CurriculumVitae

Dr. Rakesh Kumar, Associate Professor,
Department of Mechanical Engineering,
Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand, India, Pin - 826004
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Area of Interest:

- Transient heat flux measurement analysis,
- Temperature Sensors (Thin film gauge, Coaxial thermocouple, Thermocouple, etc.)
- Internal Combustion Engine,
- Solar air heater,
- Nanomaterial and Nanofluid.

Education:

- ***Ph.D. (Specialization: Thermal Engineering)***
  Doctor of Philosophy (Ph.D.) in Mechanical Engineering (Awarded in January 2014), Indian Institute of Technology Guwahati, Assam.
  Title: **Design, Fabrication and Novel Calibration Techniques for Heat Transfer Gauges during Short-Duration Transient Measurement.**
- ***M.Tech. (Specialization: Thermal Engineering)***
  Master of Technology (M.Tech.) in Mechanical Engineering (Passed in May 2006, Marks: 74%), National Institute of Technology Patna, Bihar.
  Title: **An Analytical Investigation into Critical Heat Flux Condition in High-Pressure Boiling Water Flows.**
- ***B.E. (Mechanical Engineering)***
  Bachelor of engineering (B.E.) in Mechanical Engineering (Passed in May 2002, Marks: 73%), RPS Institute of Technology Patna, Magadh University, Bihar.

Working Experience:

- **Indian Institute of Technology (ISM), Dhanbad**
  Associate Professor, Department of Mechanical engineering (from 13.04.2022 to Till Date)
- **Indian Institute of Technology (ISM), Dhanbad**
  Assistant Professor, Department of Mechanical engineering (from 03.09.2012 to 12.04.2022)
- **Maulana Azad College of Engineering and Technology (MACET) Patna**
  Lecturer, Department of Mechanical engineering (from 01.02.2007 to 31.12.2008)
- **Institute of Engineering and Technology (NIET) Patna**
  Lecturer, Department of Mechanical engineering (from 01.06.2006 to 31.01.2007)

Awards:

- **Awarded** *Young Investigator Award 2012* for outstanding contribution in the field of **"*Design, Fabrication and Analysis of Temperature Sensors*"** in the International Conference on Mechanical and Industrial Engineering (ICMIE-2012), Goa, India.

Ph.D. Student Supervision:

Sl. No.	Name of Candidate	Registration No. with date	Status of work done	Sole or Joint	PhD Thesis Topic
1.	Ashish Narayan	2014DR0061, 31/01/2014	**Awarded**	Joint (Principle guide)	Investigations of hypersonic flow past different nose cone configurations: Aerodynamic-Drag and heating characteristics
2.	Ashif Perwez	2014DR0128, 11/07/2014	**Awarded**	Sole	Thermal performance investigations of a dimple cooling channel and its applications
3.	Rishikesh Goswami	2014DR0100, 21/02/2014	**Awarded**	Sole	Transient thermal analysis by using thin film heat transfer gauges
4.	Sanjeev Kumar manjhi	2015DR0055, 06/02/2015	**Awarded**	Sole	Development and performance assessment of coaxial thermocouples for quick measurements of transient heat flux
5.	Arjun K. S.	2015DR1051, 17/01/2015	**Awarded**	Sole	Numerical analysis of heat transfer enhancement due to dynamic motion of nanofluids, augmented by magnetic flux, pin fins, and bluff body
6.	Tanweer Alam	2014DR1104, 19/02/2014	**Awarded**	Sole	Dynamic response evaluation of thin film gauge in different heat transfer modes for transient measurements
7.	Abhishek Bhushan	2015DR1052, 17/01/2015	**Awarded**	Sole	Experimental analysis of Dimple based Solar Air Heater for Photovoltaic (PV) Cooling Systems
8.	Antariksh Gupta	2017DP0243, 28/06/2017	**Awarded**	Sole	Numerical and physical modeling of Tundish flow phenomenon and Slag entrainment in the Steel making process
9.	Vivek Kumar	2016DR0036, 15/12/2016	**Awarded**	Joint (Co-guide)	Energy and exergy analysis of coal-fired thermal power plant
10.	Vivek Singh	16DR1052, 26/10/2015	**Awarded**	Joint (Principle guide)	Thermal Performance analysis of active Solar still
11.	Sudha Rani Panda	18DR0138, 29/07/2018	**Awarded**	Sole	Thermal performance analysis of solar air heater using different configuration of dimple imprinted absorber plate

12.	Kundan Kumar	18DR0070, 29/07/2018	**Awarded**	Joint (Co-guide)	Experimental studies on the feasibility of biodiesel derived from waste cooking oil with additives in compression ignition engine
13.	Amardeep	18DR0385, 22/02/2018	**50% work is completed**	Sole	Experimental studies on use of blends of waste plastic oil, biofuels and diesel in compression ignition engine
14.	Ankit Kumar	18DR0031, 29/07/2018	**Thesis Writing**	Sole	Exergy analysis of fluidised bed gasifier using Indian coals
15.	Saurav Kumar Chakravarti	19DR0138, 01/08/2019	**50% work is completed**	Sole	Design, fabrication and dynamic calibration of nanomaterial based temperature sensors
16.	Uttam Kumar	21DR0210	**60% work is completed**	Sole	Impact and surface heat flux analysis on aerodynamic nose cones of different geometries
17.	Kumar Shambhav	22DR0107, 08/08/2022	**40% work is completed**	Sole	Transient surface heat flux measurement analysis during friction stir welding
18.	Ashish Kumar	22DR0062, 08/08/2022	**50% work is completed**	Sole	Green Synthesis, Parametric Optimization, and Applications of Hybrid Organic Phase Change Materials: A Circular Economy Perspective
19.	Rajeev Kumar Mandal	22DR0199, 08-08-2022	**40% work is completed**	Sole	Design and experimental analysis of Phase change materials (PCMs) based solar air heaters
20.	Kaushik Anand	23DR0063, 18-07-2023	**30% work is completed**	Sole	Experimental and numerical analysis of cavities based solar air heaters
21.	Parmesh Kumar	24DR0116, 27-06-2024	**20% work is completed**	Sole	Thermal Performance analysis of Phase change materials (PCMs) during heat energy storage

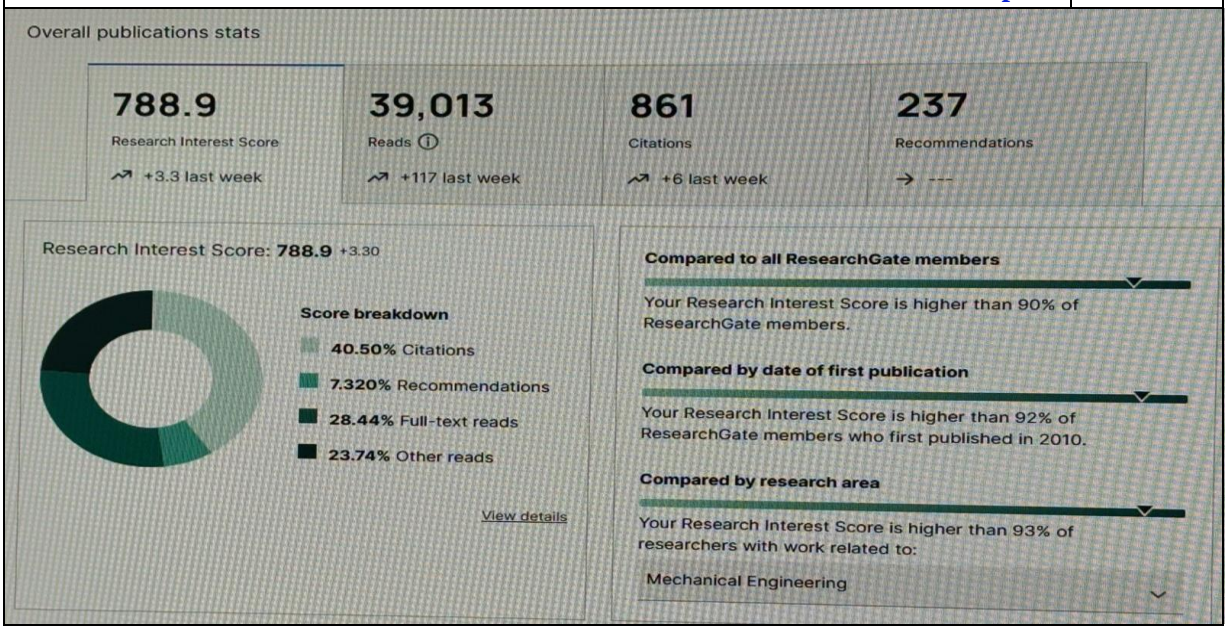
Post Graduate Student Supervision:

Sl. No.	Name of Student	Admission No.	Topic of Project	Status
1.	Pawan Kumar	14MT000006	Design, fabrication and static calibration of coaxial thermocouple for short duration transient measurement	**Completed**
2.	Vikas Kumar	14MT000022	Exergy analysis of a thermal power plant	**Completed**
3.	Santosh Kumar	14MT000026	Numerical simulation of supersonic flow past a cylindrical bluff body	**Completed**
4.	Rajeeb Kumar Upadhyay	14MT000059	A comparative analysis of fuel properties and performance parameter of 4- stroke direct injection (DI) diesel engine using two blends of palm biodiesel (PB) and tyre pyrolysis oil (TPO)	**Completed**
5.	Ambuj	14MT000061	Modeling of nano-particle migration in pipe flow	**Completed**

	Kumar		through Eulerian-Lagrangian approach.	
6.	Raj Amrit Mohapatra	14MT000371	Design, fabrication and static calibration of thin film gauge (TFG) for short duration transient measurement	**Completed**
7.	Anand Kumar	15MT000012	Stagnation point transient heat flux measurement analysis at different angle of attack	**Completed**
8.	Raushan Kumar	15MT000014	Numerical and experimental analysis of handmade thin film gauge	**Completed**
9.	Gaurav Kumar	15MT000036	Transient temperature measurement analysis for short duration using E-Type coaxial thermocouple	**Completed**
10.	Manoranjan Kumar	15MT000041	Performance of single cylinder 4-stroke DI diesel engine fueled blends of palm biodiesel by addition of nano additives	**Completed**
11.	Lalit Kishor Verma	15MT000049	Experimental and numerical study of heat transfer enhancement in the flow field using spherical dimple and spherical protrusion plates	**Completed**
12.	Sumit kumar singh	16MT001131	Effect of leading nose radius on aerodynamic drag force in subsonic flow	**Completed**
13.	Barun kumar verma	16MT000987	Experimental analysis of heat transfer enhancement in natural convection using spherical dimple plate	**Completed**
14.	Arif alam	16MT000973	Transient heat flux measurement by coaxial thermocouple at stagnation point of spherical nose	**Completed**
15.	Vivek ranjan	17MT002051	Heat transfer enhancement analysis of dimple plates by convective heat transfer	**Completed**
16.	Manish kumar	17MT002084	Transient heat flux measurement form coaxial thermocouple in shock tube	**Completed**
17.	Abhishek singh	17MT002089	Forced convection based heat transfer analysis of heat sink using perforated pin fins	**Completed**
18.	Rahul	17MT002090	Heat transfer in shell and tube heat exchanger	**Completed**
19.	Subhoday Gorai	18MT0179	Numerical study of heat transfer and pressure drop characteristics for fin and plate heat exchangers	**Completed**
20.	Mahesh Kumar	18MT0231	Investigation of blunt cone nose radius on drag in supersonic flows	**Completed**
21.	Arbaz Alam	19MT0076	Numerical and analytical analysis of heat transfer in forced convection using Dimple plates	**Completed**
22.	Sarang gupta	19MT0343	Computational analysis of coaxial thermocouple for short duration transient measurements	**Completed**
23.	Diwakar Singh	20MT0153	Transient surface heat flux measurements in short duration over an aerodynamic models	**Completed**
24.	Kumar Aniket	21MT0195	Numerical and analytical analysis of dimple and fin based solar air heater	**Completed**
25.	Gouyhu N RAO	22MT0133	Numerical Study of Solar Air Heater Absorber Plate with Various Geometries Based on Different Mass Flow Rate	**Completed**
26.	Kumar G Singh	22MT0188	Numerical Study of Heat Transfer and Friction Characteristics of Discrete hybrid W-Shaped with Arc Ribs Roughened Solar Air Heater	**Completed**
27.	Bala Jayaprakash	22MT0157	Heat Energy Storage Systems for Automobile Exhaust Gases by Employing Nano-Enhanced Phase Change Materials	**Completed**

Publication Details:

Types of Research Papers (h-index:17, Citations:861)	Nos.
International SCI/SCI-Expanded Journals (Indexed in Thomson Reuters)	**63**
SCOPUS	**04**
Book Series	**02**
International Conferences	**23**
National Conferences/Seminars	**03**
Total Research Papers	**95**



List of Publications in the International Journals:

- Sudharani Panda and **Rakesh Kumar (2024)** Investigation of the effect of dimensional and non-dimensional parameters on the performance of pitch-varied staggered arranged dimple solar air heaters, **Solar Energy**, Vol. 276, Page No. 1-22, https://doi.org/10.1016/j.solener.2024.112663, **SCI.**
- Ashish Kumar, **Rakesh Kumar** and Dheeraj Kumar **(2024)** Assessment of an indirect solar dryer for small-scale resin production: Energy, exergy, economic (3E), and sustainability analysis, **Sustainable Energy Technologies and Assessments**, Vol. 70, 103950, DOI:10.1016/j.seta.2024.103950, **SCI.**
- Ashish Kumar and **Rakesh Kumar (2024)** Enhancement and estimation of thermo-physical properties of organic-phase change materials (O-PCMs) and their applications in solar thermal technologies: A review, **Journal of Energy Storage**, Vol. 101, 113741, https://doi.org/10.1016/j.est.2024.113741, **SCI.**
- Bhim Kumar Choure, Tanweer Alam and **Rakesh Kumar (2024)** Optimization of heat transfer in PCM based triple tube heat exchanger using multitudinous fins and eccentric tube, **Journal of Energy Storage,** Vol. 102, A113981, https://doi.org/10.1016/j.est.2024.113981, **SCI.**
- Kundan Kumar, **Rakesh Kumar** and Barun Kumar Nandi **(2024)** A thermodynamic approach to assess the sustainability of third-generation sunflower waste cooking oil in DICI engine along with exergoeconomic and enviroeconomic perspective, **BIOFUELS, Taylor and Francis**, https://doi.org/10.1080/17597269.2024.2429051, **SCI.**
- Kundan Kumar, Barun Kumar Nandi, Vinod Kumar Saxena, **Rakesh Kumar (2024)** Experimental studies of thermal behavior, engine performance and emission characteristics of biodiesel/diesel/pentanol blend in diesel engine, Alexandria Engineering Journal, Vol.

106, Page No. 411-421, https://doi.org/10.1016/j.aej.2024.06.066, **SCI.**

- Deepti Ranjan Sahu, Amitava Mandal, **Rakesh Kumar (2024)** Numerical and experimental investigation into the energy distribution in powder mixed EDM, **CIRP Journal of Manufacturing Science and Technology,** Vol. 52, Page No. 229-245, https://doi.org/10.1016/j.cirpj.2024.05.008, **SCI.**
- Uttam Kumar and **Rakesh Kumar (2024)** Theoretical and numerical investigation of wedge and cone nose profiles at supersonic speed, **Numerical Heat Transfer, Part A: Applications,** https://doi.org/10.1080/10407782.2024.2328764, **SCI.**
- Vivek Singh, **Rakesh Kumar,** Abhishek Saxena, Ritvik Dobriyal, Sumit Tiwari and Desh Bandhu Singh **(2024)** An analytical study on the effect of different photovoltaic technologies on environ-economic parameter and energy metrics of active solar desalting unit, **Energy,** https://doi.org/10.1016/j.energy.2024.130851, **SCI.**
- Dhiraj Kumar, **Rakesh Kumar,** and A Layek **(2024)** Experimental study for the enhancement of heat transfer characteristics and development of thermal correlations of a roughened solar collector, **Heat Transfer,** https://doi.org/10.1002/htj.23007, **SCI.**
- Ashish Kumar, **Rakesh Kumar,** and A Bhushan **(2024)** Differential exergy investigation and environ-economic assessment of a dimpled plate and flat plate solar air heater under turbulent conditions, **Applied Thermal Engineering,** Vol. 240, Page No. 1-18, https://doi.org/10.1016/j.applthermaleng.2023.122299, **SCI.**
- Ashish Kumar, **Rakesh Kumar (2024)** Exergetic investigation and Taguchi-based optimization of a modified passive solar still augmented with nano-PCM & fins, **Journal of Energy Storage,** Vol. 78, Page No. 1-26, https://doi.org/10.1016/j.est.2023.109935, **SCI.**
- Dhiraj Kumar, A Layek, A Kumar, **Rakesh Kumar (2023)** Experimental Study for the Enhancement of Thermal Efficiency and Development of Nusselt Number Correlation for the Roughened Collector of Solar Air Heater, **Journal of Thermal Science and Engineering Applications,** Vol. 16, Page No. 210041-210053, https://doi.org/10.1115/1.4063915, **SCI.**
- Sudharani Panda and **Rakesh Kumar (2023)** Combined effect of solar intensity and air mass flow rate on inline spherical dimple based solar air heater during summer season, **Solar Energy**, Vol. 258, Page No. 156-174, https://doi.org/10.1016/j.solener.2023.05.002, **SCI.**
- Bhim Kumar Choure, Tanweer Alam and **Rakesh Kumar (2023)** A review on heat transfer enhancement techniques for PCM based thermal energy storage system, **Journal of Energy Storage,** Vol. 72, https://doi.org/10.1016/j.est.2023.108161, **SCI.**
- Vivek Kumar, Vinod Kumar Saxena, **Rakesh Kumar** and Shravan Kumar **(2024)** Energy, exergy, sustainability and environmental emission analysis of coal-fired thermal power plant, Alexandria Engineering Journal, Vol. 15, Page No. 1-18, https://doi.org/10.1016/j.asej.2023.102416, SCI.
- Sudharani Panda and **Rakesh Kumar (2022)** Flow friction and thermal performance of dimple imprinted based solar air-heater: A numerical study, **Numerical Heat Transfer, Part A: Applications,** https://doi.org/10.1080/10407782.2022.2105066, **SCI**.
- Ashif Perwez, **Rakesh Kumar** and A Bhushan **(2022)** Experimental and numerical study of heat transfer and friction factor characteristics of an inclined elliptical dimple channel having inline and staggered pattern, **Numerical Heat Transfer, Part A: Applications,** https://doi.org/10.1080/10407782.2022.2105100, **SCI**.
- S K Manjhi and **Rakesh Kumar (2022)** Assessments of surface heat fux from rapid temperature sensors at various angles of attack over a plate, **Journal of Thermal Analysis and Calorimetry**, DOI:10.1007/s10973.022.11341.4, **SCI**.
- A Bhushan, **Rakesh Kumar** and Ashif Perwez **(2022)** Experimental investigations of thermal performance for flat and dimpled plate solar air heater under turbulent flow conditions, **Solar Energy**, Vol. 231, Page No. 664-683, DOI:10.1016/j.solener.2021.11.060**, SCI**.
- Vivek Singh, **Rakesh Kumar,** Desh Bandhu Singh **(2022)** An investigation on effect of dissimilarity of mass flow rate on hourly, daily and annual efficiencies of double slope type

solar still included with N similar PVT compound parabolic concentrators, **Desalination and Water Treatment,** Vol. 246, Page No. 36-53, DOI:10.5004/dwt.2022.27964, **SCI.**

- Vivek Singh, **Rakesh Kumar,** R K Sharma, S P Singh, H Sinhmar, D B Singh **(2022)** An investigation on effect of variation of mass flow rate and number of collectors on yearly efficiency of single slope solar still by incorporating N similar photovoltaic thermal flat plate collectors, **Water Supply,** Vol. 22, Page No. 5126-5148, https://doi.org/10.2166/ws.2022.183, **SCI.**
- Sudharani Panda and **Rakesh Kumar (2022)** A Review on Heat Transfer Enhancement of Solar Air Heater Using Various Artificial Roughed Geometries, **Fluid Mechanics and Thermal Sciences, Journal of Thermal Engineering,** Vol. 89, Page No. 92-133, DOI:10.37934/arfmts. 89.1.92133, **SCOPUS**.
- T Alam and **Rakesh Kumar (2021)** Evaluation of response characteristics of thin film gauge for conductive heat transfer mode, **Transactions of the Institute of Measurement and Control,** Vol. 43, Page No. 687-699, DOI:10.1177/0142331220960665, **SCI.**
- T Alam and **Rakesh Kumar (2021)** A review on thin film fast response heat transfer gauges, **Review of Scientific Instruments, AIP,** Vol. 92, Page No. 31501-31527, DOI:10.1063/5.00159 32, **SCI.**
- Antariksh Gupta and **Rakesh Kumar (2021)** Modeling Study for Understanding of Fluid Dynamics of Vortex Formation in Tundish Operation, **Transactions of the Indian Institute of Metals,** Vol. 74, Page No. 895–1905, DOI:10.1007/s12666-021-02281, **SCI**.
- Antariksh Gupta, **Rakesh Kumar** and Rajeev Kumar Singh **(2021)** Assessment of Critical Vortexing Height to Prevent Slag Entrapment During Tundish Teeming, **Metals and Materials International**, Vol. 28, Page No. 1246–1256, DOI:10.1007/s12540-021-01014-6, **SCI**.
- Sudharani Panda and **Rakesh Kumar (2021)** A review on effect of various artificial roughness on heat transfer enhancement in a channel flow, **Journal of Thermal Engineering,** Vol. 5, Page No. 1267-1301, DOI: 10.18186/thermal.978149, **ESCI**.
- S K Manjhi and **Rakesh Kumar (2020)** Comparative Performance of K, E and J-type Fast Response Coaxial Probes for Short-Period Transient Measurements, **Journal of Thermal Science and Engineering Applications, ASME,** Vol. 13, Page No. 31029-31041, DOI:10.1115/1.4048664, **SCI**.
- S K Manjhi and **Rakesh Kumar (2020)** Performance analysis of coaxial thermocouples for heat flux measurement of an aerodynamic model on shock tube facility, **Measurement**, Vol. 61, Page No. 291-298, DOI:10.1016/j.measurement.2020.108221, **SCI**.
- A Narayan, S Narayanan, **Rakesh Kumar,** T Singh, C S Kumar and G Jagadeesh **(2020)** Hypersonic flow past a spherically blunted nose cone: a computational study, **Progress in Computational Fluid Dynamics An International Journal,** Vol. 20, Page No. 105-111, DOI: 10.1504/PCFD.2020.106410, **SCI**.
- Arjun K S and **Rakesh Kumar (2020)** Heat transfer in magnetohydrodynamic nanofluid flow past a circular cylinder, **Physics of Fluids,** Vol. 32, Page No. 045112-045118, DOI: 10.1063/5.0005095, **SCI**.
- V Singh, D B Singh, N Kumar and **Rakesh Kumar (2020)** Effect of number of collectors (N) on life cycle conversion efficiency of single slope solar desalination unit coupled with N identical partly covered compound parabolic concentrator collectors, **Materials Today**, Vol. 28, Page No. 2185-2189, DOI:10.1016/j.matpr.2020.04.232. **SCI.**
- S K Manjhi and **Rakesh Kumar (2019)** Surface heat flux measurements for short time-period on combustion chamber with different types of coaxial thermocouples, **Experimental Heat Transfer,** Vol. 33, Page No. 282-303, DOI:10.1080/08916152.2019.1630031, **SCI**.
- S K Manjhi and **Rakesh Kumar (2019)** Transient heat flux measurement analysis from coaxial thermocouples at convective based step heat load, **Numerical Heat Transfer, Part A: Applications,** Vol. 75, Page No. 200-216, DOI:10.1080/10407782.2019.1580955, **SCI**.
- S K Manjhi and **Rakesh Kumar (2019)** Performance assessment of K-type, E-type and J-type

coaxial thermocouples on the solar light beam for short duration transient measurements, **Measurement,** Vol. 146, Page No. 343–355, DOI:10.1016/j.measurement.2019.06.035, **SCI**.

- S K Manjhi and **Rakesh Kumar (2019)** Transient surface heat flux measurement for short duration using K-type, E-type and J-type of coaxial thermocouples for internal combustion engine, **Measurement,** Vol. 136, Page No. 256–268, DOI:10.1016/j.measurement.2018. 12.070, **SCI**.
- R Goswami and **Rakesh Kumar (2019)** Transient heat fluxes measurement analysis from platinum based thin film gauges in open and closed cavities, **Numerical Heat Transfer, Part A: Applications,** Vol. 76, Page No. 576-592, DOI:10.1080/10407782.2019.1644903, **SCI**.
- A Narayan, S Narayanan, **Rakesh Kumar,** T Singh, C S Kumar and G Jagadeesh **(2019)** Control of Aerodynamic Drag and Heating of Nose Cones Through Taper Spikes, **Journal of Spacecraft and Rockets,** Vol. 56, Page No. 1-12, DOI:10.2514/1.A34250, **SCI**.
- Ashif Perwez and **Rakesh Kumar (2019)** Thermal Performance Investigation of the Flat and the Spherical Dimple Absorber Plate Solar Air Heaters, **Solar Energy**, Vol. 193, Page No. 303-323, DOI:10.1016/j.solener.2019.09.066, **SCI**.
- Ashif Perwez and **Rakesh Kumar (2019)** Heat transfer performance investigation of the spherical dimple heat sink and inclined teardrop dimple heat sink, **Numerical Heat Transfer, Part A: Applications**, Vol. 76, Page No. 73-86, DOI:10.1080/10407782.2019. 1612676, **SCI**.
- Sanjeev Kumar Manjhi and **Rakesh Kumar (2019)** Conduction based standardization of K-type coaxial thermocouples for short duration transient heat flux measurement, **Advances in Mechanical Engineering,** DOI:10.1007/978-981-15-0124-1_63, **Springer Book Series**.
- Alam T and **Rakesh Kumar (2018)** Radiation based calibration of thin film gauge for transient measurement, **Measurement,** Vol. 128, Page No.352-361, DOI:10.1016/j. measurement.2018. 06.057, **SCI**.
- Rishikesh Goswami and **Rakesh Kumar (2018)** Dynamic calibration of temperature sensors from light rays for transient measurement, **Thermal Science,** Vol. 23, Page No. 1901-1910, DOI:10.2298/TSCI170303198G, **SCI**.
- A Narayan, S Narayanan and **Rakesh Kumar (2018)** Numerical investigation of hypersonic flow past a spherically blunted nose cone, **Springer,** Vol. 26, Page No. 239-249, DOI:10.1007/9 78-981-10-5329-016, **SCI**.
- S K Manjhi and **Rakesh Kumar (2018)** Stagnation point transient heat flux measurement analysis from coaxial thermocouples, **Experimental Heat Transfer,** Vol. 31, Page No. 405-424, DOI:10.1080/08916152.2018.1431738, **SCI**.
- Arjun K S and **Rakesh Kumar (2018)** Optimization of micro pin-fin heat sink with staggered arrangement, **Journal of Thermal Science,** Vol. 22, Page No. 2919-2931, DOI:10.2298/TSCI1 61221202A, **SCI**.
- Alam T and **Rakesh Kumar (2018)** Heat flux measurement analysis from thin film gauge in convective heat transfer mode, **Transactions of the Institute of Measurement and Control,** Vol. 41, Page No. 64-73, DOI:10.1177/0142331217752041, **SCI**.
- Ashif Perwez, Shreyak Shende and **Rakesh Kumar (2018)** Heat Transfer and friction factor characteristic of spherical and inclined teardrop dimple channel subjected to forced convection, **Experimental Heat Transfer,** Vol. 32, Page No. 159-178, DOI:10.1080/ 08916152.2018.1485 786, **SCIE**.
- Arjun K S and **Rakesh Kumar (2018)** Heat Transfer by Porous Pin Fins and Nanofluid in Rectangular Minichannels, **MECHANIKA**, Vol. 24, Page No. 50-55, DOI:10.5755/ j01.mech. 24.1.17284, **SCIE**.
- Amardeep and **Rakesh Kumar (2018)** Studies on use of Orange Peel oil and ethanol in an Unmodified Agricultural Diesel Engine, **Energy Sources**, Vol. 56, Page No. 181-1827, DOI:10.1080/15567036.2018.1549160, **SCIE**.

- Sanjeev Kumar Manjhi and **Rakesh Kumar (2018)** Numerical investigation for convective based transient heat flux measurement with CNT based coaxial thermocouple, Computational Methods for Thermal Problems, Issue No. 223309, Page No. 705-709, **SCOPUS**.
- Rishikesh Goswami and **Rakesh Kumar (2018)** Design Fabrication and Static Calibration of Thermocouples and Thin Film Gauges, **Materials Science and Engineering**, Vol. 377, Page No. 1-7, DOI:10.1088/1757-899X/377/1/012207, **SCOPUS**.
- Arjun K. S. and **Rakesh Kumar (2017)** LBM Analysis of micro convection in MHD Nanofluid flow, **Journal of Mechanical Engineering Research and Developments,** Vol. 63, Page No. 426-438, DOI:10.5545/sv-jme.2016.4248, **SCIE**.
- A Narayan, S Narayanan and **Rakesh Kumar (2017)** Hypersonic flow past nose cones of different geometries: a comparative study, **Journal of Simulation,** Vol. 94, Page No. 1-16, DOI:10.1177/0037549717733051, **SCIE**.
- Arjun K. S. and **Rakesh Kumar (2017)** Performance index in MHD duct nanofluid flow past a bluff body at high Re, **Journal of Mechanical Engineering,** Vol. 63, Page No. 235 – 247, DOI:10.5545/sv-jme.2016.4258, **SCIE**.
- Ashif Perwez, Shreyak Shende and **Rakesh Kumar (2017)** Forced convection based heat transfer analysis of spherical dimple and protrusion surface in turbulent flow, **Transactions of the Canadian Society for Mechanical Engineering**, Vol. 41, Page No. 771-786, DOI:10.1139/tcsme-2017-511, **SCIE**.
- N Sahoo and **Rakesh Kumar (2015)** Performance assessment of thermal sensors during short duration convective surface heating measurements, **Heat Mass Transfer, Springer,** Vol. 52, Page No. 2005-2013, DOI:10.1007/s00231-015-1694, **SCI**.
- A Narayan and **Rakesh Kumar (2015)** Comparative numerical analysis of heat flux measurement over an aerodynamics vehicle surface, **Journal of Applied Engineering Research,** Vol. 10, Page No. 30725-30744, ISSN: 0973-4562, **SCOPUS.**
- **Rakesh Kumar** and N. Sahoo **(2013)** Dynamic Calibration of a Coaxial Thermocouple for Short Duration Transient Measurements, **ASME International Journal of Heat Transfer,** Vol. 135, Page No.124502-124509, DOI:10.1115/1.4024593, **SCI.**
- **Rakesh Kumar**, N. Sahoo and V. Kulkarni **(2011)** Conduction based calibration of handmade platinum thin film gauges, **International Journal of Heat and Mass Transfer,** Vol. 55, Page No. 2707-2713, DOI:10.1016/j.ijheatmasstransfer.2012.01.026, **SCI**.
- **Rakesh Kumar**, N. Sahoo, V. Kulkarni and A. Singh **(2011)** Laser based calibration technique for thin film sensors for short duration transient measurements, **ASME International Journal of Thermal Science and Engineering Applications,** Vol. 3, Page No. 44504-44509, DOI:10.1115/1.4005075, **SCI**.

Details of Research Work and Funding from External Agencies:

Sl. No.	Project Title	Sponsoring Authority	Amount Sanctioned	Role	Current Status
1.	Design, Fabrication and Analysis of Thin Film Gauges	TEQIP-II	2 Lakhs	PI	Completed
2.	Augmentation of Research Facility in the Department of Mechanical Engineering	FIST project under DST	187 Lakhs	Co-PI	Completed
3.	Experimental Analysis of Flat and Dimple based Solar Air Heaters at different Mass flow Rates	VRITIKA under SERB-DST	1.5 Lakhs	PI	Completed
4.	Design, Fabrication and Calibration of fast Response Temperature Sensors for Transient Heat Flux	VRITIKA under SERB-DST	1.5 Lakhs	PI	Completed

	Measurements				
5.	Design, Fabrication and Calibration of Nanomaterial based Temperature Sensors for Short-Duration Transient Measurements	EMR-II under CSIR	19.32 Lakhs	PI	Ongoing

Patent:

Sl. No.	Title	Design No. and Date	Registration Details
1.	Twisted V-shaped artificial ribs for the heat transfer enhancement in solar air heater	406836-001, 07/02/2024	Registration for Design, The Patent Office, Government of India.
2.	Photocatalytic reactor for waste water treatment	6346698, 28/02/2024	Registration for Design, Designs and Trade Marks Intellectual Property Office, Government of UK.

Courses Taught:

➢ **Post graduate courses**

- Advance Steam Power Plant (Theory)
- Advance Refrigeration and Air-Conditioning (Theory)
- Incompressible and Compressible Flow (Theory)
- *Post Graduate students guided – 27 (Project)*

Average feedback given by PG students – 9/10

➢ **Under graduate courses**

- Engineering Mechanics (Theory)
- Fluid Mechanics (Theory and Lab.)
- Engineering Thermodynamics (Theory and Lab.)
- Energy Conversion and Equipment (Theory and Lab.)
- Heat and Mass Transfer (Theory and Lab.)
- Measurement and Control (Theory and Lab.)
- Mechanical Engineering – I (Theory and Lab.)
- Mechanical Engineering – II (Theory and Lab.)
- Basic Mechanical Engineering (Theory and Lab.)
- *Under Graduate Students Guided – 48 (Project)*

Average feedback given by UG students – 9/10

Details of work/contribution towards Lab Development:

- Design and fabrication of fast response temperature sensors
- Cavity based solar air heater
- Phase change materials (PCMs) based solar air heaters
- Bio-Diesel manufacturing unit
- Design of solar based vehicle (**Students Welfare)**

Details of Organisation/Participation of National/International Seminars:

Sl. No.	Organised/ Participated	Duration	Topic	Held at
1.	**Co-Convener**	December 19-20, 2014	1st National Conference on Advances in Thermal Engineering (AITE2014)	IIT(ISM) Dhanbad
2.	**Co-Convener**	March 16-21, 2015	1st International Workshop on Computational Methods in Vibration & Acoustics (IWCMVA-2015)	IIT(ISM) Dhanbad
3.	Participated	January 23-24, 2015	1st National workshop on Recent Trends in Renewable Energy Utilization Systems (RTREUS2015)	IIT Guwahati
4.	Participated	December 28-30, 2017	5th International Conference on Theoretical Applied Computational and Experimental Mechanics (ICTACEM-2017)	IIT Kharagpur
5.	Participated	July 9-11, 2018	5th International Conference on Computational Methods for Thermal Problems (THERMACOMP2018)	IISc Bangalore
6.	Member, Organizing committee	July 15-17, 2021	2nd International Congress on Advances in Mechanical and Systems Engineering (CAMSE2021)	NIT Jalandhar

Invited Lectures:

- Delivered as an expert lectures on the TEQIP-III sponsored five day's special classes program through Webinar on "**Thermodynamics**" at "**Chaibasa Engineering College**" Jharkhand held from 29th September to 03rd October 2020.
- Delivered as an expert lecture in the one week faculty development program on "**Research Practices in Thermo-fluid and Renewable Energy Systems**" organized by "**Sreenidhi Institute of Science and Technology**", Hyderabad held from 28/06/2021 to 03/07/2021.

Served as Reviewer/Examiner:

Journals

- International Journal of Heat and Mass Transfer
- International Journal of Measurement Science and Engineering
- International Journal of Experimental Heat Transfer
- International Journal of Thermal Sciences
- International Journal of Heat and Fluid Flow
- International Journal of Engine Research
- International Journal of Heat Transfer
- International Journal of Thermal Engineering
- Numerical Heat Transfer: Part – A
- IEEE Sensors Journal

PhD Thesis

- Osmania University, Hyderabad – 500007, India.
- National Institute of Technology Karnataka, Surathkal.
- KIIT, Bhubaneswar.

Administrative Responsibilites:

- ***Institute Level***

- **Co-coordinator,** TEQIP – III (01.08.2018 to till date).
- **Hostel Warden**, Jasper Hostel (01.07.2017 to 30.06.2019).
- **Chief Hostel Warden,** Sapphire Hostel (01.07.2019 to 30.06.2020).
- **Member**, Organizing Committee of BASANT (2014 to 2018).
- **Member**, Organizing Committee of CONCETTO (2014 to 2018).
- **Tabulator,** Academic session 2013-14, 2014-15 and 2015-16.

- ***Departmental Level***

- **In-charge,** Time Table (Academic session 2015-16, 2016-17 and 2017-18).
- **Faculty-in-Charge**, Steam Power Laboratory (01.05.2013 to till date).
- **Faculty-in-Charge**, RAC Laboratory (01.05.2014 to 30.06.2016).
- **Coordinator,** M.Tech (Thermal Engineering) (01.07.2020 to 31.10.2022).
- **Member**, M.Tech Application Scrutiny (Academic session 2015-16 to till date).
- **Member**, Departmental Post Graduate Committee (01.07.2020 to till date).
- **Member**, Goal Setting committee (01.02.2014 to 31.07.2016).
- **Faculty Advisor**, 2nd Year B. Tech. (Mechanical Engineering) students for 2015-16 , 2016-17, 2017-18 and 2018-19.

Personal Information:

- Fathers's Name : Sri Damodar Prasad
- Mother's Name : Smt. Savitri Devi
- Date of Birth : 01st March,1980
- Gender : Male
- Place of Birth : Patna, Bihar
- Marital Status : Married
- Nationality : Indian

(Dr. Rakesh Kumar)