.
25. Hari Govindha, A., Katre, P., Balusamy, S., Banerjee, S., and Sahu, K. C.* (2022). Counter-intuitive evaporation in nanofluids droplets due to stick-slip nature. **Langmuir**, 38 (49), 15361-15371.
26. Kirar, P. K., Kolhe, P. S., and Sahu, K. C.* (2022). Coalescence and migration of a droplet on a liquid pool with an inclined bottom wall. **Physical Review Fluids**, 7 (9), 094001.
27. Kirar, P. K., Pokale, S. D., Sahu, K. C.*, Ray, B. and Biswas, G. (2022). Influence of the interaction of capillary waves on the dynamics of two drops falling side-by-side on a liquid pool. **Physics of Fluids**, 34 (11), 112114.
28. Nema, A. K., Tripathi, M. K., and Sahu, K. C. (2022). Migration of a viscoelastic drop in a ratchet microchannel. **Journal of Non-Newtonian Fluid Mechanics**, 307, 104870.
29. Gurrala, P., Balusamy, S., Banerjee, S., and Sahu, K. C.* (2022). Evaporation of pure and binary droplets on curved substrates. **International Journal of Heat and Mass Transfer**, 196, 123212.
30. Katre, P., Balusamy, S., Banerjee, S., and Sahu, K. C.* (2022). An experimental investigation of evaporation of ethanol-water droplets laden with alumina nanoparticles on a critically inclined heated substrate. **Langmuir**, 38 (15), 4722-4735.
31. Sahu, K. C.* (2022). Two-layer channel flow involving a fluid with time-dependent viscosity. **Environmental Fluid Mechanics**, 22, 263-274.
*Invited Paper in the Special Issue "Hydrodynamic and Fluvial Instabilities"
32. Boruah, M. P., Randive, P. R., Pati, S., and Sahu, K. C.* (2022). Charge convection and interfacial deformation of a compound drop in plane Poiseuille flow under electric field. **Physical Review Fluids**, 7(1), 013703.

2021

33. Sahu, K. C.* (2021). A new linearly unstable mode in the core-annular flow of two immiscible fluids. **Journal of Fluid Mechanics**, 866, 918, A11.
34. Xu, Z. L., Chen, J. Y., Liu, H. R., Sahu, K. C.*, and Ding, H. (2021). Motion of self-rewetting drop on a substrate with a constant temperature gradient. **Journal of Fluid Mechanics**, 915, A116.
35. Kainikkara, M. A., Pillai, D. S., and Sahu, K. C.* (2021). Equivalence of sessile droplet dynamics under periodic and steady electric fields. **npj Microgravity - Nature**, 7, 47.
* In the Special Issue "Interfacial Transport Phenomena: in Memory of Prof. Paul Steen (1952-2020)".
36. Boruah, M. P., Sarker, A., Randive, P. R., Pati, S., and Sahu, K. C.* (2021). Tuning of regimes during two-phase flow through a cross-junction. **Physics of Fluids**, 33 (12), 122101.
37. Jain, H., Ghosh, S., and Sahu, K. C.* (2021). Compression controlled dynamic buckling in thin soft sheets. **Physical Review E (Letter)**, 104, L033001.
38. Katre, P., Banerjee, S., Balusamy, S., and Sahu, K. C.* (2021). Fluid dynamics of respiratory droplets in the context of COVID-19: airborne and surfaceborne transmissions. **Physics of Fluids**, 33 (8), 081302.
39. Pillai, D. S., Sahu, K. C., and Narayanan, R. (2021). Electrowetting of a leaky dielectric droplet under a time-periodic electric field. **Physical Review Fluids**, 6 (7), 073701.

40. Katre, P., Balusamy, S., Banerjee, S., Chandrala, L. D., and Sahu, K. C.* (2021). Evaporation dynamics of a sessile droplet of binary mixture laden with nanoparticles. **Langmuir**, 37 (20), 6311–6321.
41. Agrawal, M., Gaurav, A., Karri, B., and Sahu, K. C. (2021). An experimental study of two identical air bubbles rising side-by-side in water. **Physics of Fluids**, 33 (3), 032106.
42. Balusamy, S., Banerjee, S., and Sahu, K. C.* (2021). Lifetime of sessile saliva droplets in the context of SARS-CoV-2. **International Communications in Heat and Mass Transfer**, 123, 105178.
43. Balla, M., Tripathi, M. K., Matar, O. K., and Sahu, K. C.* (2021). Interaction of two non-coalescing bubbles rising in a non-isothermal self-wetting fluid. **European Journal of Mechanics - B/Fluids**, 87, 103-112.
44. Chaitanya, G. S., Sahu, K. C., and Biswas, G. (2021). A study of two unequal-sized droplets undergoing oblique collision. **Physics of Fluids**, 33 (2), 022110.
45. Gurralla, P., Balusamy, S., Banerjee, S., and Sahu, K. C.* (2021). A review on the evaporation dynamics of sessile drops of binary mixtures: challenges and opportunities. **Fluid Dynamics and Materials Processing**, 17 (2), 253-284 (Invited Paper).
46. Gorthi, S. R., Mondal, P. K., Biswas, G., and Sahu, K. C. (2021). Electro-capillary filling in a microchannel under the influence of magnetic and electric fields. **Canadian Journal of Chemical Engineering**, 99 (3), 725-741.
47. Zhang, J., Sahu, K. C., and Ni, M. J. (2021). Transition of bubble motion from spiralling to zigzagging: A wake-controlled mechanism with a transverse magnetic field. **International Journal of Multiphase Flow**, 136, 103551.
48. Liu, H., Lu, Y., Li, S., Yu, Y., and Sahu, K. C. (2021). Deformation and breakup of a compound droplet in three-dimensional oscillatory shear flow. **International Journal of Multiphase Flow**, 134, 103472.

2020

49. Agrawal, M., Katiyar, R. K., Karri, B., and Sahu, K. C. (2020). Experimental investigation of a nonspherical water droplet falling in air. **Physics of Fluids**, 32 (11), 112105.
(This article has been selected as the Editor's Pick, which can be identified with an icon 'EP' next to the article title.)
50. Kumar, G., Narayana, P. A. L., and Sahu, K. C.* (2020). Linear and nonlinear thermosolutal instabilities in an inclined porous layer. **Proceedings of the Royal Society A**, 476, 20190705.
51. Gautam, K., Narayana, P. A. L., and Sahu, K. C.* (2020). Linear instability driven by an electric field in two-layer channel flow of Newtonian and Herschel-Bulkley fluids. **Journal of Non-Newtonian Fluid Mechanics**, 285, 104400.
52. Sahu, K. C.*, Tripathi, M. K., Chaudhari, J., and Chakraborty, S. (2020). Simulations of a weakly conducting droplet under the influence of an alternating electric field. **Electrophoresis**, 41 (23), 1953-1960.
53. Sahu, K. C.* (2020). Linear instability in two-layer channel flow due to double-diffusive phenomenon. **Physics of Fluids**, 32 (2), 024102.
54. Katre, P., Gurralla, P., Balusamy, S., Banerjee, S., and Sahu, K. C.* (2020). Evaporation of sessile ethanol-water droplets on a critically inclined heated surface. **International Journal of Multiphase Flow**, 131, 103368.
55. Kumar, M., Bhardwaj, R., and Sahu, K. C.* (2020). Wetting dynamics of a water droplet on micropillar surfaces with radially varying pitches. **Langmuir**, 36 (19), 5312 - 5323.
56. Kirar, P. K., Alvarenga, K., Kolhe, P., Biswas, G., and Sahu, K. C.* (2020). Coalescence of drops on the free-surface of a liquid pool at elevated temperatures. **Physics of Fluids**, 32 (5), 052103.
57. Balla, M., Tripathi, M. K., and Sahu, K. C.* (2020). A numerical study of a hollow water droplet falling in air. **Theoretical and Computational Fluid Dynamics**, 34, 133-144.
58. Kannan, Y. S., Balusamy, S., Karri, B., and Sahu, K. C. (2020). Effect of viscosity on the volumetric oscillations of a non-equilibrium bubble in free-field and near a free-surface. **Experimental Thermal and Fluid Science**, 116, 110113.
59. Kanungo, D. K., Shrivastava, S. K., Singh, N. K., and Sahu, K. C.* (2020). Heat transfer in supercritical steam flowing through spiral tubes. **ASME Journal of Heat Transfer**, 142 (11), 111901.
60. Kanungo, D. K., and Sahu, K. C.* (2020). Numerical simulation of steam flow inside the superheater section of an industrial boiler using a real gas model. **ASME Journal of Fluids Engineering**, 142 (7), 071201.
61. Murugan, R., Kolhe, P. S., and Sahu, K. C.* (2020). A combined experimental and computational study of flow-blurring atomization in a twin-fluid atomizer. **European Journal of Mechanics - B/Fluids**, 84, 528-541.
62. Kumar, M., Bhardwaj, R., and Sahu, K. C.* (2020). Coalescence dynamics of a droplet on a sessile droplet. **Physics of Fluids**, 32 (1), 012104.
63. Soni, S. K., Kirar, P. K., Kolhe, P., and Sahu, K. C.* (2020). Deformation and breakup of droplets in an oblique continuous air stream. **International Journal of Multiphase Flow**, 122, 103141.

64. Balla, M., Kavuri, S., Tripathi, M. K., Sahu, K. C.*, and Govindarajan, R. (2020). Effect of viscosity and density ratios on two drops rising side by side. **Physical Review Fluids**, 5 (1), 013601.

2019

65. Deka, H., Biswas, G., Sahu, K. C., Kulkarni, Y., and Dalal, A. (2019). Coalescence dynamics of a compound drop on a deep liquid pool. **Journal of Fluid Mechanics**, 866, R2: 1 - 11.
66. Balla, M., Tripathi, M. K., Sahu, K. C.*, Karapetsas, G., and Matar, O. K. (2019). Non-isothermal bubble rise dynamics in a self-rewetting fluid: three-dimensional effects. **Journal of Fluid Mechanics**, 858, 689-713.
67. Sahu, K. C.* (2019). Linear instability in a miscible core-annular flow of a Newtonian and a Bingham fluid. **Journal of Non-Newtonian Fluid Mechanics**, 264, 159-169.
68. Gurralla, P., Katre, P., Balusamy, S., Banerjee, S., and Sahu, K. C.* (2019). Evaporation of ethanol-water sessile droplet of different compositions at an elevated substrate temperature. **International Journal of Heat and Mass Transfer**, 145, 118770.
69. Kumar, M., Bhardwaj, R., and Sahu, K. C. (2019). Motion of a droplet on an anisotropic microgrooved surface. **Langmuir**, 35 (8), 2957-2965.
70. Usha, R., and Sahu, K. C.* (2019). Interfacial instability in pressure-driven core-annular pipe flow of a Newtonian and a Herschel-Bulkley fluid. **Journal of Non-Newtonian Fluid Mechanics**, 271, 104144.
71. Balla, M., Tripathi, M. K., and Sahu, K. C.* (2019). Shape oscillations of a nonspherical water droplet. **Physical Review E**, 99, 023107.
72. Chattopadhyay, G., Sahu, K. C.*, and Usha, R. (2019). Spatio-temporal instability of two superposed fluids in a channel with boundary slip. **International Journal of Multiphase Flow**, 113, 264-278.
73. Borthakur, M. P., Biswas, G., Bandyopadhyay, D., and Sahu, K. C. (2019). Dynamics of an arched liquid jet under the influence of gravity. **European Journal of Mechanics - B/Fluids**, 74, 1-9.
74. Lal, S., Deepa, M., Sahu, K. C.*, and Janardhanan, V. M. (2019). Methanol-based fuel cell on paper support with N-doped graphene oxide/nickel cobaltite composite catalyst. **Journal of Electrochemical Society**, 166, F190-F197.

2018

75. Tripathi, M. K., and Sahu, K. C.* (2018). Motion of an air bubble under the action of thermocapillary and buoyancy forces. **Computers and Fluids**, 177, 58-68.
76. Nath, B., Biswas, G., Dalal, A., and Sahu, K. C. (2018). Cross-stream migration of drops suspended in Poiseuille flow in the presence of an electric field. **Physical Review E**, 97, 063106.
77. Kannan, Y. S., Karri, B., and Sahu, K. C. (2018). Entrapment and interaction of an air bubble with an oscillating cavitation bubble. **Physics of Fluids**, 30 (4), 041701.
78. Wang, S., Zhang, Y., Meredith, J. C., Behrens, S. H., Tripathi, M. K., and Sahu, K. C.* (2018). The dynamics of rising oil-coated bubbles: experiments and simulations. **Soft Matters**, 14, 2724-2734.
79. Chandra, S., Lal, S., Janardhanan, V. M., Sahu, K. C.*, and Deepa, M. (2018). Ethanol based fuel cell on paper support. **Journal of Power Sources**, 396, 725-733.

2017

80. Sharaf, D. M., Premlata, A. R., Tripathi, M. K., Karri, B., and Sahu, K. C.* (2017). Shapes and paths of an air bubble rising in quiescent liquids. **Physics of Fluids**, 29 (12), 122104.
81. Chattopadhyay, G., Usha, R., and Sahu, K. C.* (2017). Core-annular miscible two-fluid flow in a slippery pipe: A stability analysis. **Physics of Fluids**, 29 (9), 097106.
82. Tripathi, M. K., Premlata, A. R., Sahu, K. C.*, and Govindarajan, R. (2017). Two initially spherical bubbles rising in quiescent liquid. **Physical Review Fluids**, 2 (7), 073601.
83. Premlata, A. R., Tripathi, M. K., Karri, B., and Sahu, K. C.* (2017). Numerical and experimental investigations of an air bubble rising in a Carreau-Yasuda shear-thinning liquid. **Physics of Fluids**, 29 (3), 033103.
84. Agrawal, M., Premlata, A. R., Tripathi, M. K., Karri, B., and Sahu, K. C.* (2017). Nonspherical liquid droplet falling in air. **Physical Review E**, 95, 033111.
85. Nath, B., Biswas, G., Dalal, A., and Sahu, K. C. (2017). Migration of a droplet in a cylindrical tube in the creeping flow regime. **Physical Review E**, 95, 033110.
86. Srivastava, H., Dalal, A., Sahu, K. C., and Biswas, G. (2017). Temporal linear stability analysis of an entry flow in a channel with viscous heating. **International Journal of Heat and Mass Transfer**, 109, 922-929.
87. Premlata, A. R., Tripathi, M. K., Karri, B., and Sahu, K. C.* (2017). Dynamics of an air bubble rising in a non-Newtonian liquid in the axisymmetric regime. **Journal of Non-Newtonian Fluid Mechanics**, 239, 53-61.

88. Sahu, K. C.* (2017). A review on rising bubble dynamics in viscosity-stratified fluids. **Sadhana**, 42 (4), 575-583 (Invited Paper).
89. Lal, S., Deepa, M., Janardhanan, V. M., and Sahu, K. C.* (2017). Paper based hydrazine monohydrate fuel cells with Cu and C composite catalysts. **Electrochimica Acta**, 232, 262-270.
90. Verma, R., Lal, S., Deepa, M., Janardhanan, V. M., and Sahu, K. C.* (2017). Sodium percarbonate based, mixed-media fuel cells supported on paper with gold/nickel oxide catalysts. **ChemElectroChem**, 4 (2), 310-319.

2016

91. Sahu, K. C.* (2016). Double-diffusive instability in core-annular pipe flow. **Journal of Fluid Mechanics**, 789, 830-855.
92. Sahu, K. C., and Govindarajan, R. (2016). Linear stability analysis and direct numerical simulation of two-layer channel flow. **Journal of Fluid Mechanics**, 798, 889-909.
93. Karapetsas, G., Sahu, K. C., and Matar, O. K. (2016). Evaporation of sessile droplets laden with particles and insoluble surfactants. **Langmuir**, 32 (27), 6871-6881.
94. Konda, H., Tripathi, M. K., and Sahu, K. C.* (2016). Bubble motion in a converging-diverging channel. **ASME Journal of Fluids Engineering**, 138 (6), 064501.
95. Jotkar, M. R., Swaminathan, G., Sahu, K. C., and Govindarajan, R. (2016). Global linear instability of flow through a converging-diverging channel. **ASME Journal of Fluids Engineering**, 138 (3), 031301.
96. Bhagat, K. D., Tripathi, M. K., and Sahu, K. C.* (2016). Instability due to double-diffusive phenomenon in pressure-driven displacement flow of one fluid by another in an axisymmetric pipe. **European Journal of Mechanics - B/Fluids**, 55, 63-70.

2015

97. Tripathi, M. K., Sahu, K. C.* , and Govindarajan, R. (2015). Dynamics of an initially spherical bubble rising in quiescent liquid. **Nature Communications**, 6, 6268.
98. Tripathi, M. K., Sahu, K. C., Karapetsas, G., Sefiane, K., and Matar, O. K. (2015). Non-isothermal bubble rise: non-monotonic dependence of surface tension on temperature. **Journal of Fluid Mechanics**, 763, 82-108.
99. Premalata, A. R., Tripathi, M. K., and Sahu, K. C.* (2015). Dynamics of rising bubble inside a viscosity-stratified medium. **Physics of Fluids**, 27 (7), 072105.
100. Lal, S., Janardhanan, V. M., Deepa, M., Sagar, A., and Sahu, K. C.* (2015). Low cost environmentally benign porous paper based fuel cells for micro-nano systems. **Journal of Electrochemical Society**, 162 (14), F1402-F1407.
101. Randive, P., Dalal, A., Sahu, K. C., Biswas, G., and Mukherjee, P. P. (2015). Wettability effects on contact line dynamics of droplet motion in an inclined channel. **Physical Review E**, 91, 053006.
102. Ghosh, S., Usha, R., and Sahu, K. C. (2015). Absolute and convective instabilities in double-diffusive two-fluid flow in a slippery channel. **Chemical Engineering Science**, 134, 1-11.
103. Tripathi, M. K., Sahu, K. C., Karapetsas, G., and Matar, O. K. (2015). Bubble rise dynamics in a viscoplastic material. **Journal of Non-Newtonian Fluid Mechanics**, 222, 217-226.
104. Tripathi, M. K., and Sahu, K. C.* (2015). Evaporating falling drop. *Procedia IUTAM*, 15, 201-206.
105. Wakale, A. B., Venkatasubbaiah, K., and Sahu, K. C. (2015). A parametric study of buoyancy-driven flow of two-immiscible fluids in a differentially heated inclined channel. **Computers and Fluids**, 117, 54-61.
106. Swain, P. A., Karapetsas, G., Matar, O. K., and Sahu, K. C.* (2015). Numerical simulation of pressure-driven displacement of a viscoplastic material by a Newtonian fluid using the lattice Boltzmann method. **European Journal of Mechanics - B/Fluids**, 49, 197-207.
107. Nandakumar, N., Sahu, K. C., and Anand, M. (2015). Pulsatile flow of a shear-thinning model for blood through a two-dimensional stenosed channel. **European Journal of Mechanics - B/Fluids**, 49, 29-35.

2014

108. Govindarajan, R., and Sahu, K. C. (2014). Instabilities in viscosity-stratified flow. **Annual Review of Fluid Mechanics**, 46, 331-353.
109. Sahu, K. C.* , and Govindarajan, R. (2014). Instability of a free-shear layer in the vicinity of a viscosity-stratified layer. **Journal of Fluid Mechanics**, 752, 626-648.
110. Tripathi, M. K., Sahu, K. C., and Govindarajan, R. (2014). Why a falling drop does not in general behave like a rising bubble. **Scientific Reports (Nature Publishing Group)**, 4, 4771.
111. Ghosh, S., Usha, R., and Sahu, K. C. (2014). Linear stability analysis of miscible two-fluid flow in a channel with velocity slip at the walls. **Physics of Fluids**, 26 (1), 014107.

112. Ghosh, S., Usha, R., and Sahu, K. C. (2014). Double-diffusive two-fluid flow in a slippery channel: A linear stability analysis. **Physics of Fluids**, 26 (12), 127101.
113. Sahu, K. C.* (2014). A review on double-diffusive instability in viscosity stratified flows. **Proceedings of the National Academy of Sciences, India**, 80 (3), 513-524 (Invited Paper).
114. Kusuma, J. N., Matar, O. K., and Sahu, K. C.* (2014). Numerical simulations of miscible channel flow with chemical reactions. **Current Science**, 106 (6), 841-852.
115. Karapetsas, G., Sahu, K. C., Sefiane, K., and Matar, O. K. (2014). Thermocapillary-driven motion of a sessile drop: effect of non-monotonic dependence of surface tension on temperature. **Langmuir**, 30 (15), 4310-4321.

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116. Karapetsas, G., Sahu, K. C., and Matar, O. K. (2013). Effect of contact line dynamics on the thermocapillary motion of a droplet on an inclined plate. **Langmuir**, 29 (28), 8892-8906.
117. Redapangu, P. R., Sahu, K. C.*, and Vanka, S. P. (2013). A lattice Boltzmann simulation of three-dimensional displacement flow of two immiscible liquids in a square duct. **ASME Journal of Fluids Engineering**, 135 (12), 121202.
118. Sahu, K. C.* (2013). Double diffusive effects on pressure-driven miscible channel flow: Influence of variable diffusivity. **International Journal of Multiphase Flow**, 55, 24-31.

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119. Mishra, M., De Wit, A., and Sahu, K. C.* (2012). Double diffusive effects on pressure-driven miscible displacement flows in a channel. **Journal of Fluid Mechanics**, 712, 579-597.
120. Redapangu, P. R., Sahu, K. C.*, and Vanka, S. P. (2012). A study of pressure-driven displacement flow of two immiscible liquids using a multiphase lattice Boltzmann approach. **Physics of Fluids**, 24 (10), 102110.
121. Sahu, K. C.*, and Govindarajan, R. (2012). Spatio-temporal linear stability of double-diffusive two-fluid channel flow. **Physics of Fluids**, 24 (5), 054103.
122. Redapangu, P. R., Vanka, S. P., and Sahu, K. C.* (2012). Multiphase lattice Boltzmann simulations of buoyancy-induced flow of two immiscible fluids with different viscosities. **European Journal of Mechanics - B/Fluids**, 34, 105-115.

2011

123. Sahu, K. C.*, and Govindarajan, R. (2011). Linear stability of double-diffusive two-fluid channel flow. **Journal of Fluid Mechanics**, 687, 529-539.
124. Kumar Reddy, V. T. S. R., Janardhanan, V. M., and Sahu, K. C.* (2011). Effects of wall-heating on the linear instability characteristics of pressure-driven two-layer channel flow. **Chemical Engineering Science**, 66 (23), 6272-6279.
125. Redapangu, P. R., Vanka, S. P., and Sahu, K. C.* (2012). Multiphase lattice Boltzmann simulations of buoyancy-induced flow of two immiscible fluids with different viscosities. **Computers and Fluids**, 50 (1), 199-215.
126. Sahu, K. C.*, and Matar, O. K. (2011). Three-dimensional convective and absolute instabilities in pressure-driven two-layer channel flow. **International Journal of Multiphase Flow**, 37 (8), 987-993.
127. Sileri, D., Sahu, K. C., and Matar, O. K. (2011). Two-fluid pressure-driven channel flow with wall deposition and ageing effects. **Journal Engineering Mathematics**, 71, 109-130.
128. Sahu, K. C.* (2011). The instability of flow through a slowly diverging pipe with viscous heating. **ASME Journal of Fluids Engineering**, 133 (7), 071201.
129. Swaminathan, G., Sahu, K. C., Sameen, A., and Govindarajan, R. (2011). Global instabilities in diverging channel flows. **Theoretical and Computational Fluid Dynamics**, 25, 53-64. (Special Issue).

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130. Sahu, K. C.*, and Matar, O. K. (2010). Three-dimensional linear instability in pressure-driven two-layer channel flow of a Newtonian and a Herschel-Bulkley fluid. **Physics of Fluids**, 22 (11), 112103.
131. Sahu, K. C.*, Ding, H., and Matar, O. K. (2010). Numerical simulation of non-isothermal pressure-driven miscible channel flow with viscous heating. **Chemical Engineering Science**, 65 (10), 3260-3267.
132. Sahu, K. C.*, and Matar, O. K. (2010). Stability of plane channel flow with viscous heating. **ASME Journal of Fluids Engineering**, 132 (1), 011202.

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133. Sahu, K. C., Ding, H., Valluri, P., and Matar, O. K. (2009). Pressure-driven miscible two-fluid channel flow with density gradients. **Physics of Fluids**, 21 (4), 043603.

134. Sahu, K. C., Ding, H., Valluri, P., and Matar, O. K. (2009). Linear stability analysis and numerical simulation of miscible two-layer channel flow. **Physics of Fluids**, 21 (4), 042104.
135. Sahu, K. C., Sameen, A., and Govindarajan, R. (2008). The relative roles of divergence and velocity slip in the stability of plane channel flow. **European Physical Journal - Applied Physics**, 44 (1), 101-107.
136. Sahu, K. C., Valluri, P., Spelt, P. D. M., and Matar, O. K. (2007). Linear instability of pressure-driven channel flow of a Newtonian and a Herschel-Bulkley fluid. **Physics of Fluids**, 19 (12), 122101. (Erratum: Physics of Fluids, 2008, 20 (10), 109902).
137. Sahu, K. C., and Govindarajan, R. (2007). Linear instability of entry flow in a pipe. **ASME Journal of Fluids Engineering**, 129 (10), 1277-1280.
138. Venkatesh, T. N., Sarasamma, V. R., Rajalakshmy, S., Sahu, K. C., and Govindarajan, R. (2005). Super-linear speed-up of a parallel multigrid Navier–Stokes solver on Flosolver. **Current Science**, 88 (4), 589 - 593.
139. Sahu, K. C., and Govindarajan, R. (2005). Stability of flow through a slowly diverging pipe. **Journal of Fluid Mechanics**, 531, 325 - 334.

Refereed Conference Papers

140. Sahu, K. C., Ade, S. S., Kirar, P. K. and Chandrala, L. D., Fragmentation and size distribution of droplets descending from various heights in a horizontal airstream. 26th International Congress of Theoretical and Applied Mechanics (ICTAM2024), Daegu, Korea (August 25-30, 2024).
141. Kirar, P. K., Soni, S. K., Kolhe, P. and Sahu, K. C., An experimental investigation of an effect of swirl flow field and the aerodynamic force on the droplet breakup morphology. 9th International and 49th National Conference of Fluid Mechanics and Fluid Power (FMFP-2022), IIT Roorkee, India (December 14-16, 2022).
142. Ray, B., Pokale, S. D., Kirar, P. K., Sahu, K. C. and Biswas, G., Large bubble entrapment during drop impact on liquid pool. 13th Asian Computational Fluid Dynamics Conference, Jeju Island, Republic of Korea (October 16-19, 2022).
143. Katre, P., Balusamy, S., Banerjee, S., and Sahu, K. C., Effect of Inclination on the Evaporation Dynamics of Binary Droplets Laden with Nanoparticles. International Conference on Computational Heat Transfer and Fluid Mechanics, Malaysia (July 30-31, 2022).
144. Gurralla, P., Katre, P., Balusamy, S., Banerjee, S., and Sahu, K. C., Effect of substrate temperature on evaporation of ethanol-water sessile droplet. Proceedings of the 16th Asian Congress of Fluid Mechanics, Bengaluru, India (December 13-17, 2019).
145. Balla, M., Tripathi, M. K., and Sahu, K. C., Non-isothermal bubble rise dynamics in a self-wetting fluid at high Marangoni numbers. 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC-2019), IIT Roorkee, India (December 28-31, 2019).
146. Kanungo, D. K., Hensa, P. K. and Sahu, K. C., Dynamics of an air bubble rising in a shear-thinning fluid. Proceedings of the 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP), IIT Bombay, India (December 10 - 12, 2018).
147. Reddy, D. V., Kannan, Y. S., Karri, B., and Sahu K. C., Dynamics of water and glycerol drops sliding down an inclined plane. Proceedings of the 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP), IIT Bombay, India (December 10 - 12, 2018).
148. Gaurav, A., Agrawal, M., Karri B., and Sahu, K. C., Experimental study of two identical air bubbles rising side-by-side in water in 3D view. Proceedings of the 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP), IIT Bombay, India (December 10 - 12, 2018).
149. Lal, S., Janardhanan, V. M., Deepa, M., and Sahu, K. C., Experimental and modeling studies of paper based methanol fuel cell. ECS Transactions, 80(10), 843 (2017).
150. Premlata, A. R., Tripathi, M. K., Karri, B. and Sahu, K. C., Dynamics of an air bubble rising in a shear-thinning fluid. Proceedings of the 24th National and 2nd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC–2017), Hyderabad, India (December 27 - 30, 2017).
151. Govindarajan, R., Jose, S., and Sahu, K. C., Instabilities in viscosity and density stratified flow. IUTAM Symposium on Helicity, structures and singularity in fluid and plasma dynamics, Venice, Italy (April 11 - 15, 2016).
152. Redapangu, P. R., and Sahu, K. C., Three-dimensional LBM simulations of buoyancy-driven flow using Graphics processing units. 4th National Conference on Parallel Computing Technologies (Parcomptech-2013), Bangalore, India (February 22 - 23, 2013).
153. Redapangu, P. R., Vanka, S. P., and Sahu, K. C., Interpenetration of two immiscible fluids in an oscillating channel using lattice Boltzmann method. 4th International Congress on Computational Mechanics and Simulation, Hyderabad, India (December 9 - 12, 2012).
154. Mishra, M., De Wit, A., and Sahu, K. C., Double diffusivity on miscible fluid flow in a channel. 23rd International Congress of Theoretical and Applied Mechanics, Beijing, China (August 19 - 24, 2012).

155. Redapangu, P. R., and Sahu, K. C., Three-dimensional lattice Boltzmann simulation of pressure-driven displacement flow of two immiscible liquids. 21st International Conference on Discrete Simulation of Fluid Dynamics, Bangalore, India (July 23 - 27, 2012).
156. Vanka, S. P., Shinn, A. F., and Sahu, K. C., Computational fluid dynamics using graphics processing units: challenges and opportunities. ASME 2011 International Mechanical Engineering Congress and Exposition, Denver, Colorado, USA (November 11 - 17, 2011).
157. Sileri, D., Sahu, K., Ding, H., and Matar, O. K., Mathematical modelling of asphaltene deposition and removal in crude distillation units. International Conference on Heat Exchanger Fouling and Cleaning, Schlading, Austria (June 14 - 19, 2009).
158. Sahu, K. C., and Govindarajan, R., Instability of entry flow in a pipe. Eleventh Asian Congress of Fluid Mechanics, Kuala Lumpur, Malaysia (May 22 - 25, 2006).
159. Sahu, K. C., A possible linear instability mechanism in small-scale pipe flows. Sixth IUTAM Symposium on Laminar-Turbulent Transition, Springer Netherlands, 78, 127-132, ISSN: 0926-5112 (2006).

SELECTED INVITED TALKS IN SYMPOSIUMS/CONFERENCES

International

1. Invited Speaker, "Fragmentation and size distribution of droplets descending from various heights in a horizontal airstream," 26th International Congress of Theoretical and Applied Mechanics (ICTAM2024), Daegu, Korea (August 25-30, 2024).
2. Invited Speaker, "Droplet size distribution using in-line holography and machine learning", 2nd Workshop of the IRN-CNRS, Université de Bordeaux, France (June 13- 17, 2023).
3. Invited Speaker, "Fragmentation and size distribution of raindrops in airstreams", 22nd Annual Conference on Liquid Atomization and Spray Systems Asia (ILASS ASIA 2022), Indore, India (October 28 - 30, 2022).
4. Invited Speaker, "Droplet breakup and size distribution of satellite fragments under a swirl airstream", Indo-French Workshop, Bengaluru, India (October 17 - 19, 2022).
5. Invited Speaker, "Novel hydrodynamic instabilities in viscosity-stratified flows", International Workshop on Numerical and Analytical Techniques in Engineering Problems (IWNATEP - 2022), Tamil Nadu, India (January 19 - 21, 2022).
6. Invited Speaker, "Hydrodynamic instability in two-layer channel flow involving non-Newtonian fluids", 20th International Workshop on Numerical Methods in Non-Newtonian Flows, Canada (June 6-9, 2021).
7. Keynote Speaker, "Behaviour of bubble/drop in non-isothermal system: normal fluid versus self-rewetting fluid", 65th Congress of the Indian Society of Theoretical and Applied Mechanics (ISTAM) as per the recognition by International Union of Theoretical and Applied Mechanics (IUTAM), Hyderabad, India (9 - 11 December 2020).
8. Invited Speaker, "Strange bubble rise dynamics in self-rewetting fluids", International Workshop on Numerical and Analytical Techniques in Engineering Problems, SRM Institute of Science and Technology, Tamil Nadu, India (12 - 13 November 2020).
9. Invited Speaker, "Wetting and spreading of a sessile droplet on complex microtextured surfaces", American Chemical Society, ACS Science Connect: Langmuir (10 - 12 October 2020).
10. Keynote talk: "Some peculiar behaviors observed in bubbles and droplets", International Conference on Recent Advances in Computational and Experimental Mechanics (ICRACEM), IIT Kharagpur (4 - 6 September 2020).
11. Invited Speaker, "Dynamics of drops with and without electric field", Indo-French Workshop on Electro-Hydro-Dynamics, IIT Kharagpur, 27 - 29 November 2019.
12. Invited Speaker, "Fluid dynamics of a bubble/droplet", Indo-German Symposium on Advanced Measurements and Multi-Scale CFD Simulations for Intensification of Multiphase Flow Processes, IIT Delhi, India (3 - 5 October 2018).
13. Invited Speaker, "Dynamics of bubble in isothermal and non-isothermal systems", Xi'an Jiaotong University, China (11 December 2018).
14. Invited Speaker, "Instabilities in viscosity-stratified flows", University of Chinese Academy of Sciences, Beijing, China (14 December 2018).
15. Invited Speaker, "Instabilities in Multiphase flow", International Conference on Numerical Heat Transfer and Fluid Flow (NHTFF 2018), NIT Warangal, Telangana, India (19 - 21 January 2018).
16. Invited Speaker, "Non-Isothermal Bubble Rise Dynamics in a Self-Rewetting Fluid", Symposium on Patterns and Dynamics in Multiphase and Interface Flows, University of Florida, Gainesville, Florida (15 - 16 November 2018).

17. Invited Speaker, "Some interesting phenomena in bubbles and drops", International Symposium on Computational Multiphase Flow, Ritsumeikan University, Japan (14 January 2015).
18. "Linear stability of pressure-driven two-fluid channel flow", Indo-European Network on Advanced Instability Methods, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India (2010).
19. "Numerical simulations of two-fluid channel flows", Department of Mechanical Engineering, University of Illinois at Urbana-Champaign, USA (2010).

National

20. Invited Speaker, "Incredible behaviours of bubbles and drops", Workshop on Current Advancements in Computational Solid and Fluid Mechanics, IIT Jodhpur, India (23 February 2024).
21. Invited Speaker, "Rainfall Predictions using Machine Learning", UGC-Webinar (Online) on NEP 2020: AI & Machine Learning, India (12 October 2023).
22. Keynote Speaker, "Dynamics of raindrops in an airstream", Symposium on Advanced Mathematical Modelling and Computing, IIT Jodhpur, Rajasthan, India (4 - 5 March 2023).
23. Keynote Speaker, "Microphysics of rain droplets in an airstream, Lecture Series - Cloud and Precipitation Physics and Dynamics, IITM Pune, India (23 June 2022).
24. Keynote Speaker, "Bubbles and droplets", AICTE Training and Learning Academy, NIT Rourkela, India (11 - 15 October 2021).
25. Keynote Speaker, "Behaviour of bubbles/droplets in non-isothermal systems", Faculty Development Program on Microfluidics, Soft Matter and their Applications, NIT Calicut, India (6-10 September 2021).
26. Keynote Speaker, "Thermocapillarity driven bubbles and droplets", Faculty Development Program on Advanced Engineered Surfaces for Phase Change Heat Transfer Application (AESPHTA21), NIT Calicut, India (12 - 16 July 2021).
27. Keynote Speaker, "Hydrodynamic instability in Multiphase flow", A National Five Day Webinar Program on Fluid Dynamics from Mathematicians Viewpoint, Hyderabad, India (9-13 August 2020).
28. "Instability in viscosity-stratified flow", Workshop on Large Scale CFD Modelling of the Hydrodynamics and Scour around Offshore Wind Farms sponsored by Science and Engineering Research Board (SERB), IIT Kharagpur, India (27 January 2020).
29. "Evaporation of an ethanol-water sessile droplet", Sadhana: Discussion Meeting on Droplet Evaporation and Condensation, Indian Institute of Science, Bangalore, India (24 January 2020).
30. "Dynamics of bubble in isothermal and non-isothermal systems", National Conference on Computational Modelling of Fluid Dynamics Problems (CMFDP-2019), NIT Warangal, Telangana, India (18 - 20 January 2019).
31. "Pipe flow instabilities", AICTE Sponsored Workshop, IIT Madras, India (26 - 31 March 2018).
32. "Bubbles and drops: natural phenomena to industrial applications", Fluid Mechanics and Fluid Power, Kerala, India (14 - 16 December 2017).
33. "Topological change and path instability in rising air bubble", Advances in Theoretical Fluid Mechanics (Indian Mathematical Society), Kolkata, India (27 - 30 December 2016).
34. "Shapes and paths of an air bubble rising in quiescent liquids", Complex Fluids- CompFlu-2016, Hyderabad, India (12 - 14 December 2016).
35. "Dynamics of a rising bubble in a self-rewetting fluid: three-dimensional effects", National Symposium on Multiphase Flow, Durgapur, India (22 - 25 February 2016).
36. "Double-diffusive instability in viscosity-stratified flows", 79th Annual Meeting of Indian Academy of Sciences, Chandigarh, India (8-10 November 2013).
37. "Double-diffusive instabilities", Fluid Days 2013 (for 80th Birthday of Prof. Roddam Narasimha), Centre for Atmospheric and Oceanic Sciences (CAOS), Indian Institute of Science, India (18 - 20 July 2013).
38. Pedagogical talk: "Double-diffusive instabilities in viscosity-stratified flow", TCIS Symposium, TIFR Centre for Interdisciplinary Sciences, TIFR Hyderabad, India (2012).
39. "Convective and absolute instabilities in pressure-driven two-layer channel flow", Advanced Instability Methods (AIM) for Fluid Mechanics and Combustion, Indian Institute of Technology Bombay, India (2012).

* In addition, delivered over 100 contributed talks at various institutes in India and abroad.

MAJOR INTERNATIONAL RESEARCH VISITS (AS A FACULTY)

- University of Chinese Academy of Sciences, Beijing (December 2018)

- Ritsumeikan University, Japan (November-December, 2014 and 2015)
- University of Illinois Urbana-Champaign, USA (December 2010)

RESEARCH STUDENTS SUPERVISED

- PhD: Four (Ongoing) + Ten (Graduated)
- M.Tech: One (Ongoing) + Eleven (Graduated)
- Post-Doctoral Fellow: Four (Ongoing) + Two (Completed)
- Supervising one post-PhD faculty under SERB - Teachers Associateship for Research Excellence (TARE) Scheme (TAR/2021/000268)

Details of PhD students (graduated)

Name	Graduation Year	Current position
Pavan Kumar Kirar	2024	Research Associate, Sorbonne University, France
Pallavi Katre	2022	Research Associate, IISc Bangalore
Pradeep Gurralla	2022	Co-Founder, Revelec AutomotiEV Pvt Ltd (Start-up)
Meenu Agrawal	2021	Research Associate, Pukyong National University, South Korea
Mounika Balla	2021	Assistant Professor, Indian Institute of Petroleum and Energy (IPE), Visakhapatnam
Deepak Kumar Kanungo	2020	Deputy Manager, BHEL R&D, Hyderabad
Sweta Lal	2019	Assistant Professor, IISER Bhopal
Premlata Amarnath Ram	2018	Research Associate, NCKU Taiwan
Manoj Kumar Tripathi	2015	Assistant Professor, IISER Bhopal
Prasanna Rani Redapangu	2014	Assistant Professor, Chaitanya Bharathi Institute of Technology, Hyderabad

*Co-supervised ten other PhD students (graduated), although I did not serve as their official supervisor.

RESEARCH GRANTS

Title	Agency	Amount	Status
Development of accurate rainfall models by studying the influence of meteorological parameters on raindrop dynamics	SOCH (IIT Hyderabad) (as PI)	97,50,000 (INR)	Ongoing (2022-2024)
Modeling of active membrane micro pumps	SERB (TARE) (as mentor)	18,30,000 (INR)	Ongoing (2022-2025)
Effects of phase change, coalescence and breakup on raindrop dynamics	SERB (CRG) (as PI)	56,07,859 (INR)	Ongoing (2021-2024)
Linear stability of interfacial flows of fluids with complex rheology	SERB (MATRICS) (as PI)	6,60,000 (INR)	Completed (2018-2021)
Fluid dynamics of bubbles and drops	INSA (as PI) (Young Scientist Award)	15,00,000 (INR)	Completed (2015-2018)
Development and applications of high performance LBM for multiphase flows	DST (as PI) (Young Scientist Award)	14,92,000 (INR)	Completed (2012-2015)
Prediction of metal temperature of RH tubes in BHEL boilers	BHEL Hyderabad (as PI)	7,50,000 (INR)	Completed (2015)
Instabilities in multiphase flows	IIT Hyderabad (as PI)	15,00,000 (INR)	Completed (2010-2012)
Modeling of contour-current flow in structured packings (with Prof. O. K. Matar and Prof. G. Hewitt)	Air Liquide, France (as Co-PI)	~£10,000	Completed (2008)

* Funding of ~ 36 Million (INR) from JICA Japan-IIT Hyderabad Partnership Program

* **Total Funding Received in INR: ~ 57.6 Million (5.76 Cr)**

Other travel grants

- Science and Engineering Research Board (SERB), India to attend 72nd Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Seattle, USA (23-26 November 2019).
- Department of Science and Technology (DST), India to attend 64th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Baltimore, USA (20-22 November 2011).
- Council of Scientific and Industrial Research (CSIR), India to attend Eleventh Asian Congress of Fluid Mechanics, Kuala Lumpur, Malaysia (22-25 May 2006).
- International Centre for Theoretical Physics, Italy to attend the workshop on Introduction to Microfluidics, Trieste, Italy (8-26 August 2005).

ACADEMIC AND ADMINISTRATIVE LEADERSHIP

At IIT Hyderabad

- Member of the Research Advisory Committee, IIT Hyderabad (2020 - 2022)
- **Head of the Department, Chemical Engineering**, IIT Hyderabad (October 2014 - October 2017)
- Faculty Search Committee, Department of Chemical Engineering, IIT Hyderabad (2014-2017; 2020-2023)
- Warden, PG hostels, IIT Hyderabad (2011-2015)

Other National and International Services

- Member, Project Review Committee for TePP Outreach cum Cluster Innovation Centre (TOCIC) to promote innovation in North Eastern Region established by IIT Guwahati-Department of Scientific and Industrial Research (DSIR).
- Member and Co-investigator: Cefipra Project - Indo-French International Research Network (2022 -)
- Member, Advisory Committee - Recruitment Panel, CBIT Hyderabad (several times)
- Member, Board of Studies, JNTU Kakinada (2016), GMR Institute of Technology Srikakulam (2018)
- Member of National Board of Accreditation (National responsibility) (2018 - Present)

Conference Organised

- Indo-French Workshop on Hydrodynamics at Small Scales: From Soft Matter to Bioengineering, IISc Bangalore, October 2022 (Co-organiser).
- International Conference on Recent Advances in Computational and Experimental Mechanics, IIT Kharagpur, September 2020 (Advisory Board).
- International Union of Theoretical and Applied Mechanics (IUTAM) Symposium on "Multiphase Flows with Phase Change" at IIT Hyderabad (2015) (Chairman)
- 21st International Conference on Discrete Simulation of Fluid Dynamics, JNCASR Bangalore, July 2012 (Co-organiser).
- Computational Fluid Dynamics on GPUs, 2010 (Chairman).