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Curriculum Vitae

Dr. Niranjan Sahoo
Professor
Department of Mechanical Engineering
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Education

- Doctoral Degree (PhD): Department of Aerospace Engineering, Indian Institute of Science, Bangalore, June 2004
- Master Degree (M.E.): Thermal Engineering, Department of Mechanical Engineering, University of Roorkee (upgraded as IIT Roorkee), January 1998
- Bachelor Degree (B.E.): Mechanical Engineering, Utkal University, Bhubaneshwar, June 1996

Professional Experience

- February 2015 to till date: Professor, Department of Mechanical Engineering, Indian Institute of Technology Guwahati
- January 2010 to January 2015: Associate Professor, Department of Mechanical Engineering, Indian Institute of Technology Guwahati
- May- July 2010: Visiting Research Fellow, Shock Wave Laboratory, RWTH Aachen University, Germany
- December 2004 to December 2009: Assistant Professor, Department of Mechanical Engineering, Indian Institute of Technology Guwahati
- June 2006 to May 2007: Visiting Research Fellow, Division of Mechanical Engineering, University of Queensland, Brisbane, Australia
- March 2004 to November 2004: Research Associate, Department of Aerospace Engineering, Indian Institute of Science, Bangalore

Academic Awards/Honors

- 2010; Recipient of 2-months research fellowship under DAAD programme, Germany
- 2006-2007; Recipient of 12-months research fellowship under BOYSCAST programme, supported by Department of Science and Technology (DST), New Delhi
- 2008-2009; Recipient of Fast Track Project under Young Scientist Scheme supported by Department of Science and Technology, New Delhi

Research Areas and Interest

- Experimental aerodynamics in high speed flows
- Design and development of aero test facilities and instrumentation

- Measurement diagnostics for force and heat transfer
- Thermal sensors and its characterization
- Boundary layer transition
- Aerodynamic shape optimization
- Internal combustion engines
- Emulsified and blended fuels
- Alternative Fuels and dual-fuel combustion

Ongoing Research at IIT Guwhati

- Design and development of stress-wave force balance system
- Thermal Sensors for short duration temperature/heat flux measurements
- Design and development of shock tubes and impulsive facilities
- Shock assisted deformation processes
- Performance characteristics of dual-fuel combustion in diesel engines
- Experimental investigations on variable compression ratio engines

Courses Taught at IITG

- Engineering Drawing (UG)
- Engineering Mechanics (UG)
- Fluid Mechanics (UG, PG)
- Engineering Thermodynamics (UG)
- Applied Thermodynamics (UG)
- Heat and Mass Transfer (UG)
- Refrigeration and Air Conditioning (UG/PG)
- Gas Dynamics (PG)
- Experimental Methods (PG)
- Combustion (PG)
- Viscous Fluid Flow (PG)
- Aircraft Propulsion (PG)

Supervision of Students

- Research Scholar (PhD): 16-completed; 16-ongoing
- Master Degree (M. Tech/MS): 52-completed; 5-ongoing
- Bachelor Degree (B. Tech): 15-completed; 3-ongoing

Research Projects

- **2019-2021,** Stress Wave Force Balance (SWFB) Technique: An alternative method of accurate force measurement, sponsored by India Space Research Organization (ISRO-VSSC-RESPOND), Bangalore (Principal Investigator – PI)
- **2019-2021,** Experimental studies on fineness of a wing, sponsored by Defense Research and Development Board (AR&DB–Aerodynamic panel), New Delhi (Co Investigator)
- **2015-2019,** Calibration methods of high frequency thermal sensors for localized temperature and heat flux measurements in gas turbine and internal combustion engine

application, sponsored by Defense Research and Development Board (AR&DB–GTMAP Panel), New Delhi (Principal Investigator - PI)

- **2016-2017,** Compressible flow solver with immersed boundary approach, sponsored by India Space Research Organization (ISRO-VSSC-RESPOND), Bangalore (Co Investigator)
- **2015-2017,** Laser based calibration methodology for thermal sensors in combustion measurements, sponsored by Defense Research and Development Board (ER&IPR), New Delhi (Principal Investigator - PI)
- **2012-2014,** Development of a conjugate heat transfer solver for hypersonic applications, sponsored by Aeronautics Research and Development Board, New Delhi (Co Investigator)
- **2011-2012,** Utilization of Biowaste for Generating Power in Diesel Engines, sponsored by Defense Research Laboratory, Tezpur (Co Investigator)
- **2010-2012**, Shock tube development and verification of capabilities of existing correlation for stagnation point heat transfer rate, sponsored by Aeronautics Research and Development Board, New Delhi (Principal Investigator - PI)
- **2010-2012**, Design and Performance Analysis of Twisted Two-bladed, Two-stage Savonius Rotor for 500W Power Generation, sponsored by ADnEnergy, Mumbai, (Co Investigator)
- **2009-2012,** Design, Development and Performance Evaluation of Stress Wave Force Balances for Aerospace Applications" sponsored by Department of Science and Technology, Govt. of India, New Delhi (Principal Investigator - PI)

Curriculum Development Project (In association with other faculty members)

- **2021**: Applied Thermodynamics (Mechanical Engineering/Energy Systems/Propulsion), MOOCs Course (30 hours & 12 Weeks, UG) offered under NPTEL platform
  Course URL: https://onlinecourses.nptel.ac.in/noc21_me119/preview
- **2021**: Fundamentals of Compressible Flow (Mechanical/Aerospace Engineering), MOOCs Course (30 hours & 12 Weeks, PG) offered under NPTEL platform
  Course URL: https://onlinecourses.nptel.ac.in/noc21_me123/preview
- **2020**: Fundamentals of Compressible Flow (Mechanical/Aerospace Engineering), MOOCs Course (20 hours & 8 Weeks, PG) offered under NPTEL platform
  Course URL: https://swayam.gov.in/nd1_noc20_me59/preview
- **2010-2014,** "Virtual Laboratory Experiences in Fluid and Thermal Sciences" MHRD, New Delhi
- **2009-2012,** "Principles of Fluid Dynamics and Hypersonic Aerodynamics", Web Course Developer (Aerospace Engineering) under NPTEL II/III
- **2011**, QIP Sponsored Short Term Course on "Recent Trends in Fuels and Combustion", Department of Mechanical Engineering, Indian Institute of Technology Guwahati, 29th August to 02nd September 2012
- **2008**, QIP Sponsored Short Term Course on "Aerospace Propulsion for Beginners", Department of Mechanical Engineering, Indian Institute of Technology Guwahati, December 8-12

- **2005-2007**, "Fluid Mechanics" Web Course Developer (Civil Engineering) under NPTEL
- **2005-2007**, Preparation of Self-Instructional Course Material on "Refrigeration and Air-conditioning/Utilization" under Construction Education and Training Project (CETP) by Construction Industry Development Council (CIDC) for Indira Gandhi National Open University (IGNOU)

Research Publications

- Referred Journals: 107
- Conferences: 127
- Book Chapters: 10

Selected Journal Publications

- A. K. Rout, N. Sahoo and P. Kalita, Transient response characteristics and performance assessment of calorimetric surface junction probe under impulse thermal loading, ASME Journal of Heat Transfer, Vol. 143, 062901 (1-11): 2021, DOI: https://doi.org/10.1115/1.4050822
- A. K. Rout, S. Agarwal, N. Sahoo and P. Kalita, Fast response transient behavior of a coaxial thermal probe and recovery of heat flux for shock tube flows, Experimental Thermal and Fluid Science Vol. 127, 110427, 2021, DOI: https://doi.org/10.1016/j.expthermflusci.2021.110427
- A. K. Rout, S. R. Nanda, N. Sahoo, P. Kalita and V. Kulkarni, Implementation of soft computing technique for recovery of impulsive heat loads, Journal of Thermophysics and Heat Transfer, (1-10), 2021, DOI: http://doi.org/10.2514/1.T6269
- Wittison Kamei, Niranjan Sahoo and V. V. D. N. Prasad, Investigation of engine performance and combustion and use of oxidation catalysts in an LPG-Diesel dual-fuel engine, ASCE Journal of Energy Engineering, 04021055 (1-12): 2021, DOI: https://orcid.org/0000-0003-1672-0742
- Wittison Kamei, Niranjan Sahoo and V. V. D. N. Prasad, Dimethyl ether and liquefied petroleum gas co-fumigation and oxidation catalyst exhaust after treatment: A synergy for improvement of thermal efficiency and emissions in a dual-fuel engine, ASME Journal of Energy Resource Technology, Vol. 143, 112301 (1-9): 2021, DOI: https://doi.org/10.1115/1.4049601
- S. K. Barik, R. G. Narayanan and N. Sahoo, Failure strain and fracture prediction during shock tube impact forming of AA5052-H32 sheet, ASME Journal of Engineering Materials and Technology, 143, 031009 (1-14), 2021. DOI: https://doi.org/10.1115/1.4050703
- S. R. Nanda, V. Kulkarni, N. Sahoo and V. Menezes, Sensitivity studies of ANFIS based force recovery technique towards predictions of aerodynamic load, Flow Measurement and Instrumentation, 80, 101969 (1-7), 2021, DOI: https://doi.org/10.1016/j.flowmeasinst.2021.101969
- Shuvayan Brahmachary, Ganesh Natarajan, Vinayak Kulkarni, Niranjan Sahoo, V. Ashok and Vinod Kumar, On the role of solution reconstruction for hypersonic viscous

computations using sharp interface immersed boundary method, Physical Review E, Vol. 043302 (1-22), 2021

- S. Brahmachary, G. Natarajan, V. Kulkarni, and N. Sahoo, Comment on "A new approach for the design of hypersonic scramjet inlets" [Phys. of Fluids, 24, 086103 (2012)], Physics of Fluids, Vol. 32, 079101 (1-3): 2020, DOI:10.1063/5.0006408
- Ashutosh Kumar Singh, Kuldeep Singh, Dushyant Singh and Niranjan Sahoo, Large eddy simulations for film cooling assessment of cylindrical and laidback fan-shaped holes with reverse injection, ASME Journal of Thermal Science and Engineering Applications, Vol. 13. 031027 (1-16): 2020, DOI: https://doi.org/10.1115/1.4048679
- S. Pandian, S. L. N. Desikan and Sahoo Niranjan, Onset of cavity oscillation from transverse to longitudinal mode in a supersonic flow, ASME Journal of Fluids Engineering, Vol. 142, 061203 (1-10): 2020 DOI:10.1115/1.4046369
- S. Pandian, S. L. N. Desikan and Sahoo Niranjan, Non-linear characteristics of a rectangular cavity in supersonic flow, AIAA Journal, Vol. 58, No. 3, pp. 1206-1215, 2020 DOI: https://doi.org/10.2514/1.J058709
- S. K. Barik, R. G. Narayanan and N. Sahoo, Prediction of forming of AA 5052-H32 sheets under impact loading and experimental validation, Journal of Materials Engineering and Performance, 29 (6), 3941–3960, 2020
  DOI: https://doi.org/10.1007/s11665-020-04884-w
- S. K. Barik, R. G. Narayanan and N. Sahoo, Forming response of AA5052-H32 sheet deformed using a shock tube, Transactions of Nonferrous Metals Society of China, Vol. 30, No. 3, pp. 603-618, 2020
- Santosh Kumar Hotta, Niranjan Sahoo, Kaustubha Mohanty and Vinayak Kulkarni, Ignition timing and compression ratio as effective means for the improvement in the operating characteristics of a biogas fueled spark ignition engine, Renewable Energy, Vol. 150, pp. 854-867, 2020 DOI: https://doi.org/10.1016/j.renene.2019.12.145
- Anil Kumar Rout, Niranjan Sahoo and Pankaj Kalita, Effectiveness of coaxial surface junction thermal probe for transient measurements through laser based heat flux assessment, Heat and Mass Transfer, Vol. 56, pp. 1141-1152, 2020, DOI: https://doi.org/10.1007/s00231-019-02775-y
- Sangjukta Devi, Niranjan Sahoo and P. Muthukumar, Experimental studies on biogas combustion in a novel double layer inert porous radiant burner, Renewable Energy, Vol. 149, pp. 1040-1052, 2020, DOI: https://doi.org/10.1016/j.renene.2019.10.092
- S. Pandian, S. L. N. Desikan and N. Sahoo, Onset of transition shock interaction with cavity shear layer, AIAA Journal, Vol. 57, No. 9, pp. 3773-3778, 2019,
  DOI: 10.2514/1.J058448
- Soumya Ranjan Nanda, Vinayak Kulkarni, Niranjan Sahoo and Viren Menezes, A comparison of accelerometer and piezofilm-based force balances for hypersonic shock tunnels, Proceedings of IMeche Part G: Journal of Aerospace Engineering, Vol. 233, No. 14, pp. 5310-5320, 2019 DOI: 10.1177/0954410019845200
- Soumya Ranjan Nanda, Vinayak Kulkarni, Niranjan Sahoo and Viren Menezes, An innovative approach for prediction of aerodynamic coefficients in shock tunnel testing with soft computing, Measurement, Vol. 134, pp. 773-780, 2019

DOI: https://doi.org/10.1016/j.measurement.2018.11.007

- S. K. Hotta, N. Sahoo and K. Mohanty, Comparative assessment of a spark ignition engine fueled with gasoline and raw biogas, Renewable Energy, Vol. 134, pp. 1307-1319, 2019, DOI: 10.1016/j.renene.2018.09.049
- A. J. Chaudhari, S. K. Hotta, N. Sahoo and V. Kulkarni, Combined impact of compression ratio and re-circulated exhaust gas on the performance of a biogas fueled spark ignition engine, Journal of Renewable and Sustainable Energy, Vol. 11, 013104 (1-15), 2019, DOI: https://doi.org/10.1063/1.5045742
- A. Chaudhari, S. K. Hotta, N. Sahoo and V. Kulkarni, Effect of vertical location of the spark plug on the performance of a raw biogas fueled variable compression ratio spark ignition engine, Energy and Environment, pp. 1-26, 2109, DOI: 10.1177/0958305X19841270
- A. Chaudhari, V. Kulkarni and N. Sahoo, State-of-the-art technology in variable compression ratio mechanism for spark ignition engine, Sadhana – Proceedings of Indian Academy of Sciences, Vol. 43, No. 211, pp. 1-16, 2018
- S. Agarwal and N. Sahoo, An experimental investigation towards calibration of a shock tube and stagnation heat flux determination, International Journal of Aerodynamics, Vol. 6, No. 1, pp.18-40, 2018
- S. Pandian, S. L. N. Desikan and N. Sahoo, Experimental investigation of starting characteristics and wave propagation from a shallow open cavity and its acoustic emission at supersonic speed, Physics of Fluids, Vol. 30, 016104, 2018, DOI: 10.1063/1.5006813
- M. W. Mekonen and N. Sahoo, Combined effects of fuel and intake air preheating for improving diesel engine operating parameters running with biodiesel blends, Renewable Energy Focus, Vol. 26, September 2018, DOI: 10.1016/j.ref.2018.07.003
- M. W. Mekonen and N. Sahoo, Combined effects of fuel and intake air preheating for improving diesel engine operating parameters running with biodiesel blends, Journal of Renewable and Sustainable Energy, Vol. 10, 043103, 2018, DOI: 10.1063/1.5024622
- S. K. Hotta, N. Sahoo and K. Mohanty, Ignition advancement study for optimized characteristics of a raw biogas operated spark ignition engine, International Journal of Green Energy, 2018, DOI: 10.1080/15435075.2018.1544901
- S. Brahmachary, G. Natarajan and N. Sahoo, On maximum ballistic coefficient axisymmetric geometries in hypersonic flows, Journal of Spacecraft and Rockets, Vol. 55, pp. 518-522, 2018
- S. Brahmachary, G. Natarajan, V. Kulkarni and N. Sahoo, A sharp-interface immersed boundary framework for simulations of high-speed inviscid compressible flows, International Journal of Numerical Methods in Fluids, Vol. 86, pp. 770-791, 2018
- S.R. Nanda, S. Agarwal, N. Sahoo, and V. Kulkarni, Shock tube as an impulsive application device, International Journal of Aerospace Engineering, 2017, DOI: 10.1155/2017/2010476
- S.R Nanda, V. Kulkarni, N. Sahoo, Apt strain measurement technique for impulsive loading applications, Measurement Science and Technology, 28(3): 037001, 2017

- S. Dasari, A. J. Chaudhari, N. Sahoo, V.V. Goud and V.N. Kulkarni, In-situ alkaline transesterification of castor seeds: Optimization and engine performance, combustion and emission characteristics of blends, Energy Conversion and Management, Vol. 142, pp. 200-214, 2017
- S. Agarwal, N. Sahoo and R.K. Singh, Experimental techniques for thermal product determination of coaxial surface junction thermocouples during short duration transient measurements, International Journal of Heat and Mass Transfer, Vol. 103, pp. 327-335, 2016.
- S. Sarma, N. Sahoo and A. Unal, Thin film gauges using carbon nanotubes as composite layers, ASME Journal of Engineering Materials and Technology, Vol. 138, No. 4, pp. 041014(1)-041014(8), 2016.
- S. Sarma, N. Sahoo and A. Unal, Calibration of silver thin film gauge for short duration step heat load, Sadhna – Indian Academy of Sciences, Vol. 41, No. 7, pp. 787-794, 2016
- N. Sahoo and R. Kumar, Performance assessment of thermal sensors during short-duration convective surface heating measurements, Heat Mass Transfer, Vol. 52, No. 9, pp. 2005-2013, 2016
- B. K. Debnath, U. K. Saha and N. Sahoo, A comprehensive review on the application of emulsions as an alternative fuel for diesel engines, Renewable and Sustainable Energy Reviews, Vol. 42, pp. 196-211, 2015
- G. Natarajan, N. Sahoo, V. Kulkarni, Optimal fore-body shape for minimum drag in supersonic flow, Journal of the Institution of Engineers (India): Series C, Vol. 96, No. 1, pp. 05-11, 2015
- B. K. Debnath, U. K. Saha and N. Sahoo, An experimental way of assessing the application potential of emulsified palm biodiesel towards alternative diesel, ASME Journal of Engineering for Gas Turbines and Power, Vol. 136, pp. 021401(1)-021401(12), 2014
- B. K. Debnath, U. K. Saha and N. Sahoo, A theoretical route towards the estimation of second law potential of an emulsified palm biodiesel run diesel engine, ASCE Journal of Energy Engineering, 140; pp. A4014007(1)-A4014007(10), 2014
- B. K. Debnath, B. J. Bora , N. Sahoo and U. K. Saha U. K., Influence of emulsified palm biodiesel as pilot fuel diesel engine, ASCE Journal of Energy Engineering, 140; pp. A4014005(1)-A4014005(9), 2014
- P. Ramesh babu, D. Bommana, V. Kulkarni, N. Sahoo and S. K. Dwivedy, Experimental assessment of non-contact type laser based force measurement technique for impulsive loading, International Journal of Structural and Dynamics, Vol. 14, No. 4, pp. 1450003(1)-1450003(11), 2014
- R. Kumar and N. Sahoo, Dynamic calibration of K-type coaxial thermocouple for transient measurement, ASME International Journal of Heat Transfer, Vol. 135, pp. 1245021-1245027, 2013
- R. K. Peetala, N. Sahoo and V. Kulkarni, Prediction of short-duration transient surface heat flux using various analytical techniques, Heat Transfer – Asian research, Vol. 42, No. 6, pp. 530-543, 2013

- B. K. Debnath, N. Sahoo and U. K. Saha, Adjusting the operating characteristics to improve the performance of an emulsified palm oil methyl ester run diesel engine, Energy Conversion and Management, Vol. 69, pp. 191–198, 2013
- B. K. Debnath, N. Sahoo and U. K. Saha, Thermodynamic analysis of a variable compression ratio diesel engine running with palm oil methyl ester**,** Energy Conversion and Management, Vol. 65, pp. 147-154, 2013
- R. Kumar, N. Sahoo and V. Kulkarni, Conduction based calibration of handmade platinum thin film heat transfer gauges for transient measurements, International Journal of Heat and Mass Transfer, Vol. 55, pp. 2707-2713, 2012
- B. K. Debnath, U. K. Saha and N. Sahoo, Effect of hydrogen-diesel quantity variation on brake thermal efficiency of a dual fuelled diesel engine, Journal of Power Technologies, Vol. 92, No. 1, pp. 55–67, 2012
- B. K. Debnath, U. K. Saha and N. Sahoo**,** Effect of compression ratio and injection timing on the performance characteristics of a diesel engine running on palm oil methyl ester, Journal of Power and Energy, Proceedings of the Institution of Mechanical Engineers (IMechE, Part A), Vol. 227, No. 3, pp. 368-382, 2012
- B. B. Sahoo, U. K. Saha U.K. and N. Sahoo**,** Diagnosing the effects of pilot fuel quality on availability terms in a biogas run dual fuel diesel engine, International Journal of Exergy, Vol. 10, No. 1, pp. 77-93, 2012
- B. B. Sahoo, N. Sahoo and U. K. Saha, Effect of H_2:CO ratio in syngas on the performance of a dual fuel diesel engine operation, Applied Thermal Engineering, Vol. 49, pp. 131-146, 2012
- R. Kumar, N. Sahoo, V. Kulkarni and A. Singh, Laser based calibration technique of thin film gauges for short duration transient measurement, Journal of Thermal Science and Engineering Applications: Transactions of ASME, Vol. 3, No. 4, pp. 44504-445049, 2011
- B. B. Sahoo, U. K. Saha, and N. Sahoo, Theoretical performance limits for syngas-diesel fueled compression ignition engine from second law analysis, Energy, Vol. 36, pp. 760-769, 2011
- B.B. Sahoo, U. K. Saha and N. Sahoo, Effect of load level on the performance of a dual fuel compression ignition engine operating on syngas fuels with varying H_2/CO content, Journal of Gas Turbine and Power, Transactions of ASME Vol. 133, No. 12, pp. 122802-1:12, 2011
- N. Sahoo and R. K. Peetala, Transient surface heating rates from a nickel film sensor using inverse analysis, International Journal of Heat and Mass Transfer, Vol. 54, pp. 1297-1302, 2011
- V. Kulkarni, N. Sahoo and S. D. Chavan, Simulation of honeycomb-screen combinations for turbulence management in a subsonic wind tunnel, Journal of Wind Engineering and Industrial Aerodynamics, Vol. 99, pp. 37-45, 2011
- N. Sahoo and R. K. Peetala, Transient temperature data analysis for a supersonic flight test, ASME Journal of Heat Transfer, Vol. 132, 0845031-0845035, 2011
- B.B. Sahoo, N. Sahoo and U.K. Saha, Effect of engine parameters and type of gaseous fuel on the performance of dual-fuel gas diesel engines – A critical review, Renewable and Sustainable Energy Reviews, Vol. 13, pp. 1151-1184, 2009

- B.B. Sahoo, N. Sahoo, P. Mahanta, L. Borbora, P. Kalita and U.K. Saha, Performance assessment of a solar still using blackened surface and thermocol insulation, Renewable Energy, Vol. 33, No. 7, pp. 1703-1708, 2008
- V. K. Pantangi, A.S.S.R.K. Kumar, S. C. Mishra and Niranjan Sahoo, Performance analysis of domestic LPG cooking stoves with porous media, International Energy Journal, Vol. 8, pp. 139-144, 2007
- N. Sahoo, D.R. Mahapatra, G. Jagadeesh, S. Gopalakrishnan and K.P.J. Reddy, Design and analysis of a flat accelerometer based force balance for shock tunnel testing, Measurement, Vol. 40 (1), pp. 93-106, 2007
- N. Sahoo, S. Saravanan, G. Jagadeesh and K.P.J. Reddy, Simultaneous measurement of aerodynamic and heat transfer data for large angle blunt cones in hypersonic shock tunnel, Academy Proceedings in Engineering Sciences, SADHANA, Vol. 31, Part 5, pp. 557-581, 2006
- N. Sahoo, V. Kulkarni, S. Saravanan, G. Jagadeesh and K.P.J. Reddy, Film cooling effectiveness on a large angle blunt cone flying at hypersonic speed, Physics of Fluids, Vol. 17, No. 3, pp. 1-11, 2005
- N. Sahoo, K. Suryavamshi, K. P. J. Reddy and D. J. Mee, Dynamic force balances for short-duration hypersonic testing facilities, Experiments in Fluids, Vol. 38, pp. 606-614, 2005
- N. Sahoo, D.R. Mahapatra, G. Jagadeesh, S. Gopalakrishnan and K.P.J. Reddy, An accelerometer balance system for measurement of aerodynamic force coefficients over blunt bodies in a hypersonic shock tunnel, Measurement Science and Technology, Vol. 14, pp. 260-272, 2003

Seminars Presentations and Invited Delegates

- **2021**, Resource Speaker and Organizer for TEQIP III Short Term Course (STC) on Combustion, Emission and Power Technology, School of Energy Science and Engineering, Indian Institute of Technology Guwahati, 22-26 February 2021.
- **2021**, Resource Speaker and Organizer for TEQIP III Short Term Course (STC) on Aerospace Technology – Theory and Practice, Department of Mechanical Engineering, Indian Institute of Technology Guwahati, 17-21 February.
- **2021**, Invited Speaker for AICTE Faculty Development Programme (FDP) on Experimental and Computational Methods in Fluid Flow and Heat Transfer in Engineering Applications, National Institute of Technology Manipur, 15-19 February
- **2020**, Invited Speaker for TEQIP-III Faculty Development Programme (FDP) on Vibration Analysis and Condition Monitoring for Rotating Machines (VACMRM – 2020), Indira Gandhi Institute of Technology Sarang, Dhenkanal, 05-09 October
- **2020**, Invited Speaker for National Seminar on Future Trends in Mechanical Engineering (NSFTME-2020), Parala Maharaja Engineering College, Berhampur, 07-09 September
- **2020,** Invited Speaker for TEQIP-III "National Conference on Mechanical, Materials and Renewable Energy Technology (NCMMRET 2020)", Einstein Academy of Technology and Management, Bhubaneswar, 10-11 January

- **2019**, Session Organizer for Renewable Energy (Track 6) – ASME 2019 Gas Turbine India Conference, IIT Madras, 5-6 December
- **2019,** Invited Speaker for TEQIP-III International Conference on "Recent Advancement in Air-conditioning Refrigeration (RAAR-2019), C. V. Raman College of Engineering, Bhubaneswar, 28-30 November
- **2019,** Invited Speaker and Delegate, International Joint Meeting and Symposium at GIFU University, Japan, 07-10 October, Title: Green energy technology for study of biofuels in internal combustion engines
- **2019,** Resource Speaker for TEQIP-III National Seminar on "Recent Scopes and Technologies in Mechanical Engineering", Government Engineering College, Bhawanipatna, Odisha, 20-21 September
- **2019,** Resource Speaker for TEQIP-III Seminar, NIT Manipur, 27-28 August
- **2019,** Invited Speaker, GTMAP-Project, AR&DB-DRDO Workshop, 19 July, IISc Bangalore, Title: Calibration methods of high frequency thermal sensors for localized temperature and heat flux measurements in gas turbine and internal combustion engine applications,
- **2019,** Resource Speaker for TEQIP-III Workshop on "Clean Energy Technologies", IIT Guwahati, 10-14 June
- **2018,** Resource Speaker for TEQIP-III Workshop on "Energy Efficient and Green Energy Technologies", IIT Guwahati, 26-30 November 2018
- **2018,** Resource Speaker for TEQIP-III Workshop on "Combustion Process in IC Engines (CPICE – 2018)", National Institute of Technology (NIT) Silchar, 01-05 November
- **2018,** Invited Speaker, Recent Advances in Hypersonic and Shock Wave Research Symposium, 20 July 2018, IISc Bangalore, Title: Shock tube as an impulsive device for high strain rate deformation studies of metallic sheets and characterization of thermal sensors
- **2018,** Session Chairman for 5TH National Symposium on Shock Waves (NSSW 2018), Terminal Ballistics Research Laboratory (TBRL), Chandigarah, 26-28 February
- **2017,** Resource Speaker for under graduate (B. Tech) students for Internal Combustion Engines and Fluid Dynamics, ICFAI University, Tripura,
- **2015,** ICOVP (12TH International Conference on Vibration Problems) held during 14-17 December, Indian Institute of Technology Guwahati. Title: High frequency sensors for force and heat transfer measurements during short duration experiments
- **2012**, NSAET (National Seminar on Advances in Engine Technology) held at Gandhi Institute for Education and Technology, Bhubaneshwar, 30-31 March, Title: Engine technology for study of alternative fuels *(Invited Talk)*
- **2012**, NSSW2 (National Symposium on Shock Waves) held at Periyar Maniammai University Thanjavur, Tamil Nadu, 27-28 February, Title: Heat transfer and force measurement studies in hypersonic flow Heat transfer and force measurement techniques in short duration experimental facilities *(Invited talk)*
- **2011**, NSSW1 (National Symposium on Shock Waves) held at Indian Institute of Science Bangalore 15TH March, Title: Heat transfer and force measurement studies in hypersonic flows. (*Invited talk*)

- **2010**, ASME-ATI-UIT International Conference on "Thermal and Environmental Issues in Energy Systems", Sorrento, Italy, 16-19 May. Title: Effect of H_2: CO ratio in syngas for a dual-fuel diesel engine operation.
- **2008** (04TH April), Division of Mechanical Engineering, University of Queensland, Brisbane, Australia. Title: Research Towards Common man's Needs – An Indian Scenario.
- **2008** (14TH February), Division of Mechanical Engineering, University of Queensland, Brisbane, Australia. Title: Boundary Layer Transition Experiment in ZUNI Flight.
- **2007**, 16TH Australasian Fluid Mechanics Conference, Crown Plaza, Gold Coast, Australia, 03-07 December. Title: Experiments on a blunt cone in a hypersonic shock tunnel.
- **2005**, International Workshop on Contemporary Research in Hypersonic and Shock Waves, Department of Aerospace Engineering, Indian Institute of Science, Bangalore, 27-28 January (*Invited delegate*)