Durgapur
West Bengal, India
sirshendumondal13@gmail.com
ResearchGate : Sirshendu-Mondal
DoB: 17-05-1983
+91-9836837838/9434789053

Dr. Sirshendu Mondal (PhD)

Assistant Professor, Department of Mechanical Engineering, NIT Durgapur, India

Vita

Citizenship: Indian **Marital status:** Married **Gender:** Male

Education

IIT Madras, Tamil Nadu, India
Post Doctoral Fellow with Institute Post-doctoral Fellowship
Aerospace Engineering
Under the guidance of
→ Prof. R. I. Sujith (IITM) *Jan 2015 - Dec 2018*

Jadavpur University, West Bengal, India (In a DAAD sandwich program with TU Munich, Germany)
Doctorate of Philosophy, Mechanical Engineering
Under the guidance of
→ Prof. Achintya Mukhopadhyay (JU)
→ Prof. Swarnendu Sen (JU)
→ Prof. Wolfgang Polifke (TU Munich) *Dec 2008 - Nov 2014*

Jadavpur University, West Bengal, India
Master of Engineering (Heat Power), Mechanical Engineering *Jul 2006 - May 2008*
Under the guidance of
→ Prof. Achintya Mukhopadhyay (JU)
→ Prof. Swarnendu Sen (JU)

Kalyani Govt. Engineering College, West Bengal, India
Bachelor of Technology, Mechanical Engineering *Jul 2002 - May 2006*

Bolpur N. N. B. High School, West Bengal, India
Higher Secondary, Science, WBCHSE *May 2001*

Bolpur High School, West Bengal, India
Secondary, WBBSE *May 1999*

Research Interests

Dynamics in Thermo-fluidic systems, Nonlinear time series analysis, Synchronization analysis

Research Experience

Senior Scientist in the Department of Aerospace Engineering, IIT Madras, India. Jan. 2018 – June 2018. Mentor: Prof. R. I. Sujith.

Post-doctoral fellow in the Department of Aerospace Engineering, IIT Madras, India. Jan. 2015 - Dec. 2018. Mentor: Prof. R. I. Sujith.

Senior Project Officer in the Department of Aerospace Engineering, IIT Madras, India. Dec. 2014 – Jan. 2015. Mentor: Prof. R. I. Sujith.

DAAD sandwich fellow in Chair of Thermodynamics, TU Munich, Germany. Oct. 2012 – March 2014. Mentor: Prof. W. Polifke.

Work Experience

Assistant Professor at National Institute of Technology Durgapur, India. Dec 2018 - Present

Assistant Professor at Amrita Vishwa Vidyapeetham, Kollam, Kerala. July 2018 - Dec 2018

Awards, Fellowships & Outreach activities

Invited Speaker, One-day Workshop on"Recent Trends in Mechanical Engineering", December 15, (2021), at Government Engineering College, Samastipur.

Invited Speaker, Online Workshop on"Recent Trends in Sustainable Energy and Industrial Technologies", March 17 – 19 (2021)

Invited Speaker, Online Workshop on"Recent Trends in Thermo-Fluid" (RTTF 21), February 22 – 26 (2021)

Invited Speaker, Indo-US Online Workshop on "Application of Machine Learning and Dynamical Systems Approach for Early Detection and Control of Combustion Instabilities", January 5 – 7 (2021)

Invited Speaker, International Workshop on Energy, Environment and Multiphase Flows, February 24 - 26, at IIT Kanpur (2020)

Invited Speaker, International Workshop on Energy, Power & Environment, March 17 - 19, at NIT Kurukshetra (2019)

Editor's Pick, Chaos: An Interdisciplinary Journal of Nonlinear Science - Nevin Thomas, Sirshendu Mondal, Samadhan A Pawar and R. I. Sujith "Effect of Time-Delay and Dissipative Coupling on Amplitude Death in Coupled Thermoacoustic Oscillators" (2018)

International Travel Support, DST - Science and Engineering Research Board (2017)

ISEES young scientist award from International Society for Energy Environment and Sustainability, IIT Kanpur, India (2017)

Best poster award (2nd Prize) in IWEPE held at IIT Kanpur (2017)

Institute Post-doctoral fellowship, IIT Madras (2015)

DAAD sandwich fellowship, Germany (2012)

Senior Research Fellowship by Council of Scientific & Industrial Research (CSIR), Human Resource Development Group, Government of India. (2009)

Publications

Journals

48. Show, S., Mondal, B. K., **Mondal, S.** & Datta, A. (2026). Development of a shape-stabilized phase change material based on Acacia sawdust biochar for reducing energy demand in building cooling. *Solar Energys*, 314, 114699.

47. Show, S., **Mondal, S.** & Datta, A. (2026). Passive Thermal Management of Electronic Devices in a Molten Phase Change Material-Filled Semi-elliptical Cavity. *Heat Transfer Engineering*, 1-26.

46. Kumar, V., **Mondal, S.**, Datta, A., & Agrawal, A. (2026). Experimental and numerical investigation of a novel heatsink using Q criterion analysis. *International Journal of Thermal Sciences*, 219, 110243.

45. Kumar, V., **Mondal, S.**, & Datta, A. (2026). Numerical study of wavy shape microchannel with disruptive structures based on thermodynamics and pumping power. *Journal of Thermal Science and Engineering Applications*, 1-19.

44. Show, S., Mondal, B. K., **Mondal, S.** & Datta, A. (2025). Development of a garlic peel biochar-based shape-stabilized phase change material to reduce energy demand for building cooling. *Renewable Energy*, 124991.

43. Dutta, S., Chakraborty, A., & **Mondal, S.** (2025). Reduced-order characterization of spatiotemporal dynamics in merging buoyant diffusion flames. *Physics of Fluids*, 37(12).

42. Jain, M. V., Tripathi, D., Kumar, T., **Mondal, S.**, & Venkatramani, J. (2025). Forced synchronization in a nonlinear aeroelastic system under external forcings. *Physics of Fluids*, 37(7).

41. Prasad, J. S., Dewan, A., Datta, A., & **Mondal, S**. (2025). Second law analysis of turbulent flow over inclined offset ribs in a solar duct for enhanced performance. *Journal of Thermal Analysis and Calorimetry*, 1-21.

40. Mondal, S., Bhattacharya, S., De, S., **Mondal, S**., Mukhopadhyay, A., & Sen, S. (2025). Fractal analysis of lean premixed flame dynamics near lean blowout under varying fuel–air premixing levels. *Fuel*, 394, 134854.

39. De, S., Bhattacharya, S., Bhattacharya, A., **Mondal, S.**, Mukhopadhyay, A., & Sen, S. (2025). Insights of Transitions to Thermoacoustic Instability in Inverse Diffusion Flame using Multifractal Detrended Fluctuation Analysis. *Physics of Fluids*, 394, 084123.

38. Tripathi, D., Bose, C., **Mondal, S.**, & Venkatramani, J. (2025). Effect of structural parameters on the synchronization characteristics in a stall-induced aeroelastic system. *Journal of Fluids and Structures*, 133, 104246.

37. Prasad, J. S., Datta, A., Dewan, A., & **Mondal, S**. (2024). Solar air heater roughened with chamfered grooves: Thermal enhancement and entropy minimization. *Energy*, 313, 133958.

36. Show, S., **Mondal, S**, & Datta, A. (2024). The role of cavity shapes in improving the performance of a heat sink incorporating nano-enhanced phase change material. *Renewable Energy*, 232, 121024.

35. Kumar, V., **Mondal, S**, Datta, A., & Agrawal, A. (2024). A flow structure design based novel micro heatsink. *Physics of Fluid*, 36, 073627.

34. Prasad, J. S., Datta, A., & **Mondal, S**. (2024). Numerical analysis of a solar air heater with offset transverse ribs placed near the absorber plate. *Renewable Energy*, 227, 120608.

33. Prasad, J. S., Datta, A., & **Mondal, S**. (2024). Flow and thermal behavior of solar air heater with grooved roughness. *Renewable Energy*, 220, 119698.

32. Akshay, S., Gopalakrishnan, E. A., Sowmya, V., Venkatramani, J., Tripathi, D., Prasad, J. S., & **Mondal, S.** (2023). Open Set Domain Adaptation for Classification of Dynamical States in Nonlinear Fluid Dynamical Systems. *IEEE Access*.

31. Tripathi, D., **Mondal, S.**, & Venkatramani, J. (2023). Frequency-specific phase synchronization analysis of a stall-induced aeroelastic system undergoing 2:1 internal resonance in a low-speed wind tunnel. *Nonlinear Dynamics*, 111, 12899–12920.

30. Bhattacharya, A., **Mondal, S.**, De, S., Mukhopadhyay, A., & Sen, S. (2023). Synchronisation behaviour between two candle flame oscillators with similar and dissimilar amplitudes of oscillations. *Combustion Theory and Modelling*, 1-16, doi.org/10.1080/13647830.2023.2165966.

29. Ghosh Mazumder, A., Saha, R., **Mondal, S.**, Ghosh, K., Mukhopadhyay, A., & Sen, S. (2022). Dynamics of a single-phase natural circulation system under harmonic excitation. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 32(12), 123125.

28. Ghosh, A., **Mondal, S.**, & Sujith, R. I. (2022). Occasional coupling enhances amplitude death in delay-coupled oscillators. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 32(10), 101106.

27. De, S., Mondal, S., Bhattacharya, A., **Mondal, S.**, Mukhopadhyay, A., & Sen, S. (2022). Dynamics of Premixed Flames Near Lean and Rich Blowout. *Combustion Science and Technology*, 1-17.

26. Tripathi, D., Shreenivas, R., Bose, C., **Mondal, S.**, & Venkatramani, J. (2022). Experimental investigation on the synchronization characteristics of a pitch-plunge aeroelastic system exhibiting stall flutter. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 32(7), 073114.

25. Bhattacharya, A., De, S., **Mondal, S.**, Mukhopadhyay, A., & Sen, S. (2022). Early detection of lean blowout using recurrence network for varying degrees of premixedness. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 32(6), 063105.

24. Raj, A., Raaj, A., Venkatramani, J., & **Mondal, S.** (2021). Effect of parameter mismatch and dissipative coupling on amplitude death regime in a coupled nonlinear aeroelastic system. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 31(12), 123112.

23. Bhattacharya, A.; De, S.; **Mondal, S.**; Mukhopadhyay, A.; Sen, S. (2021). Recurrence network analysis exploring the routes to thermoacoustic instability in a Rijke tube with inverse diffusion flame. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 31, 033117,

22. Raaj, A., **Mondal, S.**, & Jagdish, V. (2021). Investigating amplitude death in a coupled nonlinear aeroelastic system. *International Journal of Non-Linear Mechanics*, 129, 103659.

21. Mohapatra, S., **Mondal, S.**, & Mahapatra, P. S. (2020). Spatiotemporal dynamics of a self-propelled system with opposing alignment and repulsive forces. *Physical Review E*, 102(4), 042613.

20. Roy, A.; **Mondal, S.**; Pawar, A. S.; & Sujith, R. I. (2020). On the mechanism of open-loop control of thermoacoustic instability in a laminar premixed combustor. *Journal of Fluid Mechanics*, 884.

19. De, S.; Bhattacharya, A.; **Mondal, S.**; Mukhopadhyay, A.; & Sen, S. (2020). Application of recurrence quantification analysis for early detection of lean blowout in a swirl-stabilized dump combustor. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 30, 043115

18. Godavarthi, V.; Kasthuri, P.; **Mondal, S.**; Sujith, R. I.; Marwan, N.; & Kurths. J. (2020). Synchronization transition from chaos to limit cycle oscillations when a locally coupled chaotic oscillator grid is coupled globally to another chaotic oscillator. *Chaos: An interdisciplinary Journal of nonlinear science*, 30, 033121.

17. De, S., Bhattacharya, A., **Mondal, S.**, Mukhopadhyay, A. & Sen, S. (2020). Identification and early prediction of lean blowout in premixed flames. *Sadhana*, 45(1), 1-12

16. Raaj, A., Venkatramani, J. & **Mondal, S.** (2019). Synchronization of pitch and plunge motions during intermittency route to aeroelastic flutter. *Chaos: An interdisciplinary Journal of nonlinear science*, 29, 043129

15. Dange, S., Manoj, S., Banerjee, S., Pawar, S. A., **Mondal, S.** & Sujith, R. I. (2019). Oscillation Quenching and Phase-Flip Bifurcation in Coupled Thermoacoustic Systems. *Chaos: An interdisciplinary Journal of nonlinear science*, 29(9), 093135

14. Manoj, K., Pawar, S. A., Dange, S., **Mondal, S.**, Sujith, R. I., Surovyatkina, E., & Kurths, J. (2019). Synchronization route to weak chimera in four candle-flame oscillators. *Physical Review E*, 100(6), 062204.

13. **Mondal, S.**, Pawar, S. A. & Sujith, R. I. (2019). Forced synchronization and asynchronous quenching of periodic oscillations in a thermoacoustic system. *Journal of Fluid Mechanics*, 864, 73-96.

12. De, S., Bhattacharya, A., **Mondal, S.**, Mukhopadhyay, A. & Sen, S. (2018). Investigation of flame behavior and dynamics prior to lean blowout in a combustor with varying mixedness of reactants for early detection of lean blowout. *International journal of spray and combustion dynamics*, 0(0), 1-20

11. Pawar, S. A., **Mondal, S.**, George, N. B. & Sujith, R. I. (2018). Synchronization Behaviour during the Dynamical Transition in Swirl-Stabilized Combustor: Temporal and Spatiotemporal Analysis. *AIAA Journal*, 57(2), 836-847.

10. Thomas, N., **Mondal, S**. Pawar, S. A. & Sujith, R. I. (2018). Effect of Noise amplification During the Transition to Amplitude Death in Coupled Thermoacoustic Oscillators. *Chaos: An interdisciplinary Journal of nonlinear science*, 28, 093116

9. Thomas, N., **Mondal, S.**, Pawar, S. A. & Sujith, R. I. (2018). Effect of Time-Delay and Dissipative Coupling on Amplitude Death of Coupled Thermoacoustic Oscillators. *Chaos: An interdisciplinary Journal of nonlinear science*, 28, 033119 **(chosen as the Editor's pick and highlighted in AIP Scilight)**

8. **Mondal, S.**, Unni, V. R. & Sujith, R. I. (2017). Onset of thermoacoustic instability in turbulent combustors: an emergence of synchronized periodicity through formation of chimera-like states. *Journal of Fluid Mechanics*, 811, 659-681

7. **Mondal, S.**, Pawar, S. A. & Sujith, R. I. (2017). Synchronous behavior of two interacting oscillatory systems undergoing quasiperiodic route to chaos. *Chaos: An interdisciplinary Journal of nonlinear science*, 27, 103119

6. **Mondal, S.**, Mukhopadhyay, A. & Sen, S. (2016) Bifurcation analysis of steady states and limit cycles in a thermal pulse combustor model, *Combustion Theory and Modelling*, 21:3, 487 – 502

5. **Mondal, S.**, Mukhopadhyay, A., & Sen, S. (2015). Nonlinear dynamics in pulse combustor: A review. *Pramana*, 84:3, 443 – 453

4. **Mondal, S.**, Mukhopadhyay, A. & Sen, S. (2014) Dynamic Characterization of a Laboratory-Scale Pulse Combustor, *Combustion Science and Technology*, 186:2, 139 – 152

3. **Mondal, S.**, Mukhopadhyay, A. & Sen, S. (2012) Effects of Inlet Conditions on Dynamics of a Thermal Pulse Combustor, *Combustion Theory and Modelling*, 16:1, 59 – 74

2. Ghosh, S., **Mondal, S.**, Mondal, T., Mukhopadhyay, A. & Sen, S. (2010) Dynamic characterization of candle flame, *International journal of spray and combustion dynamics*, 2:3, 267–284

1. Datta, S., **Mondal, S.**, Mukhopadhyay, A., Sanyal, D. & Sen, S. (2009) An investigation of nonlinear dynamics of a thermal pulse combustor, *Combustion Theory and Modelling*, 13:1, 17 — 38.

Conferences

Peer-Reviewed

19. Kumar, V., Datta, A., and, **Mondal, S**. Effect of Reactive Coupling on Synchronization of Two Dissimilar Pulse Combustors. *3rd International Conference on Mechanical Engineering* (INCOM 2026), January 08–10, 2026, Jadavpur University, Kolkata, India

18. Rout, D., **Mondal, S.**, Chakravarty, A., Ghosh, K., and Mukhopadhyay, A. Effect of Geometry on the Dynamics of Natural Circulation Loop. *3rd International Conference on Mechanical Engineering* (INCOM-2026), January 08-10, 2026, Jadavpur University, Kolkata, India.

17. Kumar, A., **Mondal, S.**, and, Dhar, J. Viscous Instability in Structured Porous Systems with Spherical Obstructions. *1st International Conference on Thermofluids Engineering* (INCOTHERM-2025), October 10-12, 2025, IIT(ISM) Dhanbad, India.

16. Kumar, V., Datta, A., and **Mondal, S**. Synchronization dynamics in a set of detuned pulse combustors with reactive coupling. *1st International Conference on Thermofluids Engineering* (INCOTHERM-2025), October 10-12, 2025, IIT(ISM) Dhanbad, India.

15. Kumar, V., Poojitha, P., **Mondal, S**, & Datta, A. Design of a microchannel heat sink to augment the thermal performance and minimize the entropy generation with microchamber and diamond rib in a wavy channel, *Proceedings of the 2nd International Conference on Fluid, Thermal and Energy Systems* (ICFTES'24), June 06-08, 2024, NIT Calicut, Kozhikode, Kerala, India.

14. Show, S., Datta, A. & **Mondal, S**. Passive Thermal Management of Electronic Devices in a PCM-Filled Semi-elliptical cavity, *Proceedings of the 2nd International Conference on Fluid, Thermal and Energy Systems* (ICFTES'24), June 06-08, 2024, NIT Calicut, Kozhikode, Kerala, India.

13. Samanta, D., Diwadkar, D., Kumar, V., Prasad, A., & **Mondal, S**. Rate-Dependent Bifurcation around subcritical Hopf point in Pulse Combustor, *Proceedings of the 2nd International Conference on Fluid, Thermal and Energy Systems (ICFTES'24)*, June 06-08, 2024, NIT Calicut, Kozhikode, Kerala, India.

12. Prasad, J. S., Dewan, A., & **Mondal, S**. Thermal Performance of Solar Air Heater with Inclined Offset Ribs Placed near Heated Wall, *Proceedings of the 2nd International Conference on Fluid, Thermal and Energy Systems (ICFTES'24)*, June 06-08, 2024, NIT Calicut, Kozhikode, Kerala, India.

11. Dutta, S., Chakraborty, A., Mukherjee, A., & **Mondal, S**. Experimental Analysis and Reduced-order Modelling of Merging flames, *Proceedings of ASME Turbo Expo 2023 - Gas Turbine India Conference (GTIndia 2023)*, December 7-8, 2023, Bangalore, Karnataka, India

10. Dutta, S., Chakraborty, A., Mukherjee, A., & **Mondal, S**. Spatiotemporal Dynamics of Merging Flames: Experiments and Spectral Proper Orthogonal Decomposition Analysis, *Proceedings of the 27th National and 5th International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC 2023)*, December 14-17, 2023, IIT Patna, Patna-801106, Bihar, India

9. Prasad, J. S., Datta, A., & **Mondal, S**. Numerical Study of Thermal and Flow Behaviour near the Heated Wall with Novel Offset Ribs Incorporated Inside a Solar Air Heater, *Proceedings of the 27th National and 5th International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTC 2023)*, December 14-17, 2023, IIT Patna, Patna-801106, Bihar, India

8. Bhattacharjee, S. S., Das, S. S., Datta, A., & **Mondal, S**. Efficacy of core cooling over natural and forced convection based surface cooling of Li-ion batteries, *Proceedings of the 48th National Conference on Fluid Mechanics and Fluid Power* (FMFP 2021), December 27-29, 2021, Online

7. Bhattacharjee, S. S., & **Mondal, S**. Effect of coolant precooling on axial core cooling of lithium-ion battery, *Proceedings of the International Conference on Mechanical Engineering and Renewable Energy 2021* (ICMERE 2021), 12 – 14 December 2021, Online

6. Bhattacharjee, S. S., Datta, A., & **Mondal, S.** Improved cooling system of Li-ion batteries by axial water flow through the core, *Proceedings of the 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference* (IHMTC 2021), December 17-20, 2021, Online

5. Mondal, R., Bose, C., & **Mondal, S.** Synchronization Study on Vortex-Induced Vibrations using Wake Oscillator Model, *Second International Nonlinear Dynamics Conference* (NODYCON 2021), February 16-19, 2021, online

4. Mazumder, A. G., Saha, R., **Mondal, S.**, Ghosh, K., Mukhopadhyay, A. & Sen, S. Effect of fluctuating heater power on the dynamics of a single-phase square NCL, *25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference* (IHMTC-2019), 28-31 December, 2019, IIT Roorkee, India.

3. **Mondal, S.**, Mukhopadhyay, A., Sen, S. & Polifke, W. Characterization of mixing and flow properties from numerical simulation of cold flow in non-premixed combustor, *ASME Gas turbine India Conference*, GTINDIA2014, 15-17 December, 2014, New Delhi, India.

2. **Mondal, S.**, Mukhopadhyay, A. & Sen, S. Effect of CO2 dilution with Methane in Thermal Pulse Combustor, *n3l – Int'l Summer School and Workshop on Non-normal and Nonlinear Effects in Aero- and Thermoacoustics*, Munich, Germany, 18th June – 21st June 2013.

1. **Mondal, S.**, Mukhopadhyay, A. & Sen, S. Dynamic Characterization of A Laboratory-scale Thermal Pulse Combustor, *Proceedings of ASME Turbo Expo*, GT2012, Copenhagen, Denmark, 11th June – 15th June 2012.

Abstract-Reviewed

20. Kumar, A., **Mondal, S.**, and Dhar, J. Impact of pore-scale heterogeneity and associated risk assessment of gravitational dissolution of supercritical CO2 in subsurface aquifers. *International Conference on Advanced Materials and Sustainable Development 2026 (iCAMSD 2026)*, July 12-15, 2026, Ton Duc Thang University, Ho Chi Minh City, Vietnam.

19. Rout, D., **Mondal, S**, Chakravarty, A., Ghosh, K., and Mukhopadhyay, A. Dynamics and Bifurcation of Natural Circulation Loop through Numerical Continuation. *Conference on Nonlinear Systems and Dynamics (CNSD-2026)*, July 07-11, 2026, ISER Thiruvananthapuram, India.

18. Rout, D., and **Mondal, S**. Effect of geometry on the oscillatory dynamics of Natural Circulation Loop. *40th Indian Engineering Congress* (IEC-2025), Dec 19-21, 2025, NIT Durgapur, India

17. Mohapatra, S., Harikrishnan, S., **Mondal, S.** and Mahapatra P. S. Dynamical analysis of a system of active disks with competing interaction rules, *Complex Fluids 2020*, IIT Bombay, December 10-12, 2020.

16. De, S., Agarwal, P., **Mondal, S.**, Bhattacharya, A., Mukhopadhyay, A., and Sen, S. Experimental Investigation on the Dynamics of Premixed Flame near Rich Blow-off (RBO), Proceedings of *International Conference on Energy and Sustainable Development* (ICESD 2020), Jadavpur University, Kolkata, February 14-15, 2020.

15. Prasad, J. S., **Mondal, S.**, Mukhopadhyay, A., Sen, S. Forced response of a model thermal pulse combustor, Proceedings of *International Conference on Energy and Sustainable Development*, Jadavpur University, Kolkata, February 14-15, 2020.

14. Bhattacharya, A., **Mondal, S.**, Saha, S., Chakroborty, A., Singh, P., De, S., Mukhopadhyay, A., Sen, S. Dynamic Transitions in Coupled Candle Flame Oscillators, *International Conference on Energy and Sustainable Development*, Jadavpur University, Kolkata, February 2020, pp.337-340.

13. Pawar, S. A, **Mondal, S.**, George, N. B. and Sujith, R. I. Synchronization Behaviour During the Dynamical Transition in Swirl-Stabilized Combustor: Temporal and Spatiotemporal Analysis, 2018 *AIAA SciTech Forum*, Florida, 08-12 January, 2018.

12. Thomas, N., **Mondal, S.**, Pawar, S. A. and Sujith, R. Amplitude Death Behaviour of Coupled Thermoacoustic Oscillators., *70th Annual meeting of American Physical Society Division of Fluid Dynamics* (APS DFD 2017), Denver, Colorado, 19-21 November, 2017.

11. **Mondal, S.**, Pawar, S. A. and Sujith, R. Forced synchronization and asynchronous quenching in a thermo-acoustic system, *70th Annual meeting of American Physical Society Division of Fluid Dynamics* (APS DFD 2017), Denver, Colorado, 19-21 November, 2017.

10. **Mondal, S.**, Unni, V. R. and Sujith, R. I. (2017). Chimera-like states observed during the transition to thermoacoustic instability in turbulent combustor. *International Workshop on Energy, Propulsion and Environment* (IWEPE 2017), IIT Kanpur, India, 8-11 March

9. **Mondal, S.**, Mukhopadhyay, A. and Sen, S. Stability analysis of limit cycle behaviour in thermal pulse combustor model, *10th Asia-Pacific Conference on Combustion*, Beijing, China, 19-22 July, 2015.

8. **Mondal, S.**, Mukhopadhyay, A. and Sen, S. Nonlinear Prediction of deterministic time series in Thermal Pulse Combustor, *10th Asia-Pacific Conference on Combustion*, Beijing, China, 19-22 July, 2015.

7. **Mondal, S.**, Mukhopadhyay, A. and Sen, S. Heat Transfer Characteristics of Thermal Pulse Combustor, Proceedings of the *21st National and 10th International ISHMT-ASME Heat and Mass Transfer Conference*, December 27-30, 2011, IIT Madras, India.

6. **Mondal, S.**, Mukhopadhyay, A. and Sen, S. An Experimental Study of Laboratory-Scale Thermal Pulse Combustor, *The Fifth European Combustion Meeting*, Cardiff University, Cardiff, Wales, UK, 28th June - 1st July 2011.

5. **Mondal, S.**, Mukhopadhyay, A. and Sen, S. An Experimental Investigation of Dynamics of a Thermal Pulse Combustor, Proceedings of the *37th International and 4th National Conference on Fluid Mechanics and Fluid Power* (FMFP2010), December 16-18, 2010, IIT Madras, Chennai, India.

4. **Mondal, S.**, Mukhopadhyay, A. and Sen, S. Dynamics of a Laboratory-Scale Thermal Pulse Combustor, *8th Asia-Pacific Conference on Combustion*, December 10-13, 2010, Hyderabad-500031 (India).

3. Ghosh, S., **Mondal, S.**, Mukhopadhyay, A. and Sen, S. Nonlinear Dynamic Study of a Flickering Flame, Proceedings of the *20th National and 9th International ISHMT-ASME Heat and Mass Transfer Conference*, January 4-6, 2010, Mumbai, India.

2. **Mondal, S.**, Mukhopadhyay, A. and Sen, S. Effects of Preheating and Dilution of Reactants on Dynamics of Thermal Pulse Combustor, *7th Asia-Pacific Conference on Combustion*, National Taiwan University, Taipei, Taiwan 24-27 May 2009.

1. **Mondal, S.**, Mukhopadhyay, A. and Sen, S. Effects of Inlet Conditions on Dynamics of Thermal Pulse Combustor, *Thirty Fifth National Conferences on Fluid Mechanics and Fluid Power*, December 11-13, 2008, PES Institute of Technology, Bangalore.

Book / Book Chapters

8. Rik Mondal, Chandan Bose, **Sirshendu Mondal**, "*Synchronization Study on Vortex-Induced Vibrations Using Wake Oscillator Model*", In: Advances in Nonlinear Dynamics. Springer, Cham, 65-74, 2022.

7. **Sirshendu Mondal**, Nevin Thomas, "*Mitigation of Thermoacoustic Instability Through Amplitude Death: Model and Experiments*", In: De A., Gupta A., Aggarwal S., Kushari A., Runchal A. (eds) Sustainable Development for Energy, Power, and Propulsion. Green Energy and Technology. Springer, Singapore, 287-322, 2020.

6. Achintya Mukhopadhyay, Dipankar Narayan Basu, **Sirshendu Mondal**, Swarnendu Sen, "*Dynamic Behaviour, Identification and Control of Energy Systems*" In "Dynamics and Control of Energy Systems", Springer, Singapore, 29-45, ISBN: 7989811505362, (2019).

5. Achintya Mukhopadhyay, Swarnendu Sen, Dipankar Narayan Basu, **Sirshendu Mondal** (Editors) "*Dynamics and Control of Energy Systems*", Springer, Singapore, 1-526, (2019).

4. **Sirshendu Mondal**, Achintya Mukhopadhyay, "*Unfolding Nonlinear Characteristics of Noise-Contaminated Real-World Data*" In "Dynamics and Control of Energy Systems", Springer, Singapore, 29-45, ISBN: 7989811505362, (2019).

3. **Sirshendu Mondal**, Samadhan A Pawar, R I Sujith, "*Synchronization transition in thermoacoustic system: Temporal and Spatiotemporal analysis*" In "Energy for Propulsion - A Sustainable Technologies Approach", Springer, Singapore, 125-150, (2018).

2. **Sirshendu Mondal**, Swarnendu Sen, Achintya Mukhopadhyay, "*Characterization of turbulent combustion systems using dynamical systems theory*" In "Modelling and Simulations of Turbulent Combustion", Springer, Singapore, 543-567, (2018)

1. Swarnendu Sen, **Sirshendu Mondal**, Achintya Mukhopadhyay, "*Dynamics of Thermal Pulse Combustor*" Chapter 11 pp. 269 – 312, In "Energy, Combustion and Propulsion: New Perspectives", Athena Academic, UK 2015. ISBN: 9781910390290, (2015)

Sponsored Projects

3. **Title**: Identification and Control of Instabilities in Natural Circulation Loops (NCLs) in Thermal and Nuclear Power Plants using Dynamical Systems Theory
Funding agency: MoE-STARS
Amount: 61.07 lakhs
Co-PI: Sirshendu Mondal
Duration: 2023-2026

2. **Title**: Design of high-performance microsinks with disruptive structure like cavity, secondary branch and rib
Funding agency: DST-SERB
Amount: 34.94 lakhs
Co-PI: Sirshendu Mondal
Duration: 2022-2025

1. **Title**: Investigation of coupled dynamics of a set of flickering flames through high-speed imaging
Funding agency: Research Initiative Grant (RIG), NIT Durgapur
Amount: 5 lakhs
PI: Sirshendu Mondal

Duration: 2019-2021

Administrative Responsibilities

3.

2.

1.

Skills

OS: Windows

Programming: MATLAB, Matcont

Simulation: ANSYS-FLUENT

Languages: Bengali (Native), English (Professional Proficiency), Hindi