

Bio Data

Personal Details

Name Dr. Sourav Sarkar

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Designation Assistant Professor,
Department of Mechanical Engineering, Jadavpur University.

Date of Birth 7th September 1989

Academic Qualifications

Degree	University	Subject(s)	Year
Bachelor of Mechanical Engineering	Jadavpur University	Mechanical Engineering	2012
Master of Technology in Mechanical Engineering (Thermal Engineering)	Indian Institute of Technology Madras	Mechanical Engineering	2014
Doctor of Philosophy	Jadavpur University	Engineering	2022

Experience

Position	Institute	Year
Assistant Professor	Department of Mechanical Engineering, Jadavpur University	29 th June, 2017 - present
CSIR Senior Research Fellow (SRF)	Jadavpur University	18 th April, 2017 - 28 th June, 2017
DST PURSE II Junior Research Fellow	Jadavpur University	2 nd February, 2016 - 17 th April, 2017
Research Fellow in CSIR sponsored project	Jadavpur University	5 th August, 2015- 1 st February, 2016

Subjects Taught

Two-phase Flow, Boiling and Condensation, Combustion Engineering, Measurement and Instrumentation, Heat Transfer, Thermodynamics and Heat Power

Research Interest

Combustion, Multiphase Flows, Computational Fluid Dynamics.

Research Projects

- Development of a biofuel based liquid film microreactor for onboard hydrogen generation through non-catalytic reforming (PI), Funding agency: *SERB-DST*, Govt. of India, 2021-2024 (ongoing), Cost in lakhs (INR): 15
- Determination of Heat Transfer and Phase Transformation of Hot-Rolled Steel in Run-out Table (Co-PI), Funding agency: *Tata Steel*, 2018-2022 (ongoing), Cost in lakhs (INR): 34.74
- Determination of droplet dispersion characteristics of the liquid fuel sprays in gaseous crossflow (PI), Funding agency: *RUSA 2.0, Jadavpur University*, 2017-19 (completed), Cost in lakhs (INR): 1.98

Ongoing PhD Students

1. Saumendra Nath Mishra
2. Arindam Mandal

Completed PG Thesis Guidance

Name of student	Title of thesis
Arun Shaw	Quantitative description of droplet dispersion of liquid fuel spray in gaseous crossflow
Dipayan Sanpui	Natural Convective Heat Transfer from Protruded Heater in an Enclosure Using Copper-water Nanofluid – A Numerical Study
Tanumoy Banerjee	Numerical Study of Flame Propagation of Premixed Hydrogen Flame Inside Closed Rectangular Channel
Abeetath Ghosh	Effect of Heat Loss on the Spherically Expanding Hydrogen-Air Premixed Flames
Saumendra Nath Mishra	Numerical Investigation on Thermal Management System of Lithium Ion Battery for Electric Vehicles
Prahar Sarkar	Design and Simulation of an Air Jet Impingement Setup for Cooling of a Circular Disk
Anjan Nandi	Numerical Study on The Effects of Steam and Water Mist Addition on The Laminar Flame Speed of H ₂ /CO Mixtures
Archit Kumar Mondal	Optimization of Flow Distribution for Efficient Thermal Management of Battery Pack
Arnab Pattanayak	Effect of Battery Arrangement on Thermal Management of Air-cooled Battery Pack
Anish Pal	Risk assessment of SARS-cov-2 due to respiratory droplet transmission inside an elevator under various climatic conditions and ventilation scenarios

List of Publications

Book Chapters

1. Biswas, R., Pal, A., Pal, R., Sarkar, S., Mukhopadhyay, A. (2023). Effect of Elevator Design on the Risk Associated with COVID Transmission – A Comparative Study between a Sliding Door and a Collapsible Gate Elevator. In: Bhattacharyya, S., Benim, A.C. (eds) Fluid Mechanics and Fluid Power (Vol. 2). FMFP 2021. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-19-6970-6_79
2. Banerjee, G., Sarkar, S., Mukhopadhyay, A., Sen, S., Mandal, P., Ganguly, S. (2023). Effect of Curvature on Heat Transfer Characteristics for Jet Impingement Cooling of a Moving Surface. In: Bhattacharyya, S., Benim, A.C. (eds) Fluid Mechanics and Fluid Power (Vol. 2). FMFP 2021. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-19-6970-6_69
3. Ghosh, A., Sarkar, S., Mukhopadhyay, A. (2023). Effect of Heat Loss on Spherically Expanding Laminar Premixed Hydrogen-Air Flame. In: Bhattacharyya, S., Benim, A.C. (eds) Fluid Mechanics and Fluid Power (Vol. 2). FMFP 2021. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-19-6970-6_86
4. Banerjee, A., Sarkar, S., Mukhopadhyay, A., Sen, S. (2023). The effects of steam and water spray addition on NO_x emissions from a combustor using simple reactor models. In: Bhattacharyya, S., Benim, A.C. (eds) Fluid Mechanics and Fluid Power (Vol. 2). FMFP 2021. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-19-6970-6_87
5. A. Pal et al. “Determination of Heat Transfer Coefficients for a Jet Impingement Cooling Scenario Using Inverse Heat Transfer”. In: Li, X., Rashidi, M.M., Lather, R.S., Raman, R. (eds) Emerging Trends in Mechanical and Industrial Engineering. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-19-6945-4_25.
6. R. Pal, S. Dawn, S. Sarkar, & A. Mukhopadhyay, “Flow Regime Identification in Two-Phase Flow Using Symbolic Dynamic Filtering and Spatial Recurrence Network Analysis of High-Speed Images” in Advances in Multiphase Flows Ashoke De, Ashwani K. Gupta, Abhijit Kushari, Suresh K. Aggarwal, Akshai K. Runchal, eds. Begell House Publishers Inc., U.S. 2022, pp. 213-238.
7. A. Jana, R. Saha, S. Ray, D. Pal, S. Sarkar and A. Mukhopadhyay, “Management of Thermal Runaway in Batteries using Water Mist for Air Precooling” in Proceedings of the 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference December 17-20, 2021, IIT Madras, Chennai-600036, Tamil Nadu, India, Begell House Inc. pp. 209-215.
8. P. Sarkar, G. Banerjee, P. Mandal, S. Sarkar, A. Mukhopadhyay and S. Sen, “Cooling Characteristics of Air Jet Impinging on a Rotating Circular Disk” in Proceedings of the 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference December 17-20, 2021, IIT Madras, Chennai-600036, Tamil Nadu, India, Begell House Inc. pp. 2457-2463.

9. G. Banerjee, A. Mukhopadhyay, S. Sen, P. Mandal, S. Sarkar, "Numerical Analysis of Heat Transfer Characteristics Under Single-Jet Air Impingement". in "Advances in Thermal Engineering, Manufacturing, and Production Management", S. K. Ghosh, K. Ghosh, S. Das, P. K. Dan, A. Kundu, eds. Singapore: Springer, 2021, pp. 1- 11.
10. D. Sanpui, S. Sarkar, S. Sen, "Natural Convection of Copper-Water Nanofluid in a Square Enclosure with an Isothermal Protruding Heater" in "Advances in Thermal Engineering, Manufacturing, and Production Management", S. K. Ghosh, K. Ghosh, S. Das, P. K. Dan, A. Kundu, eds. Singapore: Springer, 2021, pp. 47- 64
11. A. Jana, S. Sarkar, A. Mukhopadhyay, "Performance Study of a Small Capacity Thermoacoustic Refrigerator Using DELTA EC Software" in "Advances in Thermal Engineering, Manufacturing, and Production Management", S. K. Ghosh, K. Ghosh, S. Das, P. K. Dan, A. Kundu, eds. Singapore: Springer, 2021, pp. 157- 169.
12. S. Sarkar, J. Munshi, A. Mukhopadhyay, S. Sen, "Polydisperse Spray Modeling Using Eulerian Method" in "Sustainable Development for Energy, Power, and Propulsion. Green Energy and Technology", A. De, A. K. Gupta, S. K. Aggarwal, A. Kushari, A. Runchal, eds. Singapore: Springer, 2020, pp. 481-502.
13. U. Sen, S. Sarkar, S. Bagchi, A. Mukhopadhyay and S. Sen, "Dynamics of Non-reacting and Reacting Flows Past Bluff Bodies" in "Innovations in Sustainable Energy and Cleaner Environment", A. K. Gupta, A. De, S. K. Aggarwal, A. Kushari, A. Runchal, eds. Singapore: Springer, 2020, pp. 411-428.
14. S. Bagchi, S. Sarkar, U. Sen, A. Mukhopadhyay and S. Sen, "Numerical Simulation of Vortex Shedding from a Cylindrical Bluff-Body Flame Stabilizer" in "Advances in Materials, Mechanical and Industrial Engineering", P. Sahoo, J. P. Davim, eds. Switzerland: Springer, 2019, pp. 671-712.
15. S. Sarkar, J. Munshi, S. Pramanik, A. Mukhopadhyay and S. Sen, "Interaction of Water Spray with Flame" in "Energy for Propulsion: A Sustainable Technologies Approach", A. Runchal, A. Gupta, A. Kushari, A. De and S.K. Aggarwal, eds. Singapore: Springer, 2018, pp. 151-186.

Journal Publications

1. Debjit Kundu, Arijit Bhattacharya, Sourav Sarkar, Sandip Sarkar, and Achintya Mukhopadhyay , "An investigation of the effects of wall materials on flame dynamics inside a H₂-air micro-combustor", *Physics of Fluids* 35, 044110 (2023) <https://doi.org/10.1063/5.0144679>
2. M.S. Mondal, V. Prasad, R. Kumar, N. Saha, S. Guha, R. Ghosh, A. Mukhopadhyay, and S. Sarkar, "Automating Fire Detection and Suppression with Computer Vision: A Multi-Layered Filtering Approach to Enhanced Fire Safety and Rapid Response," *Fire Technology* (2023). <https://doi.org/10.1007/s10694-023-01392-w>
3. A. Pal, R. Biswas, R. Pal, S. Sarkar, and A. Mukhopadhyay, "A Novel Approach to Preventing SARS-CoV-2 Transmission in Classrooms: A Numerical Study," *Physics of Fluids*, vol. 35, 013308 (2023).
4. A. Jana, R. Saha, D. Pal, S. Sarkar, and A. Mukhopadhyay, "Early detection and management of thermal runaway in batteries using water mist for air precooling," *International Journal of Energy for a Clean Environment*, vol. 24, no. 4, pp. 1-16 (2023).

5. A. Pal, R. Biswas, S. Sarkar, and A. Mukhopadhyay, "The effect of ventilation and climatic conditions on covid-19 transmission through respiratory droplet transport via both airborne and fomite mode inside an elevator," *Physics of Fluids*, vol. 34, 083319 (2022).
6. R. Biswas, A. Pal, R. Pal, S. Sarkar, and A. Mukhopadhyay, "Risk Assessment of COVID Infection by Respiratory Droplets from Cough for Various Ventilation Scenarios Inside an Elevator: An OpenFOAM based Computational Fluid Dynamics Analysis," *Phys. Fluids*, vol. 34, 013318 (2022).
7. P. Saha, R. Pal, S. Sarkar, and A. Mukhopadhyay, "A novel image processing technique for detection of pseudo-occluded bubbles and identification of flow regimes in a bubble column reactor," *Measurement*, vol. 189, 110568 (2022).
8. R. Pal, S. Sarkar, and A. Mukhopadhyay, "A Spreadsheet-Based Short Time Forecasting Method for the COVID-19 Pandemic," *Transactions of the Indian National Academy of Engineering*, vol. 7, pp. 185-196 (2022).
9. R. Pal, S. Sarkar, and A. Mukhopadhyay, "Influence of ambient conditions on evaporation and transport of respiratory droplets in indoor environment," *International Communications in Heat and Mass Transfer*, vol. 129, 105750 (2021).
10. S. Sarkar, A. Mukhopadhyay, and S. Sen, "The Effects of Steam and Water Spray on NO Formation in a Methane-Air Counterflow Diffusion Flame," *Combust. Theor. Model.*, vol. 27, no. 4, pp. 514-541 (2020)
11. S. Sarkar, A. Mukhopadhyay, S. Sen, S. Mondal, A. Banerjee, P. Mandal, R. Ghosh, C.M. Megaridis, and R. Ganguly, "Leveraging Wettability Engineering to Develop Three-Layer DIY Face Masks from Low-Cost Materials," *Transactions of the Indian National Academy of Engineering*, vol. 5, no. 3, pp. 1-6 (2020)
12. S. Sarkar, A. Mukhopadhyay, and S. Sen, "Numerical Investigation of the Effects of Polydisperse Water Sprays on Extinction Conditions of Counterflow Methane Non-Premixed Flames," *Combust. Theor. Model.*, vol. 23, no. 4, pp. 626-650 (2019)
13. M. Aravinthan, S. Sarkar, P. Dhar, S.K. Das, and A.R Balakrishnan, "Flow Boiling Heat Transfer Characteristics in Minutubes with and without Hydrophobicity Coating," *Heat Transfer Eng.*, vol. 40, no. 1, pp. 1-38 (2019)

Conference Publications

1. S. N. Mishra, S. Banerjee, S. Sarkar, A. Mukhopadhyay and S. Sen, Investigation on passive thermal management using phase change materials encapsulated over 18650 lithium ion battery, 9th International and 49th National conference of Fluid Mechanics and Fluid Power (FMFP2022) , December 2022.
2. A. Mandal, S. Sarkar and A. Mukhopadhyay, Circular bluff-body's effect on the lift-off and blow-out limit of a H₂- air diffusion flame 2D micro-combustor, 9th International and 49th National conference of Fluid Mechanics and Fluid Power (FMFP2022) , December 2022.
3. S. Biswas, S. Ghosh, S. Sarkar and A. Mukhopadhyay, Performance study on hydrogen production from methanol using a non-catalytic counterflow micro-combustor, 27th National Conference on Internal Combustion Engines and Combustion (NCICEC 2022), VIT, India, November 2022.
4. R. Jana, S. Sarkar and A. Mukhopadhyay, An analysis of the effectiveness of sprinkler arrangements for suppressing methane gas fires using an FDS simulation, 27th National

Conference on Internal Combustion Engines and Combustion (NCICEC 2022), VIT, India, November 2022.

5. R. Biswas, A. Pal, S. Sarkar, A. Mukhopadhyay, An innovative solution to prevent airborne transmission of infectious respiratory droplets inside a classroom, ILASS-Asia 22nd Annual Conference on Liquid Atomization and Spray Systems, IIT Indore, October 2022.
6. A. Chakravarty, S. Sarkar, A. Mukhopadhyay and S. Sen, Numerical Investigation of Water-assisted Atomization of Molten Metal Jets for Additive Manufacturing Applications, ILASS-Asia 22nd Annual Conference on Liquid Atomization and Spray Systems, IIT Indore, October 2022.
7. A. Pal, R. Biswas, P. Sarkar, S. Sarkar, P. Mandal, A. Mukhopadhyay and S. Sen, "Determination of heat transfer coefficients for a jet impingement cooling scenario using inverse heat transfer" in 48 th National Conference on Fluid Mechanics and Fluid Power (FMFP), BITS PILANI, India 2021.
8. G. Banerjee, S. Sarkar, A. Mukhopadhyay, S. Sen, P. Mandal and S. Ganguly, "Effect of Curvature on Heat Transfer Characteristics for Jet Impingement Cooling of a Moving Surface" in 48 th National Conference on Fluid Mechanics and Fluid Power (FMFP), BITS PILANI, India 2021.
9. R. Biswas, A. Pal, R. Pal, S. Sarkar and A. Mukhopadhyay, "Effect of Elevator Design on the Risk Associated with COVID Transmission – A Comparative Study between a Sliding Door and a Collapsible Gate Elevator" in 48 th National Conference on Fluid Mechanics and Fluid Power (FMFP), BITS PILANI, India 2021.
10. A. Ghosh, S. Sarkar and A. Mukhopadhyay, "Effect of Heat Loss on Spherically Expanding Laminar Premixed Hydrogen-Air Flame " in 48 th National Conference on Fluid Mechanics and Fluid Power (FMFP) , BITS PILANI, India 2021.
11. A. Banerjee, S. Sarkar, A. Mukhopadhyay and S. Sen, "The effects of steam and water spray addition on NO_x emissions from a combustor using simple reactor models" in 48 th National Conference on Fluid Mechanics and Fluid Power (FMFP), BITS PILANI, India 2021.
12. A. Nandi, S. Sarkar and M. Das, "Numerical study on the effects of steam and water mist addition on the laminar flame speed of h₂/co mixtures " in 48 th National Conference on Fluid Mechanics and Fluid Power (FMFP), BITS PILANI, India 2021.
13. A. Jana, R. Saha, S. Ray, D. Pal, S. Sarkar and A. Mukhopadhyay, Management of Thermal Runaway in Batteries using Water Mist for Air Precooling , in 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC), IIT Madras, India, 2022
14. P. Sarkar, G. Banerjee, P. Mandal, S. Sarkar, A. Mukhopadhyay and S. Sen, "Cooling characteristics of air jet impinging on a rotating circular disk" in in 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC), IIT Madras, India, 2022.
15. S. N. Mishra, S. Sarkar, A. Chakravarty and A. Mukhopadhyay Prevention of thermal runaway propagation in Li-ion Battery Pack introducing baffles into forced air cooling system, in 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference, IIT Madras (IHMTTC), India, 2022
16. A. Pal, R. Biswas, S. Sarkar, A. Chakravarty and A. Mukhopadhyay Numerical simulation of natural convection in an enclosure with a pair of alternatively active

heaters using OpenFOAM , in 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference, IIT Madras (IHMTTC), India, 2022

17. A. Pattanayak, S. Sarkar and A. Mukhopadhyay, "Effect of Battery Cell Arrangement on Thermal Management of Air-Cooled Battery Pack" in International Conference on Thermal Engineering and Management Advances (ICTEMA2022), Jalpaiguri Government Engineering College, India, 2022.
18. A. Pal, R. Biswas, P. Sarkar, S. Sarkar, P. Mandal, A. Mukhopadhyay and S. Sen, "Determination of heat transfer coefficients for a jet impingement cooling scenario using inverse heat transfer" in International Conference on Thermal Engineering and Management Advances (ICTEMA2022), Jalpaiguri Government Engineering College, India, 2022.
19. S. Paul, S. Sarkar and A. Mukhopadhyay, A Thermodynamic, " Analysis of an Atmospheric Water Generator in Different Climatic Conditions" in International Conference on Thermal Engineering and Management Advances (ICTEMA2022), Jalpaiguri Government Engineering College, India, 2022.
20. A. Pal, R. Biswas, P. Sarkar, S. Sarkar, P. Mandal, A. Mukhopadhyay and S. Sen, "Determination of heat transfer coefficients for a jet impingement cooling scenario using inverse heat transfer" in 48 th National Conference on Fluid Mechanics and Fluid Power, BITS PILANI, India 2021.
21. G. Banerjee, S. Sarkar, A. Mukhopadhyay, S. Sen, P. Mandal and S. Ganguly, "Effect of Curvature on Heat Transfer Characteristics for Jet Impingement Cooling of a Moving Surface" in 48 th National Conference on Fluid Mechanics and Fluid Power, BITS PILANI, India 2021.
22. R. Biswas, A. Pal, R. Pal, S. Sarkar and A. Mukhopadhyay, "Effect of Elevator Design on the Risk Associated with COVID Transmission – A Comparative Study between a Sliding Door and a Collapsible Gate Elevator" in 48 th National Conference on Fluid Mechanics and Fluid Power, BITS PILANI, India 2021.
23. A. Ghosh, S. Sarkar and A. Mukhopadhyay, "Effect of Heat Loss on Spherically Expanding Laminar Premixed Hydrogen-Air Flame " in 48 th National Conference on Fluid Mechanics and Fluid Power, BITS PILANI, India 2021.
24. A. Banerjee, S. Sarkar, A. Mukhopadhyay and S. Sen, "The effects of steam and water spray addition on NOx emissions from a combustor using simple reactor models" in 48 th National Conference on Fluid Mechanics and Fluid Power, BITS PILANI, India 2021.
25. A. Nandi, S. Sarkar and M. Das, "Numerical study on the effects of steam and water mist addition on the laminar flame speed of h₂/co mixtures " in 48 th National Conference on Fluid Mechanics and Fluid Power, BITS PILANI, India 2021.
26. S. N. Mishra, S. Sarkar, A. Chakravarty and A. Mukhopadhyay Prevention of thermal runaway propagation in Li-ion Battery Pack introducing baffles into forced air-cooling system, in 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference, IIT Madras, India, 2022
27. A. Pal, R. Biswas, S. Sarkar, A. Chakravarty and A. Mukhopadhyay Numerical simulation of natural convection in an enclosure with a pair of alternatively active heaters using OpenFOAM, in 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference, IIT Madras, India, 2022
28. A. Dutta, S. Sarkar, "Estimation of Pressure from Velocity Fields around a Two-Dimensional NACA 4412 Airfoil using Artificial Neural Networks" in

Proceedings of the 8th International and 47th National Conference on Fluid Mechanics and Fluid Power (FMFP2020), IIT Guwahati, Assam, India, 2020.

29. A. Shaw, S. Sarkar, A. Mukhopadhyay, "Experimental and Numerical Investigation of Water Jet in Air Crossflow" in Proceedings of the 8th International and 47th National Conference on Fluid Mechanics and Fluid Power (FMFP2020), IIT Guwahati, Assam, India, 2020.
30. T. Maitra, A. Chakrobarty S. Sarkar, "Numerical Simulation of Counterflow Diffusion Flame in Presence of Polydisperse Water Spray", Proceedings of National Conference on The Emerging Trends in Automotive Engineering 2020 (NCETAE2020), 3 -4 March 2020, Jadavpur University, Kolkata, India
31. A. Hussain, S. Sarkar, S. Sarkar, "Numerical analysis of the anchoring mechanism of a bluff-body stabilized laminar premixed flame", Proceedings of National Conference on The Emerging Trends in Automotive Engineering 2020 (NCETAE2020), 3 -4 March 2020, Jadavpur University, Kolkata, India.
32. A. Hussain, S. Sarkar, S. Sarkar, "Stability analysis of fluid flow around different shaped bluff- bodies by dynamic mode decomposition", Proceedings of National Conference on The Emerging Trends in Automotive Engineering 2020 (NCETAE2020), 3 -4 March 2020, Jadavpur University, Kolkata, India.
33. T. Banerjee, S. Sarkar, S. Sen, "Numerical Study of Hydrogen Flame Propagation Inside a Closed Rectangular Channel", Proceedings of National Conference on The Emerging Trends in Automotive Engineering 2020 (NCETAE2020), 3-4 March 2020, Jadavpur University, Kolkata, India.
34. G. Banerjee, A. Mukhopadhyay, S. Sen, P. Mandal, S. Sarkar and S. Ganguly, "Investigation of heat transfer by impinging jets on a steel plate in a ROT", International Conference on Energy and Sustainable Development 2020 (ICESD 2020), 14-15 February, 2020, Jadavpur University, Kolkata, India.
35. R. Pal, S. Sarkar and A. Mukhopadhyay, Flow Regime Identification of Two-Phase Flow based on Signal Processing and Temporal Analysis, International Conference on Energy and Sustainable Development 2020 (ICESD 2020), 14-15 February, 2020, Jadavpur University, Kolkata, India.
36. S. Dawn, S. Sarkar and A. Mukhopadhyay, Study of Two-Phase Bubbly Flow using the Method of Spatial Recurrence, International Conference on Energy and Sustainable Development 2020 (ICESD 2020), 14-15 February, 2020, Jadavpur University, Kolkata, India.
37. A. Shaw, S. Sarkar, "Experimental and numerical investigation of jet in crossflow", International Conference on Energy and Sustainable Development 2020 (ICESD 2020), 14-15 February, 2020, Jadavpur University, Kolkata, India.
38. A. Banerjee, S. Sarkar, A. Mukhopadhyay and S. Sen, "Prediction of NO_x Emissions in a Combustor in Presence of Water Spray using Reactor Network Model" in 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference, IIT Roorkee, India, 2019.
39. D. Kundu, R. Pal, S. Sarkar, A. Mukhopadhyay and S. Sen, "Numerical Study of Chemiluminescence in an Axisymmetric Coflow Laminar Methane–Air Partially Premixed Flame" in 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference, IIT Roorkee, India, 2019.

40. T. Hassan, S. Sarkar, A. Mukhopadhyay, S. Sen, "Characterization of Burner Stabilized Premixed and Non-Premixed Flame using Digital Image Processing" in ASME GT India Conference, IIT Madras, India, 2019.
41. S. Sarkar, S. Podder, S. De, A. Mukhopadhyay and S. Sen, "Experimental and Numerical Investigation of Extinction and OH* and CH* Chemiluminescence in Non-premixed Counterflow LPG - Air Flames" in Asia-Pacific Conference on Combustion (ASPACC), Fukuoka, Japan, 2019.
42. R. Pal, S. Roy, B. Maji, S. Guin, S. Sarkar and A. Mukhopadhyay, "Flow Regime Identification of Two-Phase Flow Based on Image Processing Techniques" in 2019 IEEE International Conference on Intelligent Techniques in Control, Optimization and Signal Processing (INCOS), Srivilliputhur, 2019.
43. S. Bagchi, S. Sarkar, U. Sen A. De, A. Mukhopadhyay, S. Sen, "Numerical Investigation of a Bluff Body Stabilized Diffusion Flame with Modal Decomposition," in 2nd National Aerospace and Propulsion Conference, NAPC-2018, Indian Institute of Technology, Kharagpur, India, 2018.
44. S. Bagchi, S. Sarkar, U. Sen A. De, A. Mukhopadhyay, S. Sen, "Investigation of a Bluff Body Stabilized Flames using Modal Decomposition," in 7th International and 45th National Conference on Fluid Mechanics and Fluid Power (FMFP), 2018, At Indian Institute of Technology, Bombay, India, 2018.
45. S. Bagchi, S. Sarkar, A. Mukhopadhyay and S. Sen, "A numerical study of a bluff body stabilized diffusion flame," in Fifth International Conference on Computational Methods for Thermal Problems (Thermacomp 2018), IISc Bangalore, India, 2018.
46. S. Bagchi, S. Sarkar, A. Mukhopadhyay and S. Sen, "Numerical Simulation of Vortex Shedding from Cylindrical Bluff Body Flame Stabiliser," in First International Conference on Mechanical Engineering, Jadavpur University, INCOM 2018, Jadavpur University, Kolkata, India, 2017.
47. S. Sarkar, J. Munshi, A. Mukhopadhyay and S. Sen, "Numerical investigation of the effects of polydisperse water sprays on H₂-air counterflow laminar diffusion flame," in Proceedings of the 1st National Aerospace Propulsion Conference, NAPC-2017, IIT Kanpur, India, 2017.
48. S. Sarkar, A. Mukhopadhyay and S. Sen, "Numerical Investigation of Extinction Condition of Flat and Curved Counterflow Laminar Diffusion Flame with Polydisperse Water Sprays," in 18th Annual Conference on Liquid Atomization and Spray Systems - Asia, ILASS-Asia 2016, Chennai, India, 2016.
49. J. Munshi, S. Sarkar, A. Mukhopadhyay and S. Sen, "Numerical study of the effect of fine polydisperse water spray on laminar flame speed of hydrogen-air premixed flames stabilized in the stagnation flow field," in 18th Annual Conference on Liquid Atomization and Spray Systems - Asia, ILASS-Asia 2016, Chennai, India, 2016.
50. S. Sarkar, S. Tibriwala, S. Dhar, A. Mukhopadhyay and S. Sen, "Extinction condition of nitrogen-diluted flat and curved LPG-air non-premixed counterflow flame," in Proceedings of the Asian Congress on Gas Turbines ACGT 2016, IIT Bombay, India, 2016.
51. M. Aravinthan, S. Sarkar, S.K. Das, A.R Balakrishnan, "Flow boiling of water in a hydrophobic coated small diameter tube", in First Thermal and Fluids Engineering Summer Conference, 2015, 9-12 August, New York City, USA.

Awards

1. **1st position in the Best Paper Award** category in the *IEEE 3rd International Conference on “Sustainable Energy and Future Electric Transportation”* (SEFET-2023)
2. Selected to attend the annual Research Opportunity Week at the Technical University of Munich, Germany in 2023.
3. Recipient of **Teachers Associateship for Research Excellence (TARE) Award** from SERB, DST Government of India in 2021.
4. **Best paper award**, *IEEE International Conference on Intelligent Techniques in Control, Optimization and Signal Processing (INCOS)*, Srivilliputhur, Tamilnadu, India, 2019.
5. **Best paper award**, *International Conference on Thermal Engineering and Management Advances (ICTEMA2020)*, Jalpaiguri Government Engineering College, India, 2020.
6. Recipient of **Senior Research Fellowship (SRF)** from the Council of Scientific & Industrial Research (CSIR).
7. Recipient of Prof. N. Venkatarayulu Memorial Prize for the **best academic record** in IIT Madras for the year 2012-13