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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

- Professor (Higher Administrative Grade, HAG), Chemical Engineering, IIT Hyderabad (April 2024 - Present)
- Professor, Chemical Engineering, IIT Hyderabad (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 (October 2009 - May 2010)
- Research Associate, Imperial College London, UK (October 2006 - September 2009)

FELLOWSHIPS, AWARDS AND RECOGNITIONS

Fellowships

- Fellow, Indian National Academy of Engineering (2025)
- Fellow, Indian Academy of Sciences (2023)
- Fellow, Institute of Physics, United Kingdom (2021)

Awards and Recognitions

- Suzuki Next Bharat Fellowship (2025)
- VASVIK Award (2021)
- Research Excellence Award - IIT Hyderabad (2021)
- INSA (Indian National Science Academy) Medal for Young Scientists (2013)
- NASI (National Academy of Sciences India) Young Scientist Platinum Jubilee Award (2012)
- IAS (Indian Academy of Sciences) Young Associate Award (2012 - 2015)
- 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

- 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
- Outstanding Reviewer Prize (top 1%) for the Journal of Fluid Mechanics (2023)
- I&EC Research Excellence in Review Awards (2022)
- 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)
- Member, External Affairs Committee - American Physical Society, Division of Fluid Dynamics (2019-2021; 2023-2026)
- Member of the Technical Program Committee, Chemical and Environmental Engineering, Advanced Research Grant (ARG) program, Anusandhan National Research Foundation (ANRF), Government of India (2025-2028)
- Guest Editor, New Frontiers in Chemical Engineering - Celebrating the Legacy of Prof. Devang V. Khakhar (I&ECR, American Chemical Society)
- Guest Editor, Advances in Nano, Materials, and Interfacial Science: A Tribute to Prof. Ashutosh Sharma (American Chemical Society)
- Associate Editor, Journal of Engineering Mathematics, Springer (2018 - 2023)
- Associate Editor, Fluid Dynamics and Materials Processing, Tech Science Press (2020 - 2023)
- Invited to contribute an expert opinion for Nature Chemical Engineering (2025) on the Future Developments and Emerging Trends in Chemical Engineering
- Session Moderator - "Drops, Bubbles and Interfaces" at 26th International Congress of Theoretical and Applied Mechanics (ICTAM2024), Daegu, South Korea, 2024.
- Chairman, IUTAM Symposium on "Multiphase Flows with Phase Change", Hyderabad, India (2015)
- Editor, IUTAM Procedia, Elsevier, Vol. 15, Pages 1-320 (2015)

ACADEMIC AND ADMINISTRATIVE LEADERSHIP

At IIT Hyderabad

- Internal Faculty Assessment Committee, IFAC (Institute level), IIT Hyderabad (November 2025 - Present)
- **Head of the Department, Chemical Engineering**, IIT Hyderabad (October 2014 - October 2017)
- Member of the Research Advisory Committee, IIT Hyderabad (2020 - 2022)
- Faculty Search Committee, Department of Chemical Engineering, IIT Hyderabad (2014-2017; 2020-2023; 2025-Present)
- Warden, PG hostels, IIT Hyderabad (2011-2015)

Other National and International Services

- Faculty Selection Committee, IIT Delhi (2025)
- Advisory Committee Member, International Conference on Fluid Mechanics and Fluid Power (FMFP 2025)
- Member, Project Review Committee, TePP Outreach cum Cluster Innovation Centre (TOCIC) to promote innovation in the North Eastern Region established by IIT Guwahati-Department of Scientific and Industrial Research (2023-2024)
- Member of National Board of Accreditation, NBA (several times, national responsibility) (2018 - Present)
- Core-member: CEFIPRA Indo-French International Research Network (2022 - Present)
- Member, Advisory Committee - Recruitment Panel, CBIT Hyderabad (several times)
- Member, Board of Studies, JNTU Kakinada (2016), GMR Institute of Technology Srikakulam (2018)

PUBLICATIONS

Summary

- Patents: 2 (granted) + 1 (filed)
- Journal Publications: 152 (102 as the corresponding author)
- Books Chapters: 3
- Journal Editorials/Features/Comments: 2
- Refereed Conference Publications: 19
- Google Scholar: Total citations: 5400, h-index: 39, i10-index: 118

Patents (Granted/filed)

1. An apparatus and a method to measure real-time rainfall rate based on digital holography. Indian Patent Application No: 202541076970; Filing Date: 13.08.2025 (filed).

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

Journal Papers (Published/Accepted)

2026

4. Chakraborty, S., Ade, S. S., Tudu, A. J., Chandrala, L. D., and Sahu, K. C.* (2026). Evaporation of a freely floating droplet in an airstream: effects of temperature, humidity, and shape oscillations. **Journal of Fluid Mechanics** (Accepted).
5. Behera, M. R., Deka, H., Sahu, K. C., and Biswas, G. (2026). Effect of velocity, fluid properties and drop shape on coalescence and neck oscillation. **Journal of Fluid Mechanics**, (Accepted).
6. Anirudh, N. V., Behera, S., and Sahu, K. C.* (2026). Unveiling crown-finger instability of a non-spherical drop impacting a liquid surface. **Journal of Fluid Mechanics**, 1030, A9.
7. Madhav Sai Kumar, A., Hari Govindha, A., Mondal, R., and Sahu, K. C.* (2026). Instabilities in drying colloidal films: role of surface charge and substrate wettability. **International Journal of Multiphase Flow**, 197, 105631.

2025

8. Preethi, S., Kamboj, A., Patne, R., Narayana, P. A. L., and Sahu, K. C.* (2025). A new instability driven by the combined effect of wind stress and rotation in a sheared liquid layer. **Journal of Fluid Mechanics**, 1025, A28.
9. Kavuri, S., Karapetsas, G., Sharma, C. S., and Sahu, K. C.* (2025). Evaporation-driven coalescence of two droplets undergoing freezing. **Journal of Fluid Mechanics**, 1006, A21.
10. Chakraborty, S., Ade, S. S., Devsoth, L., Chandrala, L. D., Prabhakaran, T., Matar, O. K. and Sahu, K. C.* (2025). Drop size distribution from laboratory experiments based on single-drop fragmentation and comparison with aerial in-situ measurements. **Journal of the Atmospheric Sciences**, 82 (7), 1441–1450.
11. Kavuri, S., Sharma, C. S., Karapetsas, G., and Sahu, K. C.* (2025). Evaporation of sessile drops on a heated superhydrophobic substrate. **Langmuir**, 41 (34), 23003-23014. *(Invited Article; Selected for Journal Cover Page).*
12. Hari Govindha, A., Banerjee, S., Balusamy, S., and Sahu, K. C.* (2025). Evaporation dynamics of completely pinned and partially pinned sessile droplets in multi-droplet configurations. **Langmuir**, 41 (45), 30562–30572. *(Invited Article).*
13. Chakraborty, S.; Ade, S. S., Chandrala, L. D., and Sahu, K. C.* (2025). Droplet breakup morphologies and the resultant size distribution in an opposed-flow airstream for different Weber numbers. **International Journal of Multiphase Flow**, 191, 105310.
14. Kamboj, A., Patne, R., Narayana, P. A. L. and Sahu, K. C.* (2025). Exacerbation of viscoelastic instability due to viscous heating. **Chemical Engineering Science**, 316, 121989.
15. Warghat, K. V., Biswal, Y., Sharma, S., Kolhe, P. S., Chandrala, L. D., and Sahu, K. C.* (2025). Jet breakup dynamics of viscoelastic carboxymethyl cellulose solutions. **International Journal of Multiphase Flow**, 192, 105349. *(Invited Article).*
16. Sahu, K. C.* (2025). Exploring the potential landscape of chemical engineering science. **Nature Chemical Engineering**, 2, 19-25.
(Invited article featuring a collection of opinions from 40 researchers worldwide, highlighting exciting future opportunities as part of the first-anniversary issue of Nature Chemical Engineering)

2024

17. Gu, H., Sahu, K. C., Zhang, J., and Ni, M. (2024). Three-dimensional simulation of film boiling on a horizontal surface with magnetic field. **Journal of Fluid Mechanics**, 999, A74.
18. Bhadra, S., Sane, A., Ghosh, A., Ghosh, S., and Sahu, K. C.* (2024). Cracking of submerged beds. **Journal of Fluid Mechanics**, 990, A16.
19. Ade, S. S., Kirar, P. K., Chandrala, L. D., and Sahu, K. C.* (2024). Droplet breakup and size distribution in an airstream - effect of inertia. **Physical Review Fluids**, 9, 084004.
20. 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. *(Invited Article).*

21. Hari Govindha, A., Balusamy, S., Banerjee, S., and Sahu, K. C.* (2024). Intricate evaporation dynamics in different multi-droplet configurations. **Langmuir**, 40, 18555-18567. *(Invited Article).*
22. Kirar, P. K., Kumar, N., and Sahu, K. C.* (2024). Dynamics of jet breakup and the resultant drop size distribution-effect of nozzle size and impingement velocity. **Physics of Fluids**, 36, 102108.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. Rudolph, M. L., Sahu, K. C., Savva, N., et al. (2024). Bubble ascent and rupture in mud volcanoes. **Royal Society Open Science**, 11, 231555.

2023

29. 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.
30. 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.
31. 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.
32. 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.
33. 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.
34. 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.
35. 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.
36. 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.
37. 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. *(Invited Article).*
38. 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

39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.

46. Sahu, K. C.* (2022). Two-layer channel flow involving a fluid with time-dependent viscosity. **Environmental Fluid Mechanics**, 22, 263-274. *(Invited Article).*
47. 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

48. 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.
49. 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.
50. 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)".
51. 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.
52. Jain, H., Ghosh, S., and Sahu, K. C.* (2021). Compression controlled dynamic buckling in thin soft sheets. **Physical Review E (Letter)** , 104, L033001.
53. 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.
54. 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.
55. 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.
56. 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.
57. 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.
58. 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-rewetting fluid. **European Journal of Mechanics - B/Fluids**, 87, 103-112.
59. 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.
60. Gurrala, 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 Article).*
61. 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.
62. 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.
63. 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

64. 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.)
65. 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.
66. 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.
67. 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.
68. Sahu, K. C.* (2020). Linear instability in two-layer channel flow due to double-diffusive phenomenon. **Physics of Fluids**, 32 (2), 024102.

69. Katre, P., Gurrala, 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.
70. 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.
71. 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.
72. 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.
73. 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.
74. 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.
75. 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.
76. 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.
77. Kumar, M., Bhardwaj, R., and Sahu, K. C.* (2020). Coalescence dynamics of a droplet on a sessile droplet. **Physics of Fluids**, 32 (1), 012104.
78. 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.
79. 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

80. 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.
81. 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.
82. 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.
83. Gurrala, 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.
84. Kumar, M., Bhardwaj, R., and Sahu, K. C. (2019). Motion of a droplet on an anisotropic microgrooved surface. **Langmuir**, 35 (8), 2957-2965.
85. 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.
86. Balla, M., Tripathi, M. K., and Sahu, K. C.* (2019). Shape oscillations of a nonspherical water droplet. **Physical Review E**, 99, 023107.
87. 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.
88. 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.
89. 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

90. 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.
91. 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.
92. 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.
93. 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.

94. 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

95. 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.
96. 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.
97. 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.
98. 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.
99. 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.
100. 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.
101. 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.
102. 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.
103. Sahu, K. C.* (2017). A review on rising bubble dynamics in viscosity-stratified fluids. **Sadhana**, 42 (4), 575-583. *(Invited Article)*.
104. 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.
105. 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).
106. 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.

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107. Sahu, K. C.* (2016). Double-diffusive instability in core–annular pipe flow. **Journal of Fluid Mechanics**, 789, 830-855.
108. 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.
109. 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.
110. 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.
111. 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.
112. 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.

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113. Tripathi, M. K., Sahu, K. C.*, and Govindarajan, R. (2015). Dynamics of an initially spherical bubble rising in quiescent liquid. **Nature Communications**, 6, 6268.
114. 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.
115. Premlata, 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.
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117. 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.

118. 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.
119. 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.
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121. 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.
122. 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.
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124. Govindarajan, R., and Sahu, K. C. (2014). Instabilities in viscosity-stratified flow. **Annual Review of Fluid Mechanics**, 46, 331-353.
125. 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.
126. 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.
127. 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.
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129. 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 Article).*
130. 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.
131. 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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135. 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.
136. 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.
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142. 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.
143. 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.
144. Sahu, K. C.* (2011). The instability of flow through a slowly diverging pipe with viscous heating. **ASME Journal of Fluids Engineering**, 133 (7), 071201.
145. 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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146. 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.
147. 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.
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151. 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.
152. 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).
153. Sahu, K. C., and Govindarajan, R. (2007). Linear instability of entry flow in a pipe. **ASME Journal of Fluids Engineering**, 129 (10), 1277-1280.
154. 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.
155. Sahu, K. C., and Govindarajan, R. (2005). Stability of flow through a slowly diverging pipe. **Journal of Fluid Mechanics**, 531, 325 - 334.

Book Chapters

156. 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).
157. 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).
158. 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* 78^{th} *Birthday*.

Editorials/Features/Comments

159. Scientists measure how falling rain shatters, Research Highlight, Nature India, 20^{th} August, 2025 (This article was prepared by an independent editor, Ms. Unnati A., for our publication Journal of the Atmospheric Sciences, 82(7), 1441–1450). DOI
160. Baldea et al. (2025). 2024 in Retrospective: Trends in Chemical Engineering. **Industrial & Engineering Chemistry Research**, 64, 11615-11623. DOI

Refereed Conference Papers

161. 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).

162. 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).
163. 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).
164. 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).
165. Gurrala, 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).
166. Balla, M., Tripathi, M. K., and Sahu, K. C., Non-isothermal bubble rise dynamics in a self-rewetting fluid at high Marangoni numbers. 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2019), IIT Roorkee, India (December 28-31, 2019).
167. 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).
168. 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).
169. 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).
170. 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 (IHMTC–2017), Hyderabad, India (December 27 - 30, 2017).
171. 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).
172. 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).
173. 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).
174. 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).
175. 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).
176. 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).
177. Sileri, D., Sahu, K., Ding, H., and Matar, O. K., Mathematical modelling of asphaltenes deposition and removal in crude distillation units. International Conference on Heat Exchanger Fouling and Cleaning, Schladming, Austria (June 14 - 19, 2009).
178. 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).
179. 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. Keynote Speaker, Gordon Research Conference on Micro and Nanoscale Phase Change Phenomena in the session on “Droplets and Evaporation”, Renaissance Tuscany Il Ciocco Italy (January 10-15, 2027).

2. Keynote Speaker, "Understanding microphysics of raindrops for accurate rainfall forecasting", 28th National and 6th International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC-2025), IIT Jodhpur (December 9-12, 2025).
3. 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).
4. 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).
5. 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).
6. Invited Speaker, "Droplet breakup and size distribution of satellite fragments under a swirl airstream", Indo-French Workshop, Bengaluru, India (October 17 - 19, 2022).
7. 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).
8. 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).
9. 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).
10. 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).
11. Invited Speaker, "Wetting and spreading of a sessile droplet on complex microtextured surfaces", American Chemical Society, ACS Science Connect: Langmuir (10 - 12 October 2020).
12. 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).
13. Invited Speaker, "Dynamics of drops with and without electric field", Indo-French Workshop on Electro-Hydro-Dynamics, IIT Kharagpur, 27 - 29 November 2019.
14. 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).
15. Invited Speaker, "Dynamics of bubble in isothermal and non-isothermal systems", Xi'an Jiaotong University, China (11 December 2018).
16. Invited Speaker, "Instabilities in viscosity-stratified flows", University of Chinese Academy of Sciences, Beijing, China (14 December 2018).
17. 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).
18. 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).
19. Invited Speaker, "Some interesting phenomena in bubbles and drops", International Symposium on Computational Multiphase Flow, Ritsumeikan University, Japan (14 January 2015).
20. "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).
21. "Numerical simulations of two-fluid channel flows", Department of Mechanical Engineering, University of Illinois at Urbana-Champaign, USA (2010).

National

22. Distinguished Lecture, "Unravelling rainfall estimation through the journey of a raindrop", Distinguished Lecture Series (Lecture-73) Jointly Organised by INAE Bhubaneswar Chapter, SOA University, CSIR-IMMT Bhubaneswar, IIT Bhubaneswar, NISER Bhubaneswar, ICT-IOC Bhubaneswar Campus and IEEE Bhubaneswar Section (February 5, 2026).
23. Invited Speaker, "Unravelling rainfall estimation through the journey of a raindrop", Indian National Academy of Engineering (INAE) Annual Convention, HAL Management Academy, Bengaluru (December 18-20, 2025).

24. Keynote Speaker, "Evaporation of a freely floating droplet in an airstream: effects of temperature, humidity, and shape oscillations", Symposium on Advances in Thermo-Fluid Sciences, IIT Guwahati, India (4-5 September 2025).
25. Invited Speaker, "Understanding microphysics of raindrops for accurate rainfall forecasting", Chemical Engineering Colloquium Series, IIT Madras, India (29 November 2024).
26. Invited Speaker, "Fluid dynamics of Raindrops", Advances in Fluid Mechanics and Its Applications, NIT Uttarakhand, India (22 October 2024).
27. Invited Speaker, "Incredible behaviours of bubbles and drops", Workshop on Current Advancements in Computational Solid and Fluid Mechanics, IIT Jodhpur, India (23 February 2024).
28. Invited Speaker, "Rainfall Predictions using Machine Learning", UGC-Webinar (Online) on NEP 2020: AI & Machine Learning, India (12 October 2023).
29. Keynote Speaker, "Dynamics of raindrops in an airstream", Symposium on Advanced Mathematical Modelling and Computing, IIT Jodhpur, Rajasthan, India (4 - 5 March 2023).
30. Keynote Speaker, "Microphysics of rain droplets in an airstream", Lecture Series - Cloud and Precipitation Physics and Dynamics, IITM Pune, India (23 June 2022).
31. Keynote Speaker, "Bubbles and droplets", AICTE Training and Learning Academy, NIT Rourkela, India (11 - 15 October 2021).
32. 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).
33. 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).
34. "Bubbles and Drops: Natural Phenomena to Industrial Applications", Bi-weekly Seminar Series, Department of Mechanical Engineering, IIT Delhi (10 February 2021).
35. 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).
36. "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).
37. "Evaporation of an ethanol-water sessile droplet", Sadhana: Discussion Meeting on Droplet Evaporation and Condensation, Indian Institute of Science, Bangalore, India (24 January 2020).
38. "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).
39. "Pipe flow instabilities", AICTE Sponsored Workshop, IIT Madras, India (26 - 31 March 2018).
40. "Bubbles and drops: natural phenomena to industrial applications", Fluid Mechanics and Fluid Power, Kerala, India (14 - 16 December 2017).
41. "Topological change and path instability in rising air bubble", Advances in Theoretical Fluid Mechanics (Indian Mathematical Society), Kolkata, India (27 - 30 December 2016).
42. "Shapes and paths of an air bubble rising in quiescent liquids", Complex Fluids- CompFlu-2016, Hyderabad, India (12 - 14 December 2016).
43. "Dynamics of a rising bubble in a self-rewetting fluid: three-dimensional effects", National Symposium on Multiphase Flow, Durgapur, India (22 - 25 February 2016).
44. "Double-diffusive instability in viscosity-stratified flows", 79th Annual Meeting of Indian Academy of Sciences, Chandigarh, India (8-10 November 2013).
45. "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).
46. Pedagogical talk: "Double-diffusive instabilities in viscosity-stratified flow", TCIS Symposium, TIFR Centre for Interdisciplinary Sciences, TIFR Hyderabad, India (2012).
47. "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 GRANTS

Title	Agency	Amount	Duration
Design and development of a miniature device powered by holography and machine learning to revolutionize in-situ rainfall measurement across diverse climatic zones	Suzuki, Japan Suzuki Next Bharat Program 2025 (PI)	46,58,400 (INR)	2026-2028
Development of accurate rainfall models by studying the influence of meteorological parameters on raindrop dynamics	SOCH (IIT Hyderabad) (PI)	97,50,000 (INR)	2022-2024
Modeling of active membrane micro pumps	SERB (TARE) (Mentor)	18,30,000 (INR)	2022-2025
Effects of phase change, coalescence and breakup on raindrop dynamics	SERB (CRG) (PI)	56,07,859 (INR)	2021-2024
Linear stability of interfacial flows of fluids with complex rheology	SERB (MATRICS) (PI)	6,60,000 (INR)	2018-2021
Fluid dynamics of bubbles and drops	INSA (PI) (Young Scientist Award)	15,00,000 (INR)	2015-2018
Development and applications of high performance LBM for multiphase flows	DST (PI) (Young Scientist Award)	14,92,000 (INR)	2012-2015
Prediction of metal temperature of RH tubes in BHEL boilers	BHEL Hyderabad (PI)	7,50,000 (INR)	2015
Instabilities in multiphase flows	IIT Hyderabad (PI)	15,00,000 (INR)	2010-2012
Modeling of contour-current flow in structured packings (with Prof. O. K. Matar and Prof. G. Hewitt)	Air Liquide, France (Co-PI)	~£10,000	2008

* Funding of ~ 36 Million (INR) from JICA Japan-IIT Hyderabad Partnership Program
* **Total Funding Received in INR:** ~ 62.5 **Million (6.25 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).

RESEARCH STUDENTS SUPERVISED

- PhD: 25 (3 Ongoing; 14 Graduated; 8 Supervised informally)
- M.Tech: 18 (3 Ongoing; 15 Graduated)
- Post-Doctoral Fellow: 7 (1 Ongoing; 6 Completed)
- Supervised one post-PhD faculty under SERB - Teachers Associateship for Research Excellence (TARE) Scheme (TAR/2021/000268)

Details of Selected Post-doctoral Fellows

Sl. No.	Name	Duration	Current affiliation
1	Dr. Shyam Kumar M.	2025 - 2026	Assistant Professor, IIT Kharagpur
2	Dr. Lalsingh Devsoth	2023 - 2024	Assistant Professor, MANIT Bhopal
3	Dr. Deepa Gupta	2022 - 2023	Post-doctoral Fellow, Princeton, USA

Details of PhD students (graduated/ Thesis Submitted)

Sl. No.	Name	Graduation Year	Position held after graduation/ Current affiliation
14	Sivanandan Kavuri	2025	Research Associate at IIT Hyderabad
13	Someshwar S. Ade	2025	Research Associate at University of Amsterdam
12	Hari Govindha A.	2025	Research Associate at IIT Hyderabad
11	Ankush Kamboj	2025	Thesis Defended
10	Pavan Kumar Kirar	2024	Research Associate, Sorbonne University, France
9	Pallavi Katre	2022	Research Associate, IISc Bangalore
8	Pradeep Gurrala	2022	Co-Founder, Revelec AutomotiEV Pvt Ltd (Start-up)
7	Meenu Agrawal	2021	Research Associate, Pukyong National University, South Korea
6	Mounika Balla	2021	Assistant Professor, Indian Institute of Petroleum and Energy (IIPE), Visakhapatnam
5	Deepak Kumar Kanungo	2020	Deputy Manager, BHEL R&D, Hyderabad
4	Sweta Lal	2019	Assistant Professor, IISER Bhopal
3	Premlata Amarnath Ram	2018	Research Associate, NCKU Taiwan
2	Manoj Kumar Tripathi	2015	Associate Professor, IISER Bhopal
1	Prasanna Rani Redapangu	2014	Assistant Professor, Chaitanya Bharathi Institute of Technology, Hyderabad

*Co-supervised eight additional PhD students, although I was not their official supervisor.