ANNUAL REPORT
DEPARTMENT OF MECHANICAL and INDUSTRIAL ENGINEERING

Total Academic Staff: 45
Students Admitted in Current year : UG: 158 (ME 116+PI 42) PG; 45 Ph.D. 55
Publications in: Journals, 86 Conferences, 44 Book/Books Chapters, nil
New Projects: Research (Rs. 1348.87 in Lacs) , New Consultancy (Rs.103.60 in Lacs)

1. SALIENT FEATURES

The Mechanical Engineering department was established in 1946 at University of Roorkee. The starting batch of 15 students were awarded with their degrees in the year 1949. The second undergraduate program in Production and Industrial Engineering was started in the year 1973. The department has been funded by several collaborative programs. In this regard, the department got welding research lab established with Indo German collaborative program. Further, in the year 1990-1991 the department was recognized as the Centre of Advanced Studies (CAS) by the U.G.C in two areas namely Computer Aided Engineering and Industrial Noise Pollution and its control. Presently, the Department of Mechanical and Industrial engineering offers two undergraduate and five post graduate programmes.

The expertise of the faculty members in their respective areas is being effectively utilized by providing solution to industrial problems in the form of design, analysis, testing and training through numerous research and consultancy projects sponsored from reputed private and government industries/organizations. The department conducts National and International conferences to provide an insight of latest research trends in the field of Mechanical and Industrial engineering and this year one National and International conference is being organized in the month of December. The undergraduate students of the department are actively involved in student initiative activities like development of all-terrain vehicle, formula racing cars, wheel chair for disabled and elderly, robots etc.

2. DEVELOPMENT OF NEW COURSES/ LABORATORIES/ EQUIPMENT

New Labs:

i. AVTAR (Aerodynamics, Visualization, Thermal Analysis Research) Lab
ii. Evolutionary-Algorithms-And-Data-Analytics-Lab
iii. Micro Fluidics Lab
iv. Nuclear Research Lab
v. Robotics and Control Lab
vi. Slurry Research Laboratory
vii. TRAG
viii. Two Phase Flow and Instability Lab
ix. Climate Simulator Lab
x. Solar Energy Lab
xi. FLOW-CTRL Lab

3. LIST OF FACULTY MEMBERS

i. Professors

Arora, Navneet, PhD (Kurukshetra University)
Welding Engineering, Reliability Engineering

Dwivedi, D.K., PhD (MNIT, Jaipur)
Welding metallurgy, Surface modification, Fracture & fatigue properties, Weld-bonding & Friction stir welding, Structure-property-relationship

Gandhi, B.K., PhD (IIT Delhi) **Head of Department**
Fluid Mechanics, Hydrodynamic Machines, Erosion Wear, CFD, Flow Measurement Performance Testing of Hydropower Plants

Gupta, Akhilesh, PhD (University of Roorkee)
Thermal Engineering, Heat Transfer, Solar Energy, Refrigeration & Air Conditioning
Harsha, S.P., PhD (BITS Pilani)
Nonlinear Dynamics & Chaos, Unmanned Surface/Air Vehicles, Rotor Vibrations & Control
Jain, P.K., PhD (Roorkee) (on EOL)
CAD/CAM/CIM/DFM, Operations Management
Kumar, Dinesh, PhD (Roorkee)
Supply chain management, Industrial Engineering, Maintenance Engineering, Process Planning & Optimization, Modeling and Simulation
Kumar, Pradeep, PhD (Roorkee)
Advanced Manufacturing Processes, Metal Casting, Logistics and Supply Chain Management, Quality and Reliability Engineering,
Kumar, Ravi, PhD (Roorkee)
Refrigeration & Air-Conditioning, Two-Phase Flow & Heat Transfer, Instrumentation & Measurement
Mishra, B.K., PhD (IT, BHU)
Composite materials, Fracture mechanics, Wave propagation
Mishra, Manish, PhD (IIT Kharagpur)
Thermal and Fluids Engineering, Heat exchangers, Renewable Energy, Soft computing tool applied to Thermal Engineering
Murugesan, K., (IIT Madras)
Finite element 2odelling of systems with heat and mass transfer, Hydrogen energy, PEM Fuel cell
Pathak, P. M., PhD (IIT Kharagpur)
Robotics, Dynamics, Control, Bond Graph Modeling
Sahoo, P. K., PhD (IIT Kharagpur) (on EOL)
Refrigeration & Air-conditioning, Thermodynamics, Building Energy Simulation, Liquid Desiccant Air Conditioning
Sharma, A.K., PhD (IIT Madras)
Advance Manufacturing Processes, Micromachining, Hybrid Finishing Processes, Microwave Materials Processing, Surface Engineering
Sharma, Satish C., PhD (Roorkee)
Machine Design, Tribology, Instrumentation & Measurement, Vibration and Controls.
Singh, Indra Vir, PhD (BITS Pilani)
FEM, XFEM, Meshfree Methods, Isogeometric Analysis, XIGA, Multiscale Modeling, Phase Field Modeling, Fracture Mechanics, Damage Mechanics, Failure Analysis

ii. Associate Professors

Dutta, Sushanta, PhD (IIT Kanpur)
Active and Passive control of flow field, Optical measurement techniques, Turbulence measurements and wake dynamics
Dvivedi, Akshay, PhD (IIT Roorkee)
Metal Matrix Composites, Quality Function Deployment, Advanced Manufacturing Processes
Jha, P.K., PhD (IIT Kharagpur)
Modeling of steelmaking processes, Continuous casting, Process 2odelling, Foundry Engineering
Joglekar, M.M., PhD (IIT Bombay)
Mechanics of Micro Electro Mechanical Systems (MEMS), Capacity fade 2odelling of lithium-ion batteries, Mathematical 2odelling and simulation
Karunakar, D.B., PhD (IIT Kharagpur)
Manufacturing Science, Metal Casting, FEM in Manufacturing, CAD/CAM
Kumar, Anil, PhD (Roorkee)
Thermal Engineering, Heat Transfer, Refrigeration & Air-Conditioning
Mulik, R.S., PhD (IIT Delhi)
Non-conventional machining, abrasive based finishing processes, micro-machining, Rapid Prototyping
Pal, Kaushik, PhD (IIT Kharagpur)

Advanced Composites, Non-conventional machining, Welding of Polymers, Fracture and fatigue mechanism, Nanofillers, Coating, Wear and Abrasion, Bio polymers.

Saran, V.H., PhD (Roorkee)

Machine design, Low frequency vibration comfort

Saxena, Dhish K., PhD (IIT Kanpur)

Engineering Design, Evolutionary Multi-objective Optimization, Multi-Criteria Decision Making, Machine Learning, C.A.D.

Singh, Inderdeep, PhD (IIT Delhi)

Machining of Composites, Experimental and Simulation, Machining of Composites, Experimental and Modeling

Singh, K.M., PhD (IIT Kanpur)

DNS/LES of turbulent flows, Parallel algorithms, Modeling, simulation and CAD of energy systems

Subudhi, Sudhakar, PhD (IISc Bangalore)

Heat transfer, Ventilation, Energy systems, Natural convection, Natural Ventilation, Non-conventional energy systems

Tariq, Andallib, PhD (IIT Kanpur)

Heat Transfer, Thermal Contact Conductance, Flow Control, Turbulence, Proper Orthogonal Decomposition (POD), Micro-fluidics, Optical Techniques.

Upadhyay, Sanjay, PhD (Roorkee)

Non-linear Dynamics, Vibration, Smart material and structures

iii. Assistant Professors

Bansal, Ankit, PhD (The Pennsylvania State University)

Radiative heat transfer, Hypersonic Flow, Flow radiation interaction, spectral 3odelling of gases.

Das, Arup Kumar, PhD (IIT Kharagpur)

Two phase flow, Microfluidics, Boiling and condensation, Augmentation of boiling heat transfer coefficient.

Ganapule, Shailesh, PhD (University of Nebraska-Lincoln, USA) Biomechanics, brain injury, optic nerve injury, Computational 3odelling, Quantitative imaging

Gaur, Vidit, PhD (Ecole Polytechnique, Paris)

Fatigue, Damage, Fracture, Design, Fracture Mechanics,, Modeling of Materials, Failure Analysis, FEM, CPFEM, Environmental Fatigue, Phase-Field

Joglekar, D.M., PhD (IIT Bombay)

Guided elastic waves, Structural dynamics, Non-Destructive Evaluation, Finite and spectral finite element methods.

Kumar, Anil, PhD (University of Trento, ITALY)

Machine Design, Vibration, System Identification, Vibration Mitigation, Piping Systems

Mishra, Kirti Bhushan, PhD (University of Duisburg-Essen, Germany)

Combustion and Fuels, Fire and Explosion Safety, Disaster/Incident modelling and prevention, CFD

Pal, Siladitya, PhD (Michigan)

Finite Element Modeling, Multi-scale/ Multi-physics Modeling, Fracture Mechanics, Mechanics of Energy Storage and Soft Materials, Biomechanics.

Parashar, Avinash, PhD (University of Alberta)

Material Science, Nanotechnology, Composites, Nanocomposites, Atomistic Modeling, Finite element 3odelling, Molecular dynamics

Sharma, Varun, PhD (IIT Delhi)

Conventional Machining Processes, Non-Conventional Machining Processes, Additive Manufacturing, Mechanical and biomedical applications

Singh, Sneha, PhD (University of Warwick)

Acoustics, Noise Control, Smart materials, Machinery condition monitoring

Swain, Abinash, PhD (IISc Bangalore)

Product Design and Development, CAD/CAM, Computer Aided Prototyping, Virtual Product Development, Virtual reality, Product Lifecycle Management (PLM)

Emeritus/ Visiting Professor/ Fellow

1. HONOURS AND AWARDS TO FACULTY MEMBERS

Name of Faculty	Award
B K Gandhi	Executive Committee Member, IAHR Division of Fluid Machinery and Systems,
S.G.Ganpule	Travel Award from world council of biomechanics to attend World Congress of Biomechanics held in Dublin, Ireland, July 2018
S.G.Ganpule	Young Investigator Award, Institution of Engineers India (Roorkee Chapter)

Indian Patents:

Name of Faculty	Title
Prof. B.K. Gandhi	High speed slurry pot tester
Prof. Dheerendra Kumar Dwivedi	Design of stationary shoulder friction stir welding tool for aluminum alloys
Prof A.K Sharma	Mechanical Safety device for thread failure in power screw based heavy lifts
Prof A.K Sharma	A method of joining of bulk metallic materials microwave hybrid heating
Prof A. K. Sharma	A method of cladding/coating metallic powder on metallic substrate by microwave irradiation
Prof. Arup Kumar Das	Integration of double acting piston arrangement in internal combustion engines for improvement of power to weight ratio
Prof. S. H. Upadhyay	Adaptive shape control mechanism for planar membrane structure

2. PARTICIPATION OF FACULTY IN CONFERENCES/ SEMINAR/ SYMPOSIA/ WORKSHOP/ GUEST LECTURES

Name of Faculty	Details of Conf./Semi./Symp./ Workshop /Guest Lecture	Venue	Date
Prof. Navneet Arora	Manufacturing science and engineering Conference (MSEC) and NAMRC 46	Texas A&M University, Texas, USA	June 18-22, 2018
S G Ganpule	World Congress on Biomechanics	Dublin, Ireland	July 8-12, 2018
Prof. B.K. Gandhi	29th IAHR symposium on Hydraulic Machinery and Systems,	Kyoto, Japan	Sept.16-21, 2018
P M Pathak	ASME 2018 Dynamic Systems and Control Conference	Atlanta, Georgia, USA	September 30-October 3, 2018,
P M Pathak	Workshop of Indo-Korea joint Network Center on Robotics	Chungnam National University, Daejon, Korea	27-31 October 2018

P M Pathak	Association for Practical and Professional Ethics	Baltimore, Maryland	February 28 through March 3, 2019
Saxena D. K and Kapoor S.	On Timing the Nadir-Point Estimation and/or Termination of Reference-Based Multi- and Many-objective Evolutionary Algorithms	East Lansing, USA	March 10-13, 2019
Dr Dhish K Saxena	Keynote lecture at 2nd National Conference on Multidisciplinary Design, Analysis and Optimization (NCMDAO)	Bangalore	March 22-23, 2019
Dr. Sushanta Dutta	Topical Problems of Fluid Mechanics 2019	Institute of Thermomechanics, AS CR, Prague, Czech Republic	Feb, 20-22, 2019
Prof. Satish C. Sharma	Failure Mechanism of Fluid Film Bearings (Faculty Development Programme under TEQIP-III)	NIT Jalandhar	July 03, 2018.
Prof. Satish C. Sharma	Basics of Fluid Film Lubrication 11th Summer School in Tribology (Tribology society of India)	IIPM Gurgaon	May 14, 2019
Prof. Satish C. Sharma	Tribology in Railway Wheel Contact, 3- Day International course on Railway Vehicle Dynamics organized by RDSO, Ministry of Railways, Govt. of India	IIT Roorkee	May 27, 2019
Prof. Satish C. Sharma	Application of MR fluid damper in Railway suspension system, 3-Day International course on Railway Vehicle Dynamics organized by RDSO, Ministry of Railways, Govt. of India	IIT Roorkee	May 27, 2019
Dr. S H Upadhyay	research paper in ANEM2018 Australia (Advanced Energy and Nano Materials)	The University of Western Australia, Perth	12-14 December 2018

3. PARTICIPATION OF FACULTY IN SHORT TERM COURSES

Name of Faculty	Name of Course	Venue	Date
Prof. B.K. Gandhi & Prof. K.M. Singh	Computational Methods in Fluid Mechanics and Heat Transfer	QIP, IIT Roorkee	Feb.19-23, 2018
Prof. Anil Kumar Prof. Yogendra Singh	Vibration Mitigation Systems Analysis and Design	QIP, IIT Roorkee	May 27-31, 2019
Prof. Anil Kumar	Outside course	CEC IIT Roorkee	

4. DISTINGUISHED VISITORS TO THE DEPARTMENT (NATIONAL/INTERNATIONAL)

Name	Designation and Affiliation	Purpose	Dates
Prof Anne-Lise & Prof Claudine	École Polytechnique Universitaire de Lille	Joint India-France project	20-24 October 2018

Prof. Namas Chandra	Distinguished Professor, New Jersey Institute of Technology	Interaction with faculty and lecture	October 2018
Prof. Manfred Groll	Professor Emeritus, University Stuttgart	Interaction with faculties and lecture	02-06 March 2019
Prof. Oreste S. Bursi	Deptt. of Civil, Environmental & Mech. Engg., University of Trento, Italy	Interaction with faculties and lecture	26 April 2019
Prof. Sebastian Stichel	Professor in Rail Vehicle Dynamics KTH Royal Institute of Technology, Director of KTH Railway Group, Sweden	3-Day International Course on Railway Vehicle Dynamics	May 27-29, 2019
Dr. Chinthaka Mallikarachchi	Associate Professor, Department of Civil Engineering, University of Moratuwa Moratuwa 10400 ;Sri Lanka	Interaction with students and project discussion	06-10 May 2019

5. INTERNSHIPS BY IIT – ROORKEE STUDENTS

Sl. No.	Name of student	Name of the Internship Programme	Under Graduate	Post Graduate	Name of Institute	Period
1	Abhinav Jain	Shastri Research Student Fellowship	Yes		McMaster University	April-June 2018
2	Anurag Soni	Mitacs Globalink	Yes		Windsor University	April-June 2018
3	Niket Kumar	Internship	Yes		Prodotype, Puducherry	27.11.2018 To 08.01.2019
4	Gaurav Singhal	Winter Research Internship	Yes		University of Minho, Portugal	01.12.2018 To 01.01.2019
5	Kanish	Internship	Yes		A. K. Consultants Pvt. Ltd., New Delhi	15.12.2018 To 13.01.2019
6	Saumia Singhal	IITR-KTH semester exchange	Yes		KTH Sweden	January-April 2019
7	Devanshu Agarwal	43th Annual World finals of the International Collegiate	Yes		International Collegiate Programming Contest USA	29.03.2019 To 07.04.2019
8	Samarth Gubrele		Yes		University of Malaya, Malaysia	29.03.2019 To 07.04.2019
9	Kundan Kumar	Summer Internship	Yes		Optimizory Technologies Pvt. Ltd., Noida	05.05.2019 To 31.07.2019

10	Ripudaman Kumar	Exadatum Summer Internship	Yes		Exadatum Software Services Pvt. Ltd., Pune	06.05.2019 To 31.07.2019
11	Pardeep Kumar	Summer Internship	Yes		University of Alberta, Canada	07.05.2019 To 30.07.2019
12	Yashvi Agrawal	Summer Internship	Yes		Indian Statistical Institute, Kolkata	08.05.2019 To 15.07.2019
13	Raunak Anand	DAAD Scholarship	Yes		Firstcry.Com, Pune	08.05.2019 To 31.07.2019
14	Kashish Garg	Summer Internship	Yes		University of Rostock, Germany	08.05.2019 To 26.07.2019
15	Nitin Sharma	Summer Internship	Yes		Firstcry.Com, Pune	08.05.2019 To 31.07.2019
16	Nishank Rajabhoj	Summer Internship	Yes		PhonePe Pvt. Ltd., Bengaluru	09.05.2019 To 31.07.2019
17	Rachit Garg	Summer Internship	Yes		Cell Propulsion, Bengaluru	10.05.2019 To 31.07.2019
18	Shubham Kumar	Summer Internship	Yes		ESPCI Paris PSL in Paris, France	10.05.2019 To 31.07.2019
19	Harsh Dabaria	DAAD Scholarship	Yes		Brandenburg Technical University, Germany	12.05.2019 To 31.07.2019
20	Nishendra Singh	DAAD Scholarship	Yes		Brandenburg Technical University, Germany	12.05.2019 To 31.07.2019
21	Nikhil Agrawal	CISTUP Summer Internship	Yes		IISc., Bengaluru	13.05.2019 To 15.07.2019
22	Tryaksh Gupta	Charpak scholarship	Yes		Sorbonne University, Paris, France	13.05.2019 To 30.07.2019
23	Ankit	Summer Internship	Yes		Gemini Solutions Pvt. Ltd., Gurgaon	15.05.2019 To 26.07.2019
24	Harsh Dabaria	Summer Internship	Yes		Usha International Ltd., Gurgaon	15.05.2019 To 17.07.2019
25	Alok Gupta	International Internship	Yes		Kyoto University, Japan	15.05.2019 To 24.07.2019
26	Maitrik Ashish Shah	Summer Internship	Yes		JSW Steel Limited, Vijayanagar	15.05.2019 To 15.07.2019

27	Mayank Vijay	Summer Internship Project allocation	Yes		Reliance Industries Limited, Jamnagar	15.05.2019 To 28.07.2019
28	Gaurav Singhal	HSBC Summer Internship	Yes		HSBC, Bengaluru	15.05.2019 To 21.07.2019
29	Ashish Sinha	Summer Internship	Yes		Preferred Networks, Tokyo, Japan	15.05.2019 To 31.07.2019
30	Utkarsh Aashu Mishra	Charpak scholarship	Yes		MINES ParisTech, France	19.05.2019 To 24.05.2019
31	Mihir Prajapti N.K.		Yes		International Conference on Multiphase Flow	19.05.2019 To 24.05.2019
32	Divya Raj	Summer Internship	Yes		Optum, Hyderabad	20.05.2019 To 19.07.2019
33	Vishal Rajpurohit	Summer Internship	Yes		SenRa Tech. Pvt. Ltd., New Delhi	20.05.2019 To 19.07.2019
34	Bhavya Giri Goswami	Summer Research Internship	Yes		National Taiwan University, Taiwan	20.05.2019 To 31.07.2019

6. INTERNSHIPS TO OTHER STUDENTS IN IIT – ROORKEE

Sl. No.	Name of student	Name of Supervisor	Under Graduate	Post Graduate	Name of Institute	Period
1.	P Hemanth Kumar	Prof. Akshay Dvivedi	Yes		NIT Trichy	16/05/2018-15/06/2018
2.	Anmol Panda	Prof. Akshay Dvivedi	Yes		NIT Trichy	13/05/2019 – 05/07/2019
3.	Reem Ashima	Prof. Akshay Dvivedi	Yes		Jamia Millia Islamia, Delhi	07/06/2019 - 21/07/2019
4.	Ajoy Karmakar	Prof. Kaushik Pal	Yes		NIT Mizoram	Winter Intern 2018
5.	Koushal Kumar	Prof. Varun Sharma	Yes		NIT Mizoram	Winter Intern 2018
6.	Sachin Kumar Chaudhary	Prof. Apurbba Kumar Sharma	Yes		NIT Mizoram	Winter Intern 2018
7.	M. Shah Faizan	Prof. Apurbba Kumar Sharma	Yes		Aligarh Muslim University	Winter Intern 2018
8.	Abhishek Asit	Prof. Inderdeep Singh	Yes		Katihar engineering college, Katihar	Winter Intern 2018

9.	Puja Kumari	Prof. Inderdeep Singh	Yes		Katihar engineering college, Katihar	Winter Intern 2018
10.	Abhishek Kumar	Prof. Kaushik Pal	Yes		Indian Institute of Technology (Banaras Hindu University), Varanasi	DIC Summer Interns 2019
11.	Devanshu Kanabar	Prof. Shailesh Ganpule	Yes		Sardar Vallabhbhai N.I.T Surat	DIC Summer Interns 2019
12.	Chilukuri Sneha	Prof. D. Benny Karunakar	Yes		JNTUH College of Engineering Hyderabad, Telangana	SPARK-19
13.	Kushal Sinha	Prof. Apurbba Sharma	Yes		Indian Institute of Technology (Banaras Hindu University), Varanasi	SPARK-19
14.	Pavan R	Prof. Akshay Dvivedi	Yes		Birla Institute of Technology and Science, Pilani - Pilani Campus	SPARK-19
15.	Shivam Tiwari	Prof. Manish Mishra	Yes		IIT BHU	SPARK-19
16.	Somnath swain	Prof. Indra Vir Singh	Yes		National Institute of Technology Tiruchirapalli	SPARK-19
17.	Soumyadip Das	Prof. Arup Kumar Das	Yes		Indian Institute of Technology (Indian School of Mines), Dhanbad	SPARK-19
18.	Ujjal Nandy	Prof. Sudhakar subudhi	Yes		IIT Madras	SPARK-19
19.	Nitika Mondal	Prof. Kaushik Pal	Yes		National Institute of Technology Durgapur	SPARK-19

20.	Rohit Majumdar	Prof. Abinash Kumar Swain	Yes		Indian Institute of Engineering Science And Technology, Shibpur	SPARK-19

7. ACADEMIC ACTIVITIES ORGANIZED BY THE DEPARMENT

S.No	Name of the conf./seminar/symp./ workshop	Name of the Chairman Coordinator	Sponsored by	Dates
1	Research Scholar Day 2019	HOD, MIED	Institute	14th March, 2019
2	GIAN course on "Jet flows: Subsonic, Supersonic and Synthteic with applications	Dr. S Dutta	MHRD	3-7th December, 2018

8. SPONSORED RESEARCH PROJECTS

i. COMPLETED SPONSORED RESEARCH PROJECTS

Principal Investigators	Title of the Projects	Sponsoring Agency	Outlay Amt. (Rs. in Lacs)
Dr.Arup Kumar Das	A Comprehensive study of drop dynamics and manipulation due to electrowetting	SER-913-MID	16.56
Dr. A Dvivedi	Adaptive Feedback Controlled Hydro-Dissection Device	DIC	0.3
Dr. A Dvivedi	Development of Grinding Assisted Rotary Disc Electrochemical Discharge Machining (G- RDECDM) facility for multiple operations	DIC	0.5
Dr.D.K.Dwivedi	Dissimilar Steel Welding by activated flux GTAW	DAE-864-MID	33.51
Dr.D.K. Dwivedi	Investigation of plastic behavior of aluminum alloys during friction stir welding and its effect on weld ability	DST-793-MID	6.45
Dr.D. K. Dwivedi	Corrosion behavior of friction stir weld joints of AL Alloys	CSR-783-MID	17.92
S.G.Ganpule	Computational Framework for Studying Mechanics of Traumatic Brain Injury	MIED-FIG-100774	10
Dr.Manish M. Jogleker	Mathematical modeling and experimental characterization of the dynamic response of dielectric elastomer actuators	SER-774-MID	20.99
Dr.M.M.Mahapatra	Investigation on quantification and prevention of high residual stresses and hydrogen assisted cracking in creep strength enhanced ferritic	SER-854-MID	35.11
Dr Manish Mishra	CFD Simulation of a deformed reactor channel under heat up condition	DAE-705-MID	14.95
Dr.R.S.Mulik	Investigation into improvement of material removal rate in travelling wire electro-	SER-766-MID	29.5

	chemical spark machining (TW-ECSM) Using magnetic field		
Dr.D.B.Karunakar	Investigating and Enhancing the porosity of ceramics shell in investment casting process	SER-802-MID	24
Dr.Degala Venkata Kiran	Ramanujan Felllowship	SER-906-MID	89
Dr.Ravi Kumar	Sustainable Technologies for distributed Level Application and Energy Support of Rural Development	DST-870-MID	66.89
Dr.Kaushik Pal	Use of nanofillers in hybrid composites for advanced barrier layers, packing and medical applications	SER-841-MID	64.31
Dr.P.M.Pathak	Development control system for mobile robot with manipulator for transporting hazardous materials	DST-852-MID	13.95
Dr P M Pathak	Development of control system for mobile robot with manipulator for transporting hazardous materials.	DST-852-MID	13.95
Dr.Dhish Kumar Sexena	A system approach towards data mining and prediction in airlines operations (SAPPAO)	MIT-861-MID	133.2
Dr.Indra vir Singh	Prediction of graphite failure strength using RVE approach and XFEM	BRN-787-MID	24.57
Dr.Indra Vir Singh	Failure analysis of engineering components of intricate shape using extended Isogeometric analysis	SER-799-MID	19.5
Dr.Indra vir Singh	Simulation of high temperature elastro-plastic fatigue crack growth using XFEM	DRD-828-MID	19.78
Dr. Indra Vir Singh	Simulation of High Temperature Elasto-plastic Fatigue Crack Growth using XFEM	DRD-828-MID	29.78
Dr.Abinash Kumar Swain	Development of CAD platform for sustainable product relization	SER-895-MID	10.44
Dr.Andalib Tariq	High temperature thermal contact conductance measurement for PT-CT contact	DAE-855-MID	124.66
Dr.S.H.Upadhyay	Residual life prediction and vibration Analysis of a high speed rotor bearing systems	DRD-826-MID	11
Dr.S.H.Upadhyay	Design and development of proof- of - concept model of an adaptive membrane	ISR-833-MID	29.75

ii. CONTINUING SPONSORED RESEARCH PROJECTS

Principal Investigators	Title of the Projects	Sponsoring Agency	Outlay Amt. (Rs. in Lacs)
Dr Ankit Bansal	Development of a Rarefied Gas Dynamic code with Coupled Radiative Heat Transfer for High Altitude Hypersonic	SER-1259-MID	26.5
Dr.Arup Kumar Das	Enhancement of inside tube flow boiling Heat Transfer of eco-friendly refrigerents	SER-985-MID	43.3
Dr.Arup Kumar Das	Development of a Cost effective left Ventricular Assist Device (LVAD) with Centrifugal Mechanical Circulator, Drive	IMP-1092-MID	20

	System and Associated Control (i) MHRD (ii) ICMR		
Dr.Arup Kumar Das	Analysis of rapid phase transition in liquid natural gas spill	DST-1202-MID	35
Dr.Arup Kumar Das	Development of unified model for micro and macro scopic two phase interfaces bycoupipling Eulerian and Langragian framework	DAE-939-MID	23.3
Dr. A Dvivedi	Development of modular Accessory for mobility Enhancement of Manual Wheel Chair	DIC	0.4
Dr. B K Gandhi Dr. K. M. Singh	Investigation on flow in stabilities indrafttube at off-design operation of hydraulic turbines	CPR-1133-MID	175
Dr. B K Gandhi	Flow field and erosion wear analysis of casing of a centrifugal slurry pump	CSR-1098-MID	20.88
S G Ganpule	Measurement of Brain Deformations under Impact Loading	SER-1111-MID	44.42
Dr.Akhilesh Gupta	Experiments in design fire environment facility relevant to NPPS	DAE-973-MID	199.95
Dr.Akhilesh Gupta (Co PI)	An Integrated and Collaborative India-US Research Program: Improving Building Energy Efficiency (IBEE)	IFU-1047-MID	45.00
Dr.Ravi Kumar	Sustainable Technologies for distributed Level Application and Energy Support of Rural Development	DST-870-MID	66.89
Dr.Ravi Kumar	Sustainable Technologies for distributed Level Application and Energy Support of Rural Development	DST-870-MID	66.89
Dr.Ravi Kumar	Channel Heatup Study under Slumped Fuel Condition for PHWR	DAE-944-MID	69.03
Dr.Ravi Kumar	Experimental Investigation of 700 Mwe Specific Full Length Channel Deformation (Sagging) Behaviour	DAE-971-MID	68.48
Dr Manish Mishra	Optimization of Three-Fluid Heat Exchanger Performance – A Numerical & Experimental Investigation	CSR-1121-MID	21.96
Dr Manish Mishra	Investigation on Hydrogen Generation from a PHWR Disassembled Channel	DAE-946-MID	48.18
Dr Manish Mishra	Heat up and Quenching Studies of PHWR Specific Debris Experiments for PHWR	DAE-941-MID	41.65
Dr. Rahul S. Mulik	Rapid prototyping by wire metal and metal droplets for high temperature applications	TIDES/2018-19/EIL/003	22
Dr.Kaushik Pal	Use of nanofillers in hybrid composites for advanced barrier layers, packing and medical applications	SER-841-MID	64.31
Dr.Kaushik Pal	"2-D Transition metal Carbides (Mxene) based hybrid symmetric/asymmetric supercapacitor for energy storage application"	DST-1084-MID	19.69

Dr. A Parashar	MD based atomic simulations to study the effect of radiation mechanical and frcature properties of Zr-Nb	DAE-984	22.79
P M Pathak	Design and Development of Cable-Driven Parallel Robot for Automated Construction	SPA-1355-MID	46.19
P M Pathak	Indo-Korea joint network centre on Robotics-Hyper-redundant Robots	DST-1224-MID	34.86
P M Pathak	Modelling and control of mobile cooperating bionic arms	DST-947-MID/16-17	33.66
Dr. Satish C. Sharma	Setting up centre for railway research (CRR)	RDS-1073-MID	
Dr. Apurbba Kumar Sharma	IITR-Penn State Research Initiative in Advanced Material Processing	U.S. Department of State, Bureau of Educational and Cultural Affairs, USA, Under: Fulbright Specialist Program (FSP)	3.45
Dr. Avinash Prasher	MD based atomic simulations to study the effect of nanofillers on the mech. and therm properties	DST-952	24.09
Dr Dhish K Saxena	A Systems Approach towards Data Mining and Predictions in Airline Operations	MIT-861-MID	133.3
Dr Dhish K Saxena	INNOVIZATION: Discovery of Innovative Knowledge through Optimization and Machine Learning	SPA-1375-MID	105.64
Dr. Indra Vir Singh	Multiscale Simulation Framework for Defect Formation Studies in Electronic Materials and Devices	DST-1227-MID	37.93
Dr. Indra Vir Singh	Numerical Crack Growth Studies in Hydrided Pressure Tube of PHWR	DAE-1228-MID	16.49
Dr. Indra Vir Singh	Development of XFEM based damage tolerance philosophy for the remaining life assessment of aeroengine components	DRD-1291-MID	23.54
Dr. Indra Vir Singh	Development of stochastic multiscale framework based on microstructural features for predicting the bulk response of heterogeneous materials	CSR-1238-MID	13.54
Dr. S H Upadhyay	Dynamic Analysis and Shape Control of Inflatable Structures for Space Applications	DST-1156-MID	48.91

iii. NEW SPONSORED RESEARCH PROJECTS

Principal Investigators	Title of the Projects	Sponsoring Agency	Outlay Amt. (Rs. in Lacs)
Dr.Ankit Bansal	Development of a Rarefied Gas Dynamic code with coupled radiative Heat Transfer for High Altitude Hypersonics	SER-1259-MID	26.50
Dr.Arup Kumar Das	Analysis of rapid phase transition in liquid natural gas spills	SER-1202-MID	34.91

Dr. A Dvivedi	Development of Ultrasonic Assisted Tandem Electrochemical and Electro-discharge Micromachining (UA-TECEDM)	SERB	60.00
Dr.D.K.Dwivide	Studies on Creep behavior of AI and Cooper Winding Joints of Distribution Transforms	ICA-1220-MID	25.07
Dr.D.K.Dwivide	Heat Resistant weld joints of dissimilar steels for thermal power plants	CSR-1243-MID	22.96
Dr.Anil Kumar	Design (Mathamatical Modeling and Simulation) of Elastomer based shock absorption system	DRD-1318-MID	18.82
Dr.M.M.Joglekar	Design, Development, and charaterzation of a Dielectric Elastomet - based variable focal length Mirror	SER-1257-MID	42.91
Dr.Avinash Parashar	Molecular dynamics based Atomistic Simulations to investigate the feasibility of defective Graphene and H-Bn Nanosheets for Desalination	CSR-1251 MID	15.88
Dr.P.M.Pathak	Indo-Korean Joint Network Centre on Robotics	DST-1224-MID	34.86
Dr. P M Pathak	Design and Development of Cable-Driven Parallel Robot for Automated Construction	SPA-1355-MID	46.19
Dr.Indra vir Singh	Indo-Korean Joint Network Centre on Computational materials	DST-1227-MID	37.92
Dr.Indra vir Singh	Numerial Crack Growth studies in hybrided pressure tube of PHWR	DAE-1228-MID	16.49
Dr.Indra vir Singh	Development of stochastic maltiscale framewark based on microstructucale features for prediction ths bulk resposnse of heterogeneous materials	CSR-1238-MID	13.54
Dr.Indra vir Singh	Development of XFEM based damage Tolerance philosophy for the remaining life Assesment of Aeroengine Components	DRD-1291-MID	23.54
Dr. Sudhakar Subudhi	Solar Assisted Liquid Desiccant Cooling System Using Single Storage Tank	DST-TDT	34.00
Dr.Sanjay H.Upadhyay	Design and development of proof- of - concept model of a Packaging methodology & rigidization for Gossamer Space Antenna Structure	ISR-1248-MID	26.01
Dr. Sushanta Dutta	Investigation of the unsteady aerodynamic response of LP turbine blade under part load conditions	DST-CRG	56.65

9. SERVICE TO INDUSTRIES:

i. COMPLETED CONSULTANCY PROJECTS

Principal Investigators	Title of the Projects	Sponsoring Agency	Outlay Amt. (Rs. in Lacs)
Prof. B.K.Gandhi	CFD Analysis for Cooling water sytem of NTPC Obra C (2x600 MW)	m/S Doosan Power System India Pvt. Gaziabad	12.00
Prof. B.K. Gandhi	CFD Analysis for CW system of Jawaharpur Project (2 x 660 MW)	M/s Doosan Power Systems India Pvt. Ltd., New Delhi	11.80
Prof. Ravi Kumar	Vetting of under Floor heating of Diwan Sing Auditorium Ranikhet	M/S Amil Engeeniring HO A-16 Shiv Lok Colony Raipur Road Dehradun	0.50
Prof. Satish C. Sharma Prof S.P. Harsha	EVALUATION OF ENTRIES RECEIVED DURING PUBLIC CHALLENGES FLOATED BY RDSO	RDSO Lucknow, Ministry of Railways, Govt. of India	25.53
Prof. Satish C. Sharma Prof S.P. Harsha	DEVELOPMENT OF UPGRADED DRAFT GEAR FOR FREIGHT STOCK: DEVELOPMENT OF TESTING REGIMES	RDSO Lucknow, Ministry of Railways, Govt. of India	21.25

ii. CONTINUING CONSULTANCY PROJECTS

Principal Investigators	Title of the Projects	Sponsoring Agency	Outlay Amt. (Rs. in Lacs)
Dr Ankit Bansal	Development of Thermo Chemical code for enhanced Blast Explotion	TBRL/DRDO Chandigarh	29.85
Dr Ankit Bansal	Development of the dimensional Ablation software for the design of ablative materials	DRDL/DRDO	25.00
Prof Akhilesh Gupta	PG Testing of one number Cooling Tower at TP l Kakinganagar Jajpur Orisa	Paharpur Cooling Tower Ltd. Paharpur House 8/1/B Daimand Harbour Raod Kolkata	1.50
Prof Akhilesh Gupta	Conducting Coolin Tower Performance Test in stage -I	NTPC Ltd. Thermal Project , Ambedkarnagar ,U.P.	5.00

Prof Akhilesh Gupta	PG Testing of one number Cooling Tower at BIDCO Lalitpur	Paharpur Cooling Tower Ltd. Paharpur, Calcutta	1.50
Prof Akhilesh Gupta	Conducting Coolin Tower Performance Test in stage -II Unit at NTPC Vindhyanchal	NTPC Vindhyanchal , Singrauli (M.P.)	1.25
Prof S.P.Harsha Prof Satish C.Sharma	Ropway Instruction at Mussruie		
Prof S.P.Harsha Prof Satish C.Sharma	Design Optimization of Emergering … ...Sec.Suspension	Aryan Exporters Pvt. Ltd. Lucknow	10.00
Prof. Satish C. Sharma Prof S.P. Harsha	EVALUATION OF PERFORMANCE OF PARTIAL ARC (120◦) HYDROSTATIC/HYBRID JOURNAL BEARING FOR WET BALL MILL APPLICATION	BHEL, HYDERABAD	18.88
Prof Manish Mishra Prof P.K.Sahoo	Heat up and Quenching Studies of PHWR Specific Debris Experiments for PHWR	BARC	8.42
Dr Inderdeep Singh	Advise for Dharamshala … Mcleodganj Ropway Project	Director Tourism and Civil Aviation, H.P.Shimal 09	15.00

iii. NEW CONSULTANCY PROJECTS

Principal Investigators	Title of the Projects	Sponsoring Agency	Outlay Amt. (Rs. in Lacs)
Prof. Dinesh Kumar	GEP	Everest Industries	—
Prof. S. P. Harsha	Design Optimization of Emergency Spring for Passenger Coach Secondary Suspension	Aryan Exporters Pvt Ltd - Lucknow	11.8
Prof. Inderdeep Singh	Conceptualization, Design and Development of Forest –Waste based Sustainable Composite Materials	MoEF and CC (National Mission for Himalayan Studies)	16.14
Prof. Inderdeep Singh	Independent Engineer for Dharamshala-McLeodganj Passenger Ropeway Project	Government of Himachal Pradesh and DRL, Dharamshala	17.7

Prof. Inderdeep Singh	Development of Natural Fiber Reinforced Composites	Godrej and Boyce Mfg. Co. Ltd.	3.93
Prof. Subudhi Sudhakar	Solar assisted liquid desiccant cooling system using single storage tank	DST	35.4

10. SUMMARY OF MAJOR SPONSORED RESEARCH SCHEMES AND CONSULTANCY PROJECTS

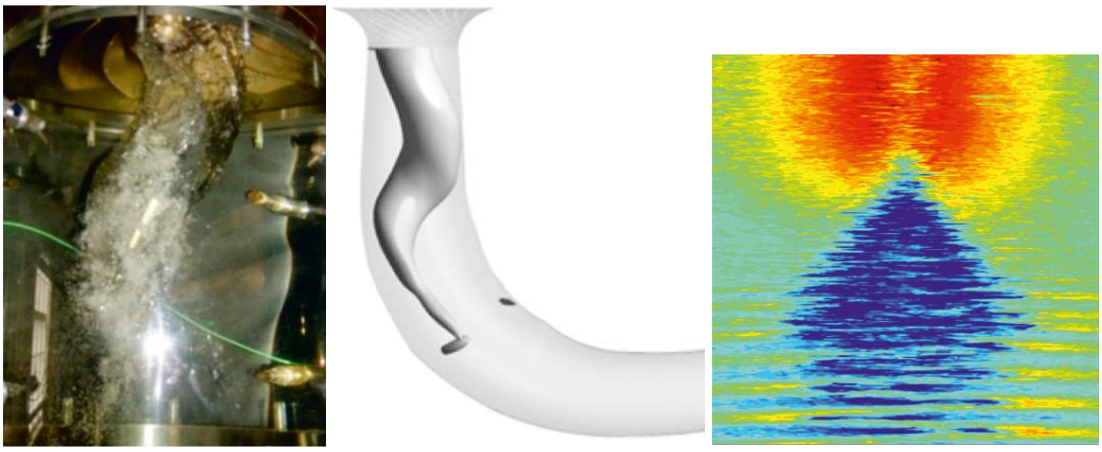
- **Investigation on flow instabilities in draft tube at off design operation of hydraulic turbines**

Sponsor: Central Power Research Institute (CPRI) Ministry of Power, Govt. of India

Prof. Bhupendra Kumar Gandhi (PI)
Prof. K.M. Singh

Abstract: The present electricity market and the injection of intermittent energy sources like solar and wind have resulted in frequent load variations and off-design operations of hydraulic turbines. One of the main difficulties arising due to these operations of reaction turbines is occurrence of a pressing rotating vortex rope (RVR) in the draft tube. This reduces the hydraulic efficiency and results in fatigue loading to the draft tube wall. This project aims to develop a test rig to investigate the physical mechanism of formation of RVR and various techniques like air and water injection to mitigate it.

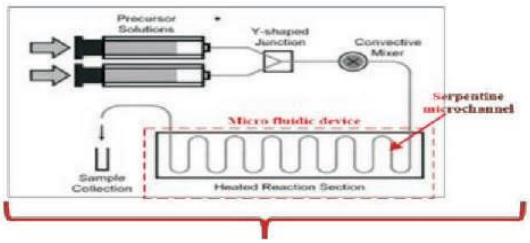
Graphical abstract: Formation of rotating vortex rope



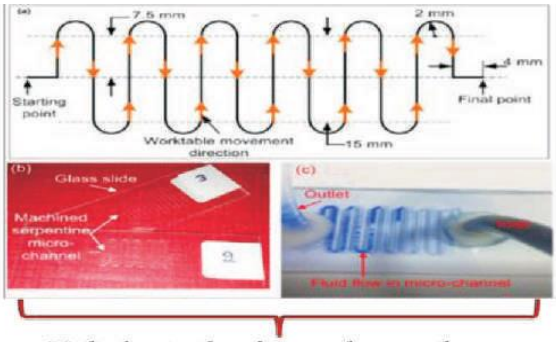
- **Development and Parametric study of Grinding Assisted by Electrochemical Discharge Machining (GAECDM)**

Developer by Prof. Akashay Dvivedi and Studends

Electrochemical discharge machining (ECDM) is a hybrid non-conventional manufacturing process which combines the features of electro chemical machining (ECM) and electro discharge machining (EDM). In this research project, a hybrid system (GAECDM) was developed in which direct mechanical grinding aids-in ECDM. The developed processes were able to achieve very high material removal rate.



Micro-channels for micro-mixing



Fabricated micro-channels

Serpentine micro-channel

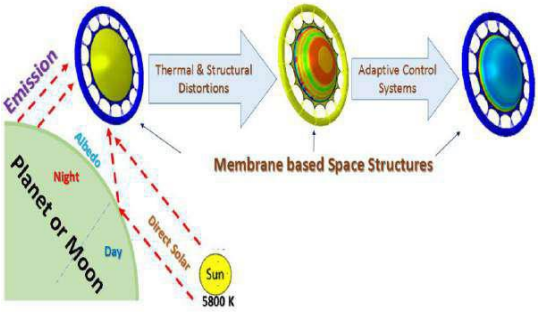
The involvement of external assistance by abrasives in GAECDM process improved results in terms of material removal and accuracy. The GAECDM process was used for machining of complex profiles of micro channels and drilling of holes on glass work material. The economical fabrication of complex microchannels by GAECDM opens various research avenues for this process to use it for multi-disciplinary applications. This will also lead to development of lab-on-a-chip devices with potential application in Biomedical engineering.

- **Dynamics Analysis and Shape Control of Inflatable Structures for Space Application**

Sponsor: ***Department*** **of** ***Science*** **&** ***Technology (DST),*** **Govt. of** ***India and the*** **Ministry of** ***Science, Technology and Research*** **(MSTR), Government of** ***the Democratic Socialist Republic*** **of** ***Sri Lanka***

Prof. S. H. Upadhyay

This project is under Indo-Sri Lanka joint research program between liT Roorkee and University of Moratuwa. The research work deals with dynamic behavior and shape control action of highly flexible reflector with the application of smart materials. Space-based membrane materials showed non-linear behavior at launching and orbital conditions. These structures are often partially wrinkled and the formation of wrinkles drastically alters load paths and structural stiffness within the membrane. A better understanding of the effects of wrinkles on the structural performance and stability of these structures is essential and desirable. Analytical and numerical studies of the wrinkling analysis of membranes provide a natural way of approaching this field. Reducing the surface roughness and controlling the shape of membrane reflector at orbital loading condition are one of the challenges for space application. The aim of this project is to develop a mathematical model for optimizing the surface error of
space-based membrane structures and validate its effectiveness with the help of experiments.

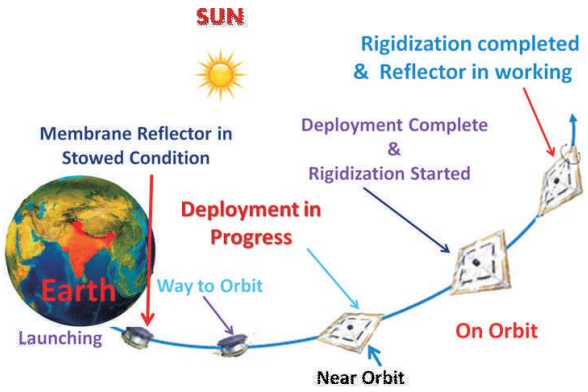


- **Design and development of a proof-of-concept model of a packaging methodology & rigidization for Gossamer Space Antenna structures**

Sponsor: Space Application Centre (SAC), Indian Space Research Organization

Prof. S. H. Upadhyay

Abstract : The idea of Gossamer space structures dates back to the year 1960. In 1996 NASA sent first IAE. in space to study the behavior of deployment of inflatable antenna and to predict its behavior, though deployment was successful but not controlled. The lack of understanding of dynamics of onorbit deployment through inflation and rigidization and also no reliability in predicting the deployment & rigidization behavior has been a constant problem in this field. A common approach is to recourse structural finite element analysis, which ignores some potential important phenomenon, such as dynamics of the pressure, rate of gas flow, rigidization and its couple interaction with inflatable structure.



- **Multiscale simulation framework for defect formation studies in electronic materials and devices**

Sponsor: Department* of *Science and Technology, ICT and Future Planning, Republic* of *Korea

Prof. lndra Vir Singh

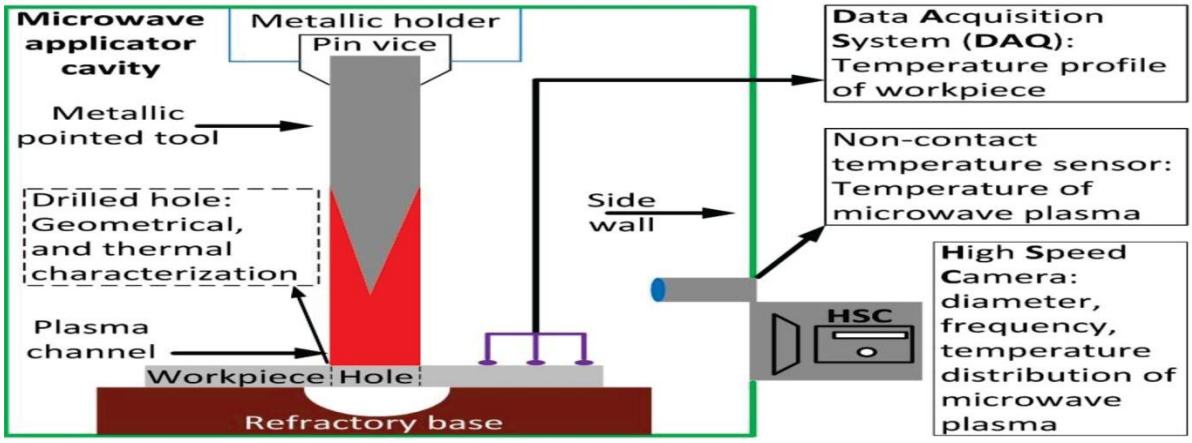
Abstract : This project is being executed through a Joint Network *Centre:Computationai Materials Science Et Engineering* with participants from Indian and Korean Institutes. JNCASR Bangalore, lIT Kharagpur, lIT Roorkee, IISc Bangalore and INST Mohali are participants from India and from Korean side: University of Ulsan, Kookmin University, Advanced Institute of Convergence Technology, Hanbat National University and University of Seoul are the collaborating Institutes. The issue of defect reduction required for the performance enhancement in various optoelectronic devices is of major concern for the electronics industry. This requires the understanding of the defect formation mechanisms in these devices, which can lead to the prediction of device performance in the presence of defects. This project involves the development of defect mechanics-based multiscale computational models to understand the defect formation mechanisms in electronic devices. A new finite element model that embeds edge and screw dislocations in piezoelectric solid will be developed. A theoretical model to predict dislocation density will be developed for piezoelectric multilayer applicable to quantum wells. A molecular dynamics (MD) model will also be developed based on quantum dot with lattices of different sizes. The developed continuum FE/XFEM model will be coupled with MD model.

- **Investigations of Formation of Microwave Plasma During Drilling of Metallic Materials Through In-situ Monitoring**

Sponsor: Science and Engineering Research Board(SERB), DST

Prof. Apurbba Kumar Sharma

Abstract: Microwave plasma is generated as a result of microwave-metal discharge, which is basically electrical discharge triggered during interaction of microwaves with a metallic material. It is one of the microwave-material interaction phenomena that has not been explored and understood well. The project proposes to investigate formation and further characterization of microwave plasma, which is generated in the gap between the pointed metallic tool and metallic work-piece during microwave drilling process inside a multi-mode microwave applicator. In this work, a miniature high-speed camera (HSC) and non-contact temperature sensor will be placed at the spot of minimum microwave leakage on the side wall of the applicator. The miniature HSC will record the formation of microwave plasma in-situ and temperature sensor will record the temperature history. Image processing of the data will be used to determine diameter, frequency and temperature distribution of microwave plasma. Characteristics of drilled holes will be correlated with monitored characteristics of microwave plasma.



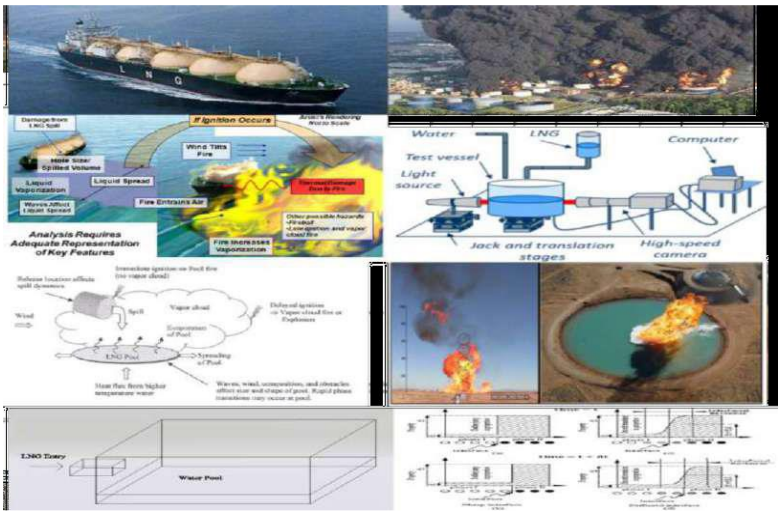
Microwave plasma and microwave drilling trials will be simulated using software tool; the simulated results will be validated using the experimentally obtained data. The mechanism of microwave plasma formation and material removal in microwave drilling will be explained with the help of obtained data. Results of the proposal would help the researchers working on microwave-material interaction, microwave system designers, microwave applicator manufactures an9 will promote application of microwaves for processing of metallic materials. Knowledge dissemination through training a few researchers and interested faculty members of other technical colleges will be taken as part of the scientific social responsibility (SSR) of the project.

- **Analysis of rapid phase transition in liquid natural gas spills**

Sponsor: Sdence and Engineering Research Board

Prof. Arup Kumar Das

This project is aimed in knowledge-building for naval industry, promoting safety in LNG transportation, refueling and production. Objective of this project is to enable better risk quantification of large scale accidents caused by LNG spills onto water. The project will contain both experimental and theoretical/modeling tasks, both aimed at filling the knowledge gaps in the current understanding of LNG RPT. Performing systematic experiments to capture the statistical properties of the apparently stochastic phenomenon and developing new theoretical models covering the triggering phase of RPT are main activities in the project.

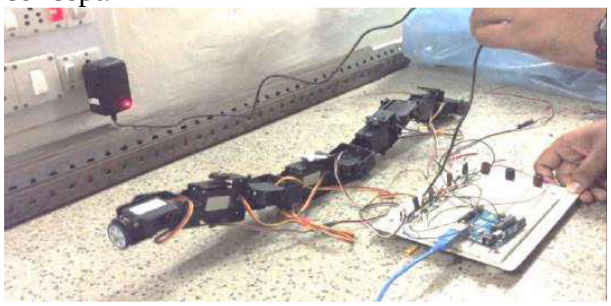


- **Hyper-redundant Robots**

Sponsor: *Department* of *Science and Technology,* Government of *India* & *Ministry* of *Science, ICT and* Future *Planning Republic* of *Korea*

Prof. Pushparaj Mani Pathak

This project is being executed through a Joint Network Centre: *Research in Human-Centered Robotics with special emphasis* on *Field and Bio-Medical Rehabilitation* with participants from Indian and Korean institutes. lIT Delhi, lIT Roorkee, CSIR-NAL, CSIR - CMERI, Durgapur, CSIR-CEERI, Pilani are the participants from India and from Korean side Chungnam National University, Kyungpook National University, Konkuk University, Korea Aerospace University, Daegu Gyeongbuk Institute of Science and Technology are the collaborators in this project. liT Roorkee and Kyungpook National Univ. (Korea) are the direct collaborators in this program.
The project is aimed to design a hyper-redundant snake robot in a biomimetic mechanism, and novel motion and task control schemes for the robot. The design is based on the various types of motions exhibited by snakes. The bond-graph modeling is utilized to analyze and simulate the proposed dynamics of the robot, as well as to validate the integrity of the biomimetic design concept.



The control problems are defined in hierarchical terms for mechanical parts of the robot, control of position/force is addressed in terms of dynamics of a hyper redundant manipulator; for a discrete-event-system model of the robot consisting of wheels and links, biomimetic and hybrid control schemes are proposed based on supervisory and corrective control for adjusting links/joints of the robot to acquire optimal performances. The intelligent behavior of the robot will also be developed to work in highly cluttered and confined environments subject to

kinematic faults or uncertainties, such as moving into channels, pipes, rescuing operations in collapsed buildings, etc.

- **Design Innovation Center at IIT Roorkee**

The Ministry of Human Resource Development (MHRD), Government of India has recently approved the proposal of Indian Institute of Technology Roorkee to establish a Design Innovation Center (DIC), named NAVONMESH, with a budget outlay of ten crore rupees. This approval is under the National Initiative of the Ministry for setting up of Design Innovation Centers, Open Design Schools and National Design Innovation Network.Prof. Apurbba Kumar Sharma (Coordinator) and Prof. Inderdeep Singh

- **International Conference on Nanotechnology: Ideas, Innovation and Initiatives-2017**

The conference was organized by the Department of Mechanical and Industrial Engineering from 6th-8th December, 2017. All technical discussions and talks were divided into the broad categories of Bionanomaterials, Computational Nanotechnology: Synthesis and Characterizations Energy & Nanoelectronics: Sensors & Actuators.

The audience was enthralled by the stimulating lectures by some of the very well reputed scientists in the area of Nanoscience and Technology. The delegation included Prof. Toshiaki Enoki from Tokyo Institute of Technology, Prof. Toyoko Imae from National Taiwan University of Science and Technology, Prof. Peter Skabara from University of Strathclyde, UK., Prof. Uwe Bovensiepen from Duisburg, Germany, Prof. Kiat Hwa Chan fromYale-NUS College, Singapore and many other eminent speakers.

11. RESEARCH PUBLICATION

(a) Conference/ Symp./ Seminars

1. Khullar S., Singh K.M., Gandhi B.K. and Cervantes M., Effect of Axial Water Jet Size and Velocity on Unsteady Pressure Pulsations in a Deaccelerating Swirling Flow, 45th National Conference on Fluid Mechanics and Fluid Power (FMFP), IIT Bombay, Mumbai, Dec.10-12, 2018
2. Kumar Sandeep, Goyal Rahul, Gandhi B.K. and Cervantes M., Experimental Investigation of a Draft Tube Flow Field in a Francis Turbine during Part Load Operation, 45th National

Conference on Fluid Mechanics and Fluid Power (FMFP), IIT Bombay, Mumbai, Dec.10-12, 2018

3. Sharma S., Tarodiya R and Gandhi B.K., Experimental Investigation of Flow Field of a Pot Tester due to Propeller Rotation, 45th National Conference on Fluid Mechanics and Fluid Power (FMFP, IIT Bombay, Mumbai, Dec.10-12, 2018
4. Tarodiya R. and Gandhi B.K., Numerical Prediction of Casing Wear of a Centrifugal Slurry Pump handling Solid-Liquid Mixture, 45th National Conference on Fluid Mechanics and Fluid Power (FMFP), IIT Bombay, Mumbai, Dec.10-12, 2018
5. Kumar Sandeep, Khullar Subodh, Goyal Rahul, Gandhi B. K., POD analysis of turbulent swirling flow in draft tube of a high-head Francis turbine model at part load operation, Heat and Mass Transfer (ISHMT)., , ,
6. Kumar Naveen, Arora Navneet and Goel S. K., Erosive Wear Study of Nitrogen-Containing 23-8-N Austenitic Stainless Steel and Bead on Plate weld using ER2209 Stainless Steel Filler Wire, National conference on advances in mechanical engineering, National Institute of Technology Delhi, March 16, 2019, 2019
7. Mittal Sukrit, Aggarwal Divyam and Saxena Dhish, Innovative Design of Hydraulic Actuation System for Operator Fatigue Reduction and its Optimization, National Conference on Multidisciplinary Design, Analysis and Optimization (NCMDAO), Bangalore, 22-23 March, 2019, 2019

(b) International Conference

1. Chhibber Rahul and Arora Navneet, Residual stresses in bimetallic weld joint with varying buttering layer thickness, Manufacturing science and engineering Conference (MSEC) and NAMRC 46, Texas A&M University, Texas, USA, June 18-22, 2018
2. Singh M., Ganpule S.G., Blast Induced Brain Injury: Delineating the Effects of Primary Blast and Head, World Congress on Biomechanics, Dublin, Ireland, July 8-12, 2018
3. Kannojiya V., Das A.K., Das P.K., Assessment of Suitability for Hemodynamically Levitated Centrifugal Pump as Left Ventricular Assist Device, 5th International Conference on Computational Methods for Thermal Problems, Bangalore, July 9-11, 2018
4. Saha A., Meena C.S., Das A.K., Numerical analysis of Nukiyama's experiment around a thin wire, 5th International Conference on Computational Methods for Thermal Problems, Bangalore, July 9-11, 2018
5. Mulu Girmay, Pathak Pushparaj Mani, Samantaray A.K., Rochdi Merzouki, Belkacem Ould Bouamama, Model Based Control of Cooperative Planar Bionic Manipulator, International Conference on Bond Graph Modeling (ICBGM), Bordeaux, France , July 9-12,, 2018
6. Ram R.V., Pathak P.M., and Junco S. J., Reconfiguration of the Mobile Manipulator under the Failure of Joint Actuator, International Conference on Bond Graph Modeling (ICBGM), Bordeaux, France , July 9-12,, 2018
7. Baider Binaya, Nicolle J., Gandhi B. K. and Cervantes Michel, Sensitivity of the Winter-Kennedy method to inlet and runner blade angle change on a Kaplan turbine, 29th IAHR symposium on Hydraulic Machinery and Systems, Kyoto, Japan, September 16-21, 2018
8. Goyal Rahul, Gandhi B. K. and Cervantes Michel, Experimental Investigation on a High Head Francis Turbine Model during Shutdown Operation, 29th IAHR symposium on Hydraulic Machinery and Systems, Kyoto (Japan, September 16-21, 2018
9. Crespo Martín, Nacusse Matías, Junco Sergio, Rayankula Vitalram, Pathak Pushparaj Mani, Control of a mobile robotic manipulator: a combined design approach, IMAACA: The International Conference on Integrated Modeling and Analysis in Applied Control and Automation, 11th Edition, Part of I3M2018, , Budapest, Hungary., September 17-19, , 2018
10. Bisht Ravindra Singh, Pathak Pushparaj Mani, and Panigrahi Saroj Kumar, Development of Magnetic Adhesion Based Wheel-Driven Climbing Machine for Ferrous Surface

Applications, ASME 2018 Dynamic Systems and Control Conference, Atlanta, Georgia, USA, September 30-October 3, , 2018

11. Kumar Aditya and Subudhi Sudhakar, Investigation of Thermal Conductivity of Water Based Fe3O4 Magnetic Nanofluids, 12th International Conference on Complex Fluids and Soft Matter (COMPFLU-2018), IIT Roorkee, December 6-9, 2018
12. Darshan M. B., Kumar R., Das A. K., Experimental investigation of heat transfer coefficient of R407C refrigerant in horizontal smooth and micro-fin tubes, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
13. Choudhury Rajesh, Tripathi Himanshu, Mishra Anuj Kumar and Subudhi Sudhakar, Statistical Analysis of buoyancy induced turbulent flowin a square enclosure filled with water-based Al2O3 nanofluids, 7th International and 45th National Fluid Mechanics and Fluid Power Conference (FMFP2018), IIT Bombay, December 10-12, 2018
14. Fekadu Geleta and Subudhi Sudhakar, Experimental Study of Internally Cooled Desiccant Dehumidification System, 7th International and 45th National Fluid Mechanics and Fluid Power Conference (FMFP2018), IIT Bombay, December 10-12, 2018
15. Gubrele S., Singh D., Silvi, L., Das A. K., Hydraulic Jump after Impingement of Circular Jet on Vertical Solid Surface: An Experimental Investigation, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
16. Gunipe P.K., Kumar P., Sanjay V., Das A.K., Membrane Free Water Filtration using inertial Microfluidics for Particle Extraction: A Computational Study, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
17. Sharma Kamal R, Dutta S, Wake Sensitivity of Flow over Square Cylinder with respect to Length of an Attached Flexible Wake Splitter, 7th International and 45th National Fluid Mechanics and Fluid Power Conference (FMFP2018), IIT Bombay, Dec 10-12, 2018
18. Kannojiya,V., Das A.K., Das P.K., Numerical Analysis of Centrifugal Blood Pump: Proposal of Optimum Design, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
19. Kumar Aditya, Kumar Deepak and Subudhi Sudhakar, Experimental Investigation of Natural Convection in an Open Cavity with Water and Fe3O4/Water Magnetic Nanofluid, 7th International and 45th National Fluid Mechanics and Fluid Power Conference (FMFP2018), IIT Bombay, December 10-12, 2018
20. Kumar Aditya, Kumar Deepak and Subudhi Sudhakar, Numerical Study of Natural Convection of Al2O3/H2O Nanofluid in a square Cavity with Localised Heating', 7th International and 45th National Fluid Mechanics and Fluid Power Conference (FMFP2018), IIT Bombay, December 10-12, 2018
21. Kumar R., Das A.K., Gas Bubble Bypass through a Liquid-Liquid Interface: Entrainment Study, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
22. Meena C.S., Das A.K., Experimental Study of Boiling on Horizontal and Inclined Cylinders, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
23. Rathia S.K., Rohilla L., Das A. K., Effects of Slugging and Flooding on Bottle Emptying Time for Different Inclinations, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
24. Rohilla L., Das A. K., Numerical Identification of Slip Regime for a Microbubble around a Taylor Bubble in Viscous Newtonian Medium, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018

25. Saha A., Das A.K., Boiling around Horizontal Wire in Presence of Neighbouring Active and Passive Wires: A Numerical Study, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
26. Sharma Vikas, Dutta S., Numerical Investigation of Bio-inspired Micro Riblet Surface for Drag Reduction, 7th International and 45th National Fluid Mechanics and Fluid Power Conference (FMFP2018), IIT Bombay, Dec 10-12, 2018
27. Silvi L.D., Ghosh S., Das A.K., Numerical study of Flow Boiling Situation in Annular Two-Phase Regime, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
28. Singh D., Das A.K., Effect of No-Slip Constraint in the Vicinity of a Bursting Bubble at Free Surface, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
29. Sudhakar T., Das A. K., Proposal of Novel Approach for Generation of Water-in-Oil-in-Water Encapsule in Concentric Channel, 7th International and 45th National Conference on Fluid Mechanics and Fluid Power, Bombay, December 10-12, 2018
30. Arya R. K., & Dvivedi A., Enhancement in Machining Efficiency and Accuracy of ECDM Process Using Hollow Tool Electrode, 7th International and 28th All India Manufacturing Technology Design and Research Conference (AIMTDR-2018), Anna University, Chennai., Dec 13-15, 2018
31. Kumar S., & Dvivedi A., On Performance Evaluation of Helical Grooved Tool during Rotary Tool Micro-ultrasonic Machining, 7th International and 28th All India Manufacturing Technology Design and Research Conference (AIMTDR-2018), Anna University, Chennai., Dec 13-15, 2018
32. Singh T., & Dvivedi A., In 7th International and 28th All India Manufacturing Technology Design and Research Conference (AIMTDR-2018), Anna University, Chennai., Experimental investigation on the effect of energy interaction duration during micro channeling with ECDM, 7th International and 28th All India Manufacturing Technology Design and Research Conference (AIMTDR-2018), Anna University, Chennai., Dec 13-15, 2018
33. Bisht Ravindra Singh, Pathak Pushparaj Mani, Panigrahi Soraj Kumar, Development of a Climbing Robot Based on Multi-Suction Cups Mounted on Timing Belt Mechanism, Asian MMS 2018, , Bengaluru, India, December 17-20,, 2018
34. Fekadu Geleta and Subudhi Sudhakar, Novel Experimental Study of Internally Cooled Dehumidifier for Liquid Desiccant System, Third International Conference on Sustainable Energy and Environmental Challenges (3rd SEEC), IIT Roorkee, December 18-21, 2018
35. Sharma Kamal R, Dutta S, Flow over a Square Cylinder with an Attached Cambered Flexible Wake Splitter, Inst. thermomech. Prague, Feb 20-22, 2019
36. Saxena D. K and Kapoor S., On Timing the Nadir-Point Estimation and/or Termination of Reference-Based Multi- and Many-objective Evolutionary Algorithms, 10th International Conference, EMO 2019, East Lansing, MI, USA, March 10-13, 2019, 2019
37. Goyal Rahul, Gandhi B. K. and Cervantes Michel, Transient Pressure Measurements in the Vaneless Space of a Francis Turbine during Load Acceptances from Minimum Load", 1. Kathmandu University, Dhulikhel, Nepal., September 16-21, 2019

(c) National Journals

1. Dutta Saikat, Kumar Parmod, Das Arup Kumar, Manipulation of Droplets by Electrostatic Actuation and the Related Hydrodynamics, Journal of the Indian Institute of Science, 99, 121-141, 2019

(d) International Journals

1. Aasi Harpreet Kaur, Mishra Manish, Transient Behaviour of Three-Fluid Cross-Flow Heat Exchanger Under the Influence of Temperature Non-Uniformity, ASME - Journal of Thermal Science and Engineering Applications, 10, 61012-1-15, 2018
2. Addis S. Dvivedi A. & Beshah B., Determinants of job satisfaction in Ethiopia: evidence from the leather industry., African Journal of Economic and Management Studies, 9(4), 410-429, 2018
3. Bhandari A. and Bansal A. and Singh A. and Sinha N, Numerical Study of Transport of Anticancer Drugs in Heterogeneous Vasculature of Human Brain Tumors Using Dynamic Contrast Enhanced-Magnetic Resonance Imaging, Journal of biomechanical engineering, 140(5), 51010, 2018
4. Deike L., Ghabache E., Liger-Belair G., Das A. K., Zaleski S., Popinet S., Séon T., Dynamics of jets produced by bursting bubble, Physics Review Fluids, 3, 13603, 2018
5. Dhurandhar S. and Bansal A, Chemical Kinetics Study in Rarefied Martian Atmosphere Using Quantum Kinetics Model, Journal of Physics of Fluids, 30(11), 117104, 2018
6. Fekadu Geleta and Subudhi Sudhakar, Renewable energy for liquid desiccant air conditioning systems: A review, Renewable and Sustainable Energy Reviews, 93, 364-379, 2018
7. Ganpule S., Daphalapurkar N., Cetingul M. P., Ramesh K. T., Efect of bulk modulus on deformation of the brain under rotational accelerations, Shock Wves, 28 (1), 127-139, 2018
8. Goyal Rahul and Gandhi B. K., Review of hydrodynamics instabilities in Francis turbine during off-design and transient operations, Renewable Energy, Vol. 116, Part A, 2018, 1. pp. 697-709., 2018
9. Goyal Rahul, Gandhi B. K. and Cervantes Michel, Particle image velocimetry measurements in Francis turbine: a review and application to transient operations, Journal of Renewable and Sustainable Energy Reviews,, Vol. 81, 2018, pp 2976–2991, 2018
10. Gor M. M., Pathak P. M., Samantaray A. K., Alam K., Kumar P., Anand D., Vijay P., R. Sarkar, J.-M. Yang, S. W. Kwak, Development of a Compliant Legged Quadruped Robot, Sadhna, 43 (7), 102, 2018
11. Jani D.B., Mishra Manish, Sahoo P.K., Investigations on Effect of Operational Conditions on Performance of Solid Desiccant Based Hybrid Cooling System in Hot And Humid Climate, Thermal Science and Engineering Progress, 7, 76-86, 2018
12. Jani D.B., Mishra Manish, Sahoo P.K., Performance Analysis of a Solid Desiccant Assisted Hybrid Space Cooling System Using TRNSYS, Journal of Building Energy, 19, 26-35, 2018
13. Jani D.B., Mishra Manish, Sahoo P.K., A Critical Review on Application of Solar Energy as Renewable Regeneration Heat Source in Solid Desiccant – Vapor Compression Hybrid Cooling System, Journal of Building Energy, 18, 107-124, 2018
14. Kumar Aditya and Subudhi Sudhakar, Preparation, characteristics, convection and applications of magnetic nanofluids: A review, Heat and Mass Transfer, 54, 241-265, 2018
15. Kumar S. & Dvivedi A., Fabrication of microchannels using rotary tool micro-USM: An experimental investigation on tool wear reduction and form accuracy improvement., Journal of Manufacturing Processes, 32, 802-815, 2018
16. Kumar P., Seerha P.P.S., Das A.K., Mitra S.K., Proposition of an optical arrangement for interface reconstruction between stratified liquids, Chemical Engineering Science, 183, 75-85, 2018
17. Kumar P., Prajapati M., Da, A.K., Mitra S.K., Vortex Formation and Subsequent Air Entrainment inside a Liquid Pool, Industrial & Engineering Chemistry Research, 57, 6538-6552, 2018

18. Kumar M., Singh I.V., Mishra B.K., Ahmad S., Rao A.V., Kumar Vikas, Mixed Mode Crack Growth in Elasto-Plastic-Creeping Solids using XFEM, Engineering Fracture Mechanics, Vol. 199, pp. 489-517, 2018
19. Kumar M., Ahmad S., Singh I.V., Rao A.V., Kumar J., Kumar Vikas, Experimental and Numerical Studies to Estimate Fatigue Crack Growth Behavior of Ni-Based Super Alloy, Theoretical and Applied Fracture Mechanics, Vol. 96, , pp. 604-616, 2018
20. Meena C. S., Deep A., Das A. K., Understanding of interactions of bubbles generated at neighboring nucleation sites, Heat Transfer Engineering, 39, 885-900, 2018
21. Mukherjee S., Datta S., Das A. K., Molecular Dynamic Study of Boiling Heat Transfer over Structured Surfaces, Journal of Heat Transfer, 140, 54503, 2018
22. Pawariya K. Dvivedi A. & Singh T., On performance enhancement of electrochemical discharge trepanning (ECDT) process by sonication of tool electrode., Precision Engineering, 56, 8-19., 2018
23. Rohilla L., Das A. K., Understanding of Fluidic Physics during Bypass of a Taylor Bubble around a Transverse Insert in Viscous Medium, Industrial & Engineering Chemistry Research, 57, 13539-13556, 2018
24. Patil Roshan, Mishra B.K., Singh I.V, An Adaptive Multiscale Phase Field Method for Brittle Fracture, Computer Methods in Applied Mechanics and Engineering, Vol. 329, pp. 254–288, 2018
25. Patil Roshan, Mishra B.K., Singh I.V., A Local Moving Extended Phase Field Method (LMXPFM) for Failure Analysis of Brittle Materials, Computer Methods in Applied Mechanics and Engineering, Vol. 342, pp. 674–709, 2018
26. Patil Roshan, Mishra B.K., Singh I.V., Bui T.Q., A New Multiscale Phase Field Method to Simulate Failure in Composites, Advances in Engineering Software, Vol. 126, pp. 9-33, 2018
27. Singh Inderjeet, Amara Yacine, Melingui Achille, Pathak Pushparaj Mani and Merzouki Rochdi, Modeling of Continuum Manipulators using Pythagorean Hodograph Curves, Soft Robotics, 5(4), 425-442, 2018
28. Sharma Naveen, Tariq Andallib, Mishra Manish, Detailed Heat Transfer and Friction Factor Characteristics in a Rectangular Duct with Alternate Solid and Converging-Slit Ribs, Experimental Heat Transfer, 31(6), 552-570, 2018
29. Sharma Naveen, Tariq Andallib, Mishra Manish, Experimental Investigation of Heat Transfer Enhancement in a Rectangular Duct with Pentagonal Ribs, Heat Transfer Engineering, 0, Jan-19, 2018
30. Sharma Naveen, Tariq Andallib, Mishra Manish, Detailed Heat Transfer and Fluid Flow Investigation in a Rectangular Duct with Truncated Prismatic Ribs, Experimental Thermal and Fluid Science, 96, 383-396, 2018
31. Sharma Naveen, Tariq Andallib, Mishra Manish, Experimental Investigation of Flow Structure due to Truncated Prismatic Rib Turbulators Using Particle Image Velocimetry, Experimental Thermal & Fluid Science, 91, 489-508, 2018
32. Sharma Naveen, Tariq Andallib, Mishra Manish, Aerothermal Characteristics of Solid and Permeable Pentagonal Rib Turbulators, ASME Journal of Heat Transfer, 140, 61901-1-14, 2018
33. Singha S. K., Singh I.V., Bhardwaj G., Mishra B. K., A Bézier Extraction based XIGA Approach for Three-Dimensional Crack Simulations, *Advances in Engineering Software*, Vol. 125, pp. 55-93, 2018
34. Singh S.K., Singh I.V., Mishra B.K., Bhardwaj G., Singh S.K., Analysis of Cracked Plate Using Higher-Order Shear Deformation Theory: Asymptotic Crack-Tip Fields and XIGA Implementation, Computer Methods in Applied Mechanics and Engineering, Vol. 336, pp. 594–639, 2018

35. Samant Sanjay, Singh I.V., Singh R.N., Influence of Intermediate Rolling on Mechanical Behavior of Modified 9Cr-1Mo Steel, Materials Science and Engineering: A, Vol. 738, pp. 135-152, 2018
36. Sanjay V., Das A. K., Numerical Assessment of Hazard in Compartmental Fire Having Steady Heat Release Rate from the Source, Building Simulation, 11, 613-624, 2018
37. Singh T. & Dvivedi A., On performance evaluation of textured tools during micro-channeling with ECDM. Journal of Manufacturing Processes, Journal of Manufacturing Processes, 32, 699-713, 2018
38. Singh T. & Dvivedi A., On pressurized feeding approach for effective control on working gap in ECDM., Materials and Manufacturing Processes, 33(4), 462-473., 2018
39. Singh C., Das A. K., Das P. K., Levitation of non-magnetizable droplet inside ferrofluid, Journal of Fluid Mechanics, 857, 398-448, 2018
40. Singh D., Das A.K., Computational simulation of radially asymmetric hydraulic jumps and jump–jump interactions, Computers & Fluids, 170, 01-Dec, 2018
41. Soni A., Sanjay V., Das A. K., Formation of fluid structures due to jet-jet and jet-sheet interactions, Chemical Engineering Science, 191, 67-77, 2018
42. Sudhakar T., Das A. K., Interface Evolution of a Liquid Taylor Droplet during Passage through a Sudden Contraction in a Rectangular Channel, Chemical Engineering Science, 192, 993-1010, 2018
43. Dutta Sushanta, More Bhupendra Singh, Gandhi Bhupendra Kumar and Chauhan Manish Kumar, Experimental investigation of flow over a square cylinder with an attached splitter plate at intermediate Reynolds number, Journal of Fluids and Structures, Vol. 76, 319-335, 2018
44. Tiwary Pankaj and Subudhi Sudhakar, A review of studies using nanofluids in flat-plate and direct absorption solar collectors, Renewable and Sustainable Energy Reviews, 84, 54-74, 2018
45. Amanuel Tarikayehu, Mishra Manish, Thermohydraulic Optimization of Triple Concentric-Tube Heat Exchanger: A Multi-Objective Approach, Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 0(0), 01-Dec, 2018
46. Amanuel Tarikayehu, Mishra Manish, Investigation of Thermohydraulic performance of Triple Concentric-tube Heat Exchanger with CuO/Water nanofluid: Numerical approach, Heat Transfer: Asian Research, , Jan-22, 2018
47. Kashyap Yashwant, Bansal Ankit, Sao Anil K., Hammer, A, Model for Estimation of Global Horizontal Irradiance in Presence of Dust, Fog and Clouds, IEEE Transactions on Geoscience and Remote Sensing, 56(12), 7030-7037, 2018
48. Addis S., Dvivedi A., & Beshah B., Quality management as a tool for job satisfaction improvement in low-level technology organizations: the case of Ethiopia, Production Planning & Control, DOI: 10.1080/09537287.2019.1574510., , 2019
49. Arora Sahil, Fekadu Geleta and Subudhi Sudhakar, Energy and Exergy Analysis of Marquise Shaped Channel Flat Plate Solar Collector Using Al2O3–Water Nanofluid and Water, ASME-Journal of Solar Energy Engineering, 141, 41008-1-9, 2019
50. Arya R. K. & Dvivedi A., Investigations on quantification and replenishment of vaporized electrolyte during deep micro-holes drilling using pressurized flow-ECDM process., Journal of Materials Processing Technology, 266, 217-229, 2019
51. Arya R. K., & Dvivedi A, Investigations on quantification and replenishment of vaporized electrolyte during deep micro-holes drilling using pressurized flow-ECDM process, Journal of Materials Processing Technology,, 266, 217-229, 2019
52. Baidar Binaya, Gandhi Bhupendra, Jonathan Nicolle, Michel Cervantes, Sensitivity of the Winter-Kennedy method to different guide vane openings on an axial machine, Flow Measurement and Instrumentation, , , 2019

53. Bhandari A. and Bansal A. and Singh A. and Sinha N., Effect of Tumor Volume on Drug Delivery in Heterogeneous Vasculature of Human Brain Tumors, ASME Journal of Engineering and Science in Medical Diagnostics and Therapy, -, -, 2019
54. Bhandari A. and Bansal A. and Singh A. and Sinha N., Comparison of Transport of chemotherapeutic Drugs in Voxelized Heterogeneous Model of Human Brain Tumor, Journal of Microvasculature Research, -, -, 2019
55. Chauhan M., Dutta Sushanta, Gandhi B. K. and More Bhupendra Singh, Wake flow modification behind a square cylinder using control rods, Journal of Wind Engineering & Industrial Aerodynamics, Vol. 184, 342-361, 2019
56. Choudhury Rajesh, Saini Adarsh and Subudhi Sudhakar, Oberbeck-Boussinesq approximations and geometrical confinement effects of free convection in open cavity, Heat and Mass Transfer, https://doi.org/10.1007/s00231-019-02563-8, , 2019
57. Darshan M. B., Agarwal Pratyush, Indana Dhiraj, Kumar Ravi, Das Arup Kumar, Proof of Thermo-Mimicking in Nanoscale through Electrophoretic Dispersion and Nucleation, Journal of Heat Transfer, -, -, 2019
58. Datta S., Das A. K., Das P. K., Investigation of Droplet Coalescence Propelled by Dielectrophoresis, AIChE Journal, 65, 829-840, 2019
59. Goyal Rahul, Cervantes Michel and Gandhi Bhupendra K., Synchronized PIV and Pressure Measurements on a Model Francis Turbine during Startup, Hydraulic Research, , ,
60. Jain A., Sanjay V., Das A. K., Consequences of inclined and dual jet impingement in stagnant liquid and stratified layers, AIChE Journal, 65, 372-384, 2019
61. Jha N. K., Singh T., Dvivedi A. & Rajesha S., Experimental investigations into triplex hybrid process of GA-RDECDM during subtractive processing of MMC's., Materials and Manufacturing Processes, 34(3), 243-255, 2019
62. Khurana Deepak and Subudhi Sudhakar, Forced convection of Al2O3/water nanofluids with simple and modified spiral tape inserts, Heat and Mass Transfer, Accepted, , 2019
63. Kumar Arun, Dubey Ankit Kumar, Gandhi Bhupendra, Chandra Pradeep, Srivastava Rahul Kumar, Saini Rajeshwer Prasad,, Experiences in Discharge Measurements at Small Hydropower Stations in India, Flow Measurement and Instrumentation, , , 2019
64. Kumar S. & Dvivedi A., On machining of hard and brittle materials using rotary tool micro-ultrasonic drilling process., Materials and Manufacturing Processes, 34 (7), 736-748, 2019
65. Kumar S. & Dvivedi A., On effect of tool rotation on performance of rotary tool micro-ultrasonic machining., Materials and Manufacturing Processes, 34(5), 475-486, 2019
66. Kumar, M., Kant, R., Das, A. K., Das, P. K., Effect of surface tension variation of the working fluid on the performance of a closed loop pulsating heat pipe, Heat Transfer Engineering, -, -, 2019
67. Dalla Vijay Kumar and Pathak Pushparaj Mani, Impedance Control in Multiple Cooperative Space Robots Pulling a Flexible Wire, The Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 233(6) , 2190–2205., 2019
68. Kumar Vivek, Rastogi Vikas and Pathak P M,, Modelling and evaluation of the hunting behaviour of a high-speed railway vehicle on curved track, Proc IMechE Part F: J Rail and Rapid Transit, 233(2), 220–236, 2019
69. Prajapati M., Kumar P., Das A. K., Numerical understanding of free surface vortex driven by rotational field inside viscous liquid, Heat Transfer Engineering, -, -, 2019
70. Ram R.V., Pathak P.M., and Junco S. J., Trajectory Control of Mobile Manipulator in the Presence of Base Disturbance, Simulation, 95(6) , 529–543., 2019
71. Rayankula Vitalram, Pathak P M, Junco Sergio Jose, Inverse kinematics of mobile manipulator using bidirectional particle swarm optimization by manipulator decoupling, Mechanism and Machine Theory, 131, 385-405, 2019

72. Rohilla Lokesh, Das Arup Kumar, An Experimental Study on the Interfacial Evolution of Taylor Bubble at inception of an Annuli, Industrial & Engineering Chemistry Research, -, , 2019
73. Saha A., Das A. K., Study of Interaction Patterns between Evolving Interfaces due to Boiling around Different Arrangements of Heated Cylinders, International Journal of Heat and Mass Transfer, 130, 440-454, 2019
74. Singh Digvijay, Das Arup Kumar, Numerical investigation of the collapse of a static bubble at the free surface in the presence of neighbors, Physics Review Fluids, -, -, 2019
75. Singh Divya, Parashar Avinash, Kapoor Rajeev, Sarkar Apu, Kedharnat A., Effect of symmetrical and asymmetrical tilt grain boundaries on the tensile deformation of zirconium bi-crystals: a MD based study., Journal of Material Science, 54, 3082-3095, 2019
76. Singh T., Arya R. K. & Dvivedi A., Experimental investigation into rotary mode electrochemical discharge drilling (RM-ECDD) of metal matrix composites., Machining Science and Technology, , Jan-13, 2019
77. Singh, T., Arya, R. K. & Dvivedi, A., Experimental investigation into rotary mode electrochemical discharge drilling (RM-ECDD) of metal matrix composites, Machining Science and Technology, , , 2019
78. Singla Vibhor, Verma Akarsh, Parashar Avinash, A molecular dynamics based study to estimate the point defects formation energies in graphene containing STW defects, Materials research express, 6, 15,606, 2019
79. Verma Akarsh, Parashar Avinash, Packirisamy Muthukumaran, Effect of grain boundaries on the interfacial behaviour of graphene-polyethylene nanocomposite, Applied surface science, 470, 1085-1092, 1085-1092, 2019
80. Kumar, Abhishek, and Satish C. Sharma. Optimal Parameters of Grooved Conical Hybrid Journal Bearing with Shear Thinning and Piezo-viscous Lubricant Behavior. ASME, Journal of Tribology 141.7: 071702. 2019
81. Abhishek Kumar, and Satish C. Sharma. Textured conical hybrid journal bearing with ER lubricant behaviour. Tribology International 129: 363-376. (DOI.10.1016/j.triboint.2018.08.040), 2019
82. Vivek Kumar, and Satish C. Sharma Influence of dimple geometry and microroughness orientation on performance of textured hybrid thrust pad bearing. Meccanica 53.14: 3579-3606. Nov. 2018
83. Jadhav S, Thakre GD, Satish C. Sharma, An experimental study on tribological performance and surface characteristics of lubricated point contact. Acta Mechanica. 1;229(11):4413-30. Nov. 2018.
84. Khatri CB, Satish C. Sharma. Analysis of textured multi-lobe non-recessed hybrid journal bearings with various restrictors. International Journal of Mechanical Sciences. 1; 145:258-86. Sep 2018
85. Vivek Kumar, Satish C. Sharma. Finite element method analysis of hydrostatic thrust pad bearings operating with electrically conducting lubricant. Proceedings of the Institution of Mechanical Engineers (IMeche U.K), Part J: Journal of Engineering Tribology.;232(10):1318-31. Oct 2018