

27th National and 5th International ISHMT-ASTFE

Heat and Mass Transfer Conference

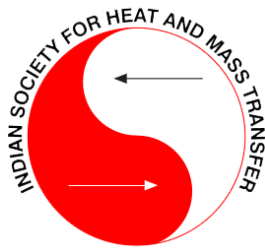
IHMTC 2023

Organized by



**Department of Mechanical Engineering
Indian Institute of Technology Patna**

in association with



**Indian Society for Heat and
Mass Transfer**



**American Society of Thermal
and Fluids Engineers**

December 14 -17, 2023

Indian Institute of Technology Patna

Schedule at a Glance

Day 1: December 14, 2023

9:00–10:00 AM	Inaugural	Auditorium
10:00–11:00 AM	Prof. Arcot Ramachandran Endowment Lecture: Prof. Zhuomin Zhang, Georgia Tech, USA	Auditorium
11:00–11:45 AM	High Tea	Auditorium
11:45–1:00 PM	Session 1: Poster	Auditorium
1:00–2:30 PM	Lunch	IC IITP
2:30–3:00 PM	Keynote Lecture 1: Dr. S. Sunil Kumar, ISRO, India Keynote Lecture 2: Prof. Arvind Pattamatta, IIT Madras, India Keynote Lecture 3: Prof. Prashant Valluri, University of Edinburgh, UK Industry Sponsored Lecture 1: Mr. Pavan Kumar Konchada, CADFEM, India	LT003 LT103 LT001 LT101
3:00–4:00 PM	Oral presentations 1) Session 2A: Propulsion and Power – I 2) Session 2B: Multiphase Flows – I 3) Session 2C: Phase Change Processes – I 4) Session 2D: Solar Energy – I 5) Session 2E: Space Heat Transfer 6) Session 2F: Heat and Mass Transfer Enhancement – I	LT003 LT103 LT001 LT101 LT002 LT102
4:00–4:30 PM	High Tea	CLH
4:30–6:00 PM	Oral Presentations 1) Session 3A: Battery Thermal Management – I 2) Session 3B: Boiling Heat Transfer 3) Session 3C: Computational Fluid Dynamics – I 4) Session 3D: Heat Transfer in Manufacturing and Materials Processing 5) Session 3E: Transport Phenomena in Biological Systems 6) Session 3F: Combustion and Automotive Applications	LT003 LT103 LT001 LT101 LT002 LT102
7:00–9:00 PM	Dinner	IC IITP

Day 2: December 15, 2023

9:00–9:30 AM	Keynote Lecture 4: Dr. Vaibhav Bahadur, The University of Texas at Austin, USA Keynote Lecture 5: Dr. D.K. Chandraker, BARC, India Keynote Lecture 6: Prof. Anupam Dewan, IIT Delhi, India	LT003 LT103 LT001
9:30–10:30 AM	Oral presentations 1) Session 4A: Energy Devices and Systems – I 2) Session 4B: Nuclear Heat Transfer – I 3) Session 4C: Instability, Transition & Turbulence – I 4) Session 4D: Phase Change Processes - II 5) Session 4E: Battery Thermal Management – II 6) Session 4F: Turbomachinery and Jets	LT003 LT103 LT001 LT101 LT002 LT102
10:30–11:00 AM	High Tea	Auditorium
11:00–12:00 PM	Plenary Lecture 2: Prof. Pradip Dutta, IISc, India	Auditorium
12:00–1:00 PM	Session 5: Poster	Auditorium
1:00–3:00 PM	Lunch	IC IITP
3:00–3:30 PM	Keynote Lecture 7: Prof. Sandip Kumar Saha, IIT Bombay, India Keynote Lecture 8: Dr. Deb Mukhopadhyay, BARC, India	LT003 LT103
3:30–5:00 PM	Oral presentations 1) Session 6A: Energy Devices and Systems – II 2) Session 6B: Nuclear Heat Transfer – II 3) Session 6C: Microfluidics – I 4) Session 6D: MHD and EHD flows 5) Session 6E: Fire Technology and Safety 6) Session 6F: Phase Change Materials – I	LT003 LT103 LT001 LT101 LT002 LT102
5:00–6:00 PM	High Tea	Auditorium
6:00 – 7:00 PM	Cultural Program	Auditorium
7:00–9:00 PM	Gala Dinner	IC IITP

Day 3: December 16, 2023

9:00–9:30 AM	Keynote Lecture 9: Prof. Ranjan Ganguly, Jadavpur University, India Keynote Lecture 10: Dr. Sivasankaran Harish, The University of Tokyo, Japan Industry Sponsored Lecture 2: Mr. Jayaraj Balasubramanian, Vision Research, India	LT003 LT103 LT001
9:30–10:30 AM	Oral presentations 1) Session 7A: Condensation Heat Transfer 2) Session 7B: Heat and Mass Transfer Enhancement – II 3) Session 7C: Measurement and Experimental Techniques – I 4) Session 7D: Numerical Algorithms and Schemes 5) Session 7E: Nuclear Heat Transfer – III 6) Session 7F: Heat Transfer	LT003 LT103 LT001 LT101 LT002 LT102
10:30–11:00 AM	High Tea	Auditorium
11:00–12:00 PM	Plenary Lecture 3: Prof. Patrick Phelan, ASU, USA	Auditorium
12:00–1:00 PM	Session 8: Poster	Auditorium
1:00–2:30 PM	Lunch	IC IITP
2:30–3:30 PM	Plenary Lecture 4: Prof. Amit Agrawal, IIT Bombay, India	Auditorium
3:30–4:00 PM	High Tea	Auditorium
4:00–4:30 PM	Keynote Lecture 11: Prof. Andallib Tariq, IIT Roorkee, India Keynote Lecture 12: Prof. Malay K. Das, IIT Kanpur, India Keynote Lecture 13: Prof. Anandaroop Bhattacharya, IIT Kharagpur, India	LT003 LT103 LT001
4:30–6:00 PM	Oral presentations 1) Session 9A: Measurement and Experimental Techniques – II 2) Session 9B: Transport in Porous Media 3) Session 9C: Machine Learning for Fluid Mechanics and Heat Transfer 4) Session 9D: Propulsion and Power – II 5) Session 9E: Refrigeration and Air Conditioning – I 6) Session 9F: Phase Change Materials – II	LT003 LT103 LT001 LT101 LT002 LT102
7:00–9:00	Dinner	IC IITP

Day 4: December 17, 2023

9:00–10:30 AM	Oral presentations 1) Session 10A: Refrigeration and Air Conditioning – II 2) Session 10B: Fluid-Structure Interaction 3) Session 10C: Multiphase Flows – II 4) Session 10D: Thermal Management 5) Session 10E: Heat and Mass Transfer Enhancement – III 6) Session 10F: Non-Newtonian Fluid Flow	LT003 LT103 LT001 LT101 LT002 LT102
10:30–11:00 AM	High Tea	CLH
11:00–12:30 PM	Session 11A: (a) BIS Sponsored Lecture: Prof. Pramod Kumar (11:00–11:45 PM) (b) IC IITP Sponsored Lecture: Prof. Sameer Khandekar (11:45–12:30 AM)	LT003 LT003
11:00–12:30 PM	Oral presentations 1) Session 11B: Instability, Transition & Turbulence – II 2) Session 11C: Solar Energy – II 3) Session 11D: Computational Fluid Dynamics – II 4) Session 11E: Multiphase Flows – III 5) Session 11F: Miscellaneous	LT103 LT001 LT101 LT002 LT102
12:30–1:00 PM	Valedictory Function	LT003
1:00–2:30 PM	Lunch	IC IITP

Detailed Schedule

Day 1: December 14, 2023

9:00-10:00 AM	Inaugural Session	Venue: Auditorium
10:00-11:00 AM	Prof. Arcot Ramachandran Endowment Lecture (Chair: Prof. K. Muralidhar, IIT Kanpur)	Venue: Auditorium
	Speaker: Prof. Zhuomin Zhang, Georgia Tech, USA Topic: Nanoscale Thermal Radiation: From Theory to Applications	
11:00-11:45 AM	High Tea	Venue: Auditorium
11:45-1:00 PM	Session 1 Poster Presentation	Venue: Auditorium
1:00-2:30 PM	Lunch	Venue: IC IITP
2:30-4:00 PM	Session 2A (Chair: Dr. Reji Joseph, ISRO)	Venue: LT003
2:30-3:00 PM	Keynote Lecture 1	
	Speaker: Dr. S. Sunil Kumar, ISRO, India Topic: Nuclear Thermal Propulsion for Deep Space Missions	
3:00-4:00 PM	Propulsion and Power - I	
Paper #	Authors	Title
54	Summaiya Javed , Arun Kumar Tiwari	Assessment of Different ORC Configurations for Recovery of Flue Gas from Glass Industry
59	Ajith M , Kiran Kumar B, Thomas Kurian, and Satheesh Kumar N	Two-phase flow analysis on Solid rocket motor and impact of slag accumulation phenomena on thermal insulation
93	Ritesh Dubey and Rajiv Kumar	Effect of Additives on the Extinction of Solid Rocket Propellants
224	Amit Kumar Yadav , Assiz M. P., T. John Tharakan, and S. Sunil Kumar	Evaluation of Minimum Ignitable Global Mixture Ratio for Methane - Oxygen Diffusion Combustion
2:30-4:00 PM	Session 2B (Chair: Dr. Soumyadip Sett, IIT Gandhinagar)	Venue: LT103
2:30-3:00 PM	Keynote Lecture 2	
	Speaker: Prof. Arvind Pattamatta, IIT Madras, India Topic: Role of Surface Wettability on the Thermal Performance of Wickless Heat pipes	
3:00-4:00 PM	Multiphase Flows - I	
Paper #	Authors	Title
346	Anoop Kumar Shukla , Vipin Bhardwaj, and Subrata Kumar	Numerical Study of Pulsating Heat Pipe Under Asymmetric Heating Condition
364	Amit Raj, Md Quamar Alam , Ashwani Assam, and Rishi Raj	Numerical Validation of Acoustic Emissions from a Train of Bubbles Departing from an Underwater Nozzle
110	Pratit Sunder Dev Roy , Koushik Das, and Hriday Mani Kalita	Performance Enhancement of Cylindrical Heat Pipe using Tapered Wick
114	Orkodip Mookherjee , Shantanu Pramanik, and Atul Sharma	On the Performance of THINC-scaling CLSVOF Scheme for Two-Phase Flows

2:30-4:00 PM	Session 2C (Chair: Prof. Gaurav Tomar, IISc Bangalore)	Venue: LT001
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2:30-3:00 PM	Keynote Lecture 3	
Speaker:	Prof. Prashant Valluri, University of Edinburgh, UK	
Topic:	Using phase-change to tell if your sessile droplet is too drunk?	

3:00-4:00 PM	Phase Change Processes – I	
Paper #	Authors	Title
268	Vijay Kumar, Harrison Szeto, Xichen Liang, and Yangying Zhu	Micro-Raman Thermometry for Spatially Resolved Heat Transport During Thin Film Evaporation
300	Satish Kumar, Darshan Pahinkar and Vaibhav Arghode	Desiccant Evaporative Cooling of Data Center driven by its Waste Heat
388	Devendra Raut, Lokesh Ajmira and Vilas R Kalamkar	Numerical Simulation of Evaporation in a Falling Film Arrangement

2:30-4:00 PM	Session 2D (Chair: Dr. Srinivasa Ramanajam Kannan, IIT Bhubaneswar)	Venue: LT101
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2:30-3:00 PM	Industry Sponsored Lecture 1	
Speaker:	Mr. Pavan Kumar Konchada, CADFEM, India	
Topic:	Overview of AI/ML and Reduced Order Modeling (ROM) techniques being leveraged to investigate technology applications involving heat transfer and mass transfer	

3:00-4:00 PM	Solar Energy – I	
Paper #	Authors	Title
61	Jay Shankar Prasad, Aparesh Datta and Sirshendu	Numerical Study of Thermal and Flow Behaviour near the Heated Wall with Novel Offset Ribs incorporated inside a Solar Air Heater
81	Tushar Patil, Abhishek Bhesania, Rakesh Kumar, and Vaibhav Arghode	Investigation of Secondary Reflector for a High Flux Solar Simulator (HFSS)
140	Joshua Kumar Saladi, Ronanki Suresh , Santanu Prasad Datta	Energy Exergy analysis of Solar parabolic trough collector
384	Debartha Chatterjee and Sameer Khandekar	A Novel Bi-Facial Hybrid Wick Approach for Enhanced Solar-Vapor Conversion Efficiency

3:00-4:00 PM	Session 2E (Chair: Dr. Susmita Dash, IISc Bangalore)	Venue: LT002
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Space Heat Transfer		
Paper #	Authors	Title
104	Reji Joseph, Sharmistha Choubey, Akula Akhil Praveen, Jophy	Experimentally validated thermal model for heat transfer through structural mounting of a launch vehicle
173	Vishnu Viswanath, Deepak Kumar Agarwal, T John Tharakan, S Sunil Kumar	Self-evaporation and tank pressure evolution in a liquid hydrogen tank during a short-term orbital mission: A hybrid modelling approach
246	Ullekh Pandey, Kota Santosh Lakshmi, Meena Balakrishnan, Vijay Kumar Sen, Manoj R, Ganesh Varma, Sabooj Ray, Shishir S Chandra, Abhishek JK, Aneesh AN, Satheesh Thampi R	Thermal Design and Testing of Plasma Analyser Package for Aditya-L1 Mission

3:00-4:00 PM	Session 2F (Chair: Dr. Venugopal Arumuru, IIT Bhubaneswar)	Venue: LT102
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Heat and Mass Transfer Enhancement - I

Paper #	Authors	Title
34	Sameer Ranjan Sahu, Hrushikesh Barik, and Pandaba Patro	Heat transfer augmentation by nano-fluids in a circular pipe
73	Aritri Halder, Rahul Pandey, and Umesh Madanan	Computer Simulations on Heat Transfer Enhancement in a Minichannel Heat Sink using Modified Butterfly Inserts
321	Yogesh R. Pawar, P.P. Kulkarni, A.K. Dureja, and A.K. Nayak	Assessment of Heat Removal Capability of Steel Containment by Passive Air Cooling
291	Sambal Dwivedi, Abhishek Kundu	Effect of cylinder rotation in forced convection heat transfer on the performance of discrete wall-mounted heaters

4:00-4:30 PM	High Tea	Venue: CLH
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4:30-6:00 PM	Session 3A (Chair: Dr. Amrit Ambirajan, IISc Bangalore)	Venue: LT003
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Battery Thermal Management - I

Paper #	Authors	Title
170	Anil Wakale, Xiao Hu, and Omkar Chamhekar	An Accurate Lumped Electro-Thermal Model for a Full Battery Pack
80	Ummid Isamiya Shaikh, Dr. Dhanapal Kamble, Dr. Sandeep Kore, Yash Ashtekar	A comparative experimental analysis of thermal behaviour of Lithium Ion Battery under natural and forced convective cooling with and without PCM
136	Kokkula Monika, Chanchal Chakraborty, Sounak Roy, Srikanta Dinda, Satyapaul A. Singh, Santanu Prasad Datta	Investigation of micro channelled cooling plate on the thermal behaviour of li-ion battery module
151	Hemanth Dileep, Jitendra Kumar Singh, Kaushal Kumar Jha, Pallab Sinha Mahapatra, and Arvind Pattamatta	Thermal management of Li-ion Pouch Cell under actual discharge condition using Phase Change Materials
162	Babu Sanker S, B Girinath Sebin Mathew, and Rajesh Baby	Thermal Management of Lithium-Ion Battery with Phase Change Material-based Prismatic Cell Heat Sinks: An Experimental Study

4:30-6:00 PM	Session 3B (Chair: Dr. Pothukuchi Harish, IIT Jammu)	Venue: LT103
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Boiling Heat Transfer

Paper #	Authors	Title
65	V Venkitesh, Susmita Dash	The shape of the liquid-vapor interface during film boiling in the presence of surface extends
186	Nipun Kothare, Sanjid C.S., Janani Sree Murallidharan, and Atul Sharma	Effect of Cyclic Exponential Heat Flux-based Power Transients on Bubble Coalescence in Nucleate Pool Boiling
199	Moharana, Subhakanta; Laskar, Niloy; Das, Mihir Kumar	Influence of Semi-Closed Microstructure on Lower Onset Wall-Superheat of A 2x3 Tube Bundle Under Pool Boiling Condition
258	Sachin Tom, Atul Srivastava	Numerical Study of Sub-cooled Flow Boiling towards High Void Fraction Flow Regimes using Coupled Wall Boiling and Population Balance Model
335	Mohd. Moiz, Mohammed Sameer, Atul Srivastava	Coupled vapor bubble and microlayer dynamics during nucleate flow boiling on nanocoated surfaces offering varying wettability
381	Ayush Kumar Rao, K.P. Shanmugasadas, and Harish Pothukuchi	Subcooled flow boiling characteristics in an eccentric annulus at low pressure conditions

4:30-6:00 PM	Session 3C (Chair: Dr. Rajendra Prasad Vedula, IIT Bombay)	Venue: LT001
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Computational Fluid Dynamics - I

Paper #	Authors	Title
120	Satyajit Das Karmakar, Prasun Dutta , and Himadri Chattopadhyay	Natural convection in a square cavity filled with low Pr materials: studies using transition SST model
124	Mohan N. Labade, Vikas Kumar , Mangesh B. Chaudhari, Mohammad Asif Sultan	Conjugate heat transfer simulation of a high-performance computing server
144	Mohit Raje , Amit Kumar Dhiman	3D CFD Investigation on Trimmed Annular Fins in Crossflow Heat Exchanger
160	Dinesh D , Shine S R, K S Santhosh	Natural Convection Boundary Layer Flow Over Cylinders
317	Aiswarya Unny , Devendra Kumar Patel	Numerical investigation of the influence of inner funnel offset and height reduction on a modified IRS device

4:30-6:00 PM	Session 3D (Chair: Prof. Swarup Bag, IIT Guwahati)	Venue: LT101
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Heat Transfer in Manufacturing and Materials Processing

Paper #	Authors	Title
96	Justin Hijam , Rohit Gupta and Madhu Vadali	Prediction of surface evolution during pulsed laser surface melting
182	Abhik Deb , and Pradip Dutta	Computational study of Transport Phenomena in Laser melting based Metal Additive Manufacturing
198	Debajyoti Adak , Somnath Roy, and Ganesh Balasubramanian	Topology Optimization and Thermal-Structural Finite Element Simulation of Metal Additive Manufacturing Process (LPBF) on Inconel 718
72	A. Kumar , K. Yogi, J. Patel, and S. V. Prabhu	Effect of pipe and orifice on local heat transfer distribution on thin metal foil impinged by free surface water jet
262	Akshay Soni, Swarup Bag , and P S Robi	Role of casting speed on temperature distribution and turbulent flow in twin roll casting restrained by proposed heat transfer boundary and Scheil's cooling condition

4:30-6:00 PM	Session 3E (Chair: Dr. Aranyak Chakravarty, Jadavpur University)	Venue: LT002
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Transport Phenomena in Biological Systems

Paper #	Authors	Title
76	Amritpal Singh , Neeraj Kumar	Evaluation of the cooling effect due to the presence of major blood vessels on the magnetic hyperthermia therapy
119	Manoj Mahawar , Bharat Soni, Ameen Kumar Nayak	Influence of Fahraeus-Lindqvist Effect on Blood Flow Resistance: An Analytical Approach
253	Pammi Raj Gupta , Pradyumna Ghosh, and Jahar Sarkar	Optimizing Thermal Cancer Therapy: A Novel Patient-Specific Treatment Planning Framework
259	Naveen G , Chithramol M K, and Shine S R	Thermoregulatory Responses during Postmortem State and Hemorrhage
276	Shivji Prasad Yadav , Atul Sharma, and Amit Agrawal	Numerical Simulation of Blood Plasma Separation in a Bended-bifurcated Microchannel
282	Souvik Pabi , Md. Kaleem Khan, Abhishek Raj	Effect of Womersley number on the hemodynamics of a stenotic carotid artery with heat generation

4:30-6:00 PM	Session 3F (Chair: Dr. Vaibhav Kumar Arghode, IIT Kanpur)	Venue: LT102
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Combustion and Automotive Applications

Paper #	Authors	Title
49	Monali Suryabhanji Bhojanea , Sudhir Chandra Murmu, Himadri Chattopadhyay and Abhijit Dutta	Selection of coal using MCDM techniques on the thermodynamic parameters
67	Praveen Pratap Singh , Rudra N. Roy	Nonpremixed and Premixed FPV Modelling of a Turbulent CH ₄ -H ₂ Bluff-body Flame
165	Keshav Verma and Parmod Kumar	Numerical Simulations of Y-Channel Combustor using the k - ε RANS Model
196	Subrata Dutta, Arnab Chakraborty, Auronil Mukherjee, and Shirsendu Mondal	Spatiotemporal Dynamics of Merging Flames: Experiments and Spectral Proper Orthogonal Decomposition Analysis
243	Ajith U K Nair , Krishna Sessa Giri	OpenFOAM simulation and development of a prototype Swiss- Roll Combustor for Methane Reforming
371	Lokesh Rishabh , Rajesh Sadanandan, and I. R. Praveen Krishna	Experimental Investigation of the self-excited oscillations of swirl stabilized non-premixed flames

7:00-9:00 PM	Dinner	Venue: IC IITP
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Day 2: December 15, 2023

9:00-10:30 AM		Session 4A	Venue: LT003
(Chair: Dr. Jaichander Swaminathan, IISc Bangalore)			
9:00-9:30 AM		Keynote Lecture 4	
Speaker: Dr. Vaibhav Bahadur, The University of Texas at Austin, USA			
Topic: Intensification of mass and heat transfer for CO ₂ hydrates-based seabed sequestration of carbon			
9:30-10:30 AM		Energy Devices and Systems - I	
Paper #	Authors	Title	
376	Ankit Kumar, Rakesh Kumar and Prakash D Chavan	Co-gasification performance study of high ash Indian Coal and Rice husk blends in different proportion in Fluidised bed Gasifier.	
277	Aniket Singh, Dhiraj Kumar Mahajan, Himanshu Tyagi	Understanding the Thermodynamic and Kinetic behavior of the Dehydrogenation process of Liquid Organic Hydrogen Carrier (Methylcyclohexane-Toluene) at high pressure	
30	P Vishal Reddy and Mahesh J Vaze	Parametric Investigation of Alkaline Electrolyzer	
219	Sunil, Anurag Agarwal, Ajay D Thakur and Rishi Raj	High Cycle Sorption Performance of Calcium Chloride Composites with Ammonia	
9:00-10:30 AM		Session 4B	Venue: LT103
(Chair: Dr. Nagaraj Alangi, BARC)			
9:00-9:30 AM		Keynote Lecture 5	
Speaker: Dr. D. K. Chandraker, BARC, India			
Topic: Critical Heat Flux: A Historical Journey, Challenges and Evaluation Methodologies			
9:30-10:30 AM		Nuclear Heat Transfer - I	
Paper #	Authors	Title	
52	Jeevan Singh Dangi, G. Vikram, and K. Natesan	Hydraulic Analysis of Spurious Closure of Sodium Side Isolation Valve in One Steam Generator of an FBR	
62	P. K. Verma, A. K. Nayak	Visualization study of Bubble iterations at Downward-Facing Boiling	
69	Singh RK, Mukhopadhyay D, Khakhar D, and Joshi JB	Direct Numerical Simulation of PWR sub-channel and heat transfer	
9:00-10:30 AM		Session 4C	Venue: LT001
(Chair: Prof. Manabendra Pathak, IIT Patna)			
9:00-9:30 AM		Keynote Lecture 6	
Speaker: Prof. Anupam Dewan, IIT Delhi, India			
Topic: Heat Transfer Enhancement in Wall-Bounded Turbulent Jets: A Computational Study			
9:30-10:30 AM		Instability, Transition & Turbulence - I	
Paper #	Authors	Title	
68	Singh RK, Mukhopadhyay D, Khakhar D, and Joshi JB	Study of turbulent structures in sub-channel using DNS	
40	Mayank Thummar, Ramesh Bhoraniya, and Vinod Narayanan	Global stability analysis of the boundary layer with non-uniform wall suction and injection	
145	Vinay Kumar Tripathi, Pranav Joshi	Effect of aspect ratio on heat transfer in rotating Rayleigh-Bernard convection at low Rayleigh number	
9:30-10:30 AM		Session 4D	Venue: LT101
(Chair: Dr. Pankaj Rawat, SERB)			
Phase Change Processes- II			
Paper #	Authors	Title	
41	Rinku Kumar Gouda, Mohammad Autif Shahdhaar, and Atul Srivastava	Experimental Investigation of Evaporation Rates from a TiO ₂ Nanocoated Surface	

148	Gourav Parmar , and Madan Mohan A	Analysing the Effect of Neighbouring Droplets on the Evaporation of Urea-Water-Solution
217	Kapil Sharma, Darshan G. Pahinkar and Vaibhav Arghode	Evaluation of bubble column dehumidifier using magnesium chloride dessicant
269	Vijay Kumar , Qianxi Fu, and Yangying Zhu	Heat Transfer on Cold Superhydrophobic Surface During Droplet Impact

9:30-10:30 AM	Session 4E (Chair: Dr. Mohd. Kaleem Khan, IIT Patna)	Venue: LT002
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Battery Thermal Management - II

Paper #	Authors	Title
197	Piyusha Jha, Mazhar Hussain, and Mohd. Kaleem Khan	Numerical evaluation of indirect liquid cooling of a Li-ion battery using 2 RC-circuit model
216	Mazhar Hussain, Mohd. Kaleem Khan, and Manabendra Pathak	Numerical investigation on the porous electrode design and thermal management of a lithium-ion battery pack
248	Kundrapu Ayyappa Swamy, and Saket Verma	Experimental Investigation on Air-Cooled Heat Pipe based Hybrid Battery Thermal Management System under Fast Charging Conditions
353	Rajesh Kumar, Anoop Kumar Gupta	Comparative analysis on cooling strategies for lithium-ion battery: wall shape, cell arrangement, flow configuration, and PCM encapsulation

9:30-10:30 AM	Session 4F (Chair: Dr. Rajesh Sadanandan, IIST)	Venue: LT102
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Turbomachinery and Jets

Paper #	Authors	Title
229	Harpal Singh, Sandip K. Saha	Numerical Study of an Improved Mechanical Seal Design by Introducing a Groove
304	Ajmit Kumar and Manabendra Pathak	Heat Transfer Enhancement in the Internal Convection Cooling of Gas Turbine Blades With Compound V Ribs and Spherical Dimples Arrangements
168	Rajiv Krishnan and Rajendra P Vedula	Heat Transfer Characteristics of a Flat Surface by Swirl Jet Impingement from a Short Nozzle Inserted with a Twisted Tape
264	H.I. Shaikh , S. Siddapureddy, S.V. Prabhu	Effect of the shapes of the Multiple impinging air jets on the heat transfer rate

10:30-11:00 PM	High Tea	Venue: Auditorium
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11:00-12:00 noon	Plenary Lecture 2 (Chair: Prof. Balaji Chakravarthy, IIT Madras)	Venue: Auditorium
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Speaker: Prof. Pradip Dutta, IISc, India

Topic: Thermochemical Energy Storage and Multifunctional Thermal Batteries

12:00-1:00 PM	Session 5 Poster Presentation	Venue: Auditorium
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1:00-3:00 PM	Lunch	Venue: IC IITP
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3:00-5:00 PM	Session 6A (Chair: Prof. Ranjan Ganguly, Jadavpur University)	Venue: LT003
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3.00-3.30 PM **Keynote Lecture 7**

Speaker: Prof. Sandip Kumar Saha, IIT Bombay, India

Topic: Packed Bed Latent Heat Thermal Energy Storage: Experiments and Advances in Modelling

3.30- 5.00 PM		
Energy Devices and Systems - II		
Paper #	Authors	Title
102	Akshay Chate , Kartik Jain, Srinivasa Murthy S., Susmita Dash, Pradip Dutta	Design and Analysis of a High Temperature Thermochemical Energy Storage Reactor using Calcium Oxide
279	Anas A.E Ahmed , Rudrodip Majumdar, and Sandip K. Saha	Experimental Investigation of Stratified Sensible Thermal Energy Storage using Silicone Oil
283	Pushpendra Kumar Shukla, Jaideep Shukla , Ketan Arora and P. Anil Kishan	Numerical and Experimental Analysis of Double Pass Latent Heat Thermal Energy Storage System with Different Geometric and Flow Conditions
278	Ankush Shankar Pujari , Rudrodip Majumdar, C. Subramaniam, Sandip K. Saha	Study of Different Flow Configurations of Radial Flow Annular Reactor for Thermochemical Energy Storage
372	Anil Pandya , Devang Anadkat, Shreya Dunganani, Ajay D. Thakur and Anup V. Sanchela	Fabrication and Characterization of Flexible Graphite-Copper Based Thermoelectric Devices
390	Prabhav Agrawala and Amit Arora	Numerical investigation of non-uniform fins in pipe flows and effect of fin truncation

3.00-5:00 PM	Session 6B	Venue: LT103
(Chair: Dr. Abhijit Avinash Adoni, URSC)		

3:00-3:30 PM	Keynote Lecture 8
Speaker: Dr. Deb Mukhopadhyay, BARC, India	
Topic: Safety Studies on Reactor Thermal-Hydraulics	

3.30-5.00 PM		
Nuclear Heat Transfer - II		
Paper #	Authors	Title
161	Arnab Dasgupta , S Sai Ganesh, D K Chandraker, S K Sinha	A Novel Method for Channel Power Measurement in a Pressure Tube Type Nuclear Reactor under Partial Boiling Conditions
113	Nagaraj Alangi , Anik Mazumder and Sanjay Sethi	On the suitability of an electron beam evaporator as a lutetium atom source
108	Harikrishnan V , Vikas Kumar Mishra and P. Mangarjuna Rao	Numerical Modelling of Joule Melter for Waste Vitrification to Analyze it's Electrical and Thermal Characteristics
239	Amit Kumar Chauhan , M Rajendrakumar and K Natesan	Thermal Hydraulics of Intermediate Heat Exchangers for SFRs

3:00-5:00 PM	Session 6C	Venue: LT001
(Chair: Prof. Anugrah Singh, IIT Guwahati)		

Microfluidics - I		
Paper #	Authors	Title
48	Anurag Maheswari, Yogesh K. Prajapati , Kuldip Kumar, Dinesh Kumar and Prabhakar Bhandari	Experimental study of double layer microchannel heat sink with distinct channel configurations
387	Chinmaya Kumar Patra , Anandaroop Bhattacharya, Prasanta Kumar Das	Impact of Micropin-Fin Array Shape on Intra-Chip Microfluidic Cooling with Nonuniform Power Dissipation Map
178	Rajalingam A , Shubhankar Chakraborty	Effect of the transverse channel on the performance of microchannel heat sink
340	Anirban Chatterjee , Ameeya Kumar Nayak	Effect of Debye layer in electromigration Taylor dispersion
356	Nishant Hinge , Shriram Joshi, Amol Deshpande, and Raghvendra Gupta	Effect of solid wall on convective heat transfer in Taylor flow in microchannels

3.30-5.00 PM	Session 6D (Chair: Dr. Deepu P, IIT Patna)	Venue: LT101
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MHD and EHD Flows

Paper #	Authors	Title
43	Pulak Gupta , Purbarun Dhar, and Devranjan Samanta	Electro-magneto-hydrodynamics (EMHD) of a less conducting confined drop than the surrounding pool
232	Ravi Kant , Manjari Singh , Avishek Ranjan , Atul Srivastava	Experimental study of Magnetoconvection on Vertical Heated Flat Plate at Low Hartmann Number
272	Ramesh Kumar and Sushil Kumar Dhiman	Experimental and Numerical analysis of Ferrofluid in Partially Heated Transparent Enclosure Microchannel under a Non-Uniform Magnetic field generated by Single, Double, and Circular Ring permanent magnet
380	Satya P. Pandey , Sandip Sarkar and Debashis Pal	Breakup dynamics of a droplet under the combined influence of pressure driven flow and transverse alternating electric field within a microchannel

3.30-5.00 PM	Session 6E (Chair: Prof. Prabal Talukdar, IIT Delhi)	Venue: LT002
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Fire Technology and Safety

Paper #	Authors	Title
190	Siddhi Marathe , Hrishikesh Gaikwad, Amit Kumar	Modelling the Thermal Degradation of Forest Litter Beds
236	Vipin Kumar , Kambam Naresh, Amit Kumar, Payal Sharma, Akash Gupta	Flame Spread over Thin Circular Duct
223	Rajat Joshi , Sudheer Siddapureddy	Investigations on Thermal Characteristics of Aramid Fibre Insulation
221	Vikas R , Siva K Bathina and Sudheer Siddapureddy	Partitioning of Heat Fluxes to Lumped Body Engulfed in Double Pool Fires

3.30-5.00 PM	Session 6F (Chair: Dr. Sudheer Siddapureddy, IIT Dharwad)	Venue: LT102
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Phase Change Materials - I

Paper #	Authors	Title
175	Rakesh Nandan , Venugopal Arumuru, and Mihir Kumar Das	Temperature control of electronic gadgets using PCM and synthetic jet based hybrid heat sink
206	Girish Kumar Marri , Chayan Das, and Soumyadip Sett	Phase Change Material Infused Surfaces for Thermo-responsive Condensation in Thermosyphon for Effective Battery Thermal Management
228	Midhun V C , Mayank Maroliya, Sandip K. Saha	Numerical heat transfer investigation on solid-solid phase change material composite-based plate-fin heat sink for thermal management of electronic package
247	Mayank Maroliya , Midhun V.C., Sandip K. Saha	Comparative Study of Solid-Solid and Solid-Liquid Phase Change Materials for a Pin-Finned Heat Sink in Avionics Thermal Management
310	Sohom Goswami , Ravi M. Sidhpuria and Sameer Khandekar	Artificial Fog Generation by Mixing of Air Streams and its Collection Dynamics

5:00-6:00 PM	High Tea	Venue: Auditorium
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6:00-7:00 PM	Cultural Program	Venue: Auditorium
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7:00-9:00 PM	Gala Dinner	Venue: IC IITP
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Day 3: December 16, 2023

9:00-10:30 AM	Session 7A	Venue: LT003
(Chair: Prof. Pallab Sinha Mahapatra, IIT Madras)		
9:00-9:30 AM	Keynote Lecture 9	
Speaker:	Prof. Ranjan Ganguly, Jadavpur University, India	
Topic:	Dropwise or filmwise condensation? Busting the myth of atmospheric water harvesting on nano-engineered surfaces	
9:30-10:30 AM	Condensation Heat Transfer	
Paper #	Authors	Title
100	Chayan Das , Saikat Halder, Soumyadip Sett, Amitava Datta, Ranjan Ganguly	The Effect of Free Stream Velocity and Mixed Convection on Vapor Condensation from Humid Air
115	Reeshav Chakraborty , Aranyak Chakravarty, Koushik Ghosh	Numerical Investigation of direct contact condensation during steam-water counter-current flow in a vertical channel
156	Shiva N , Nilojendu Banerjee , Satyanarayanan Seshadri	Comparative study on Multiphase Dynamics of Unsteady Film Condensation over a Vertical Plate in different regimes
179	N Rahul , Nirbhay Kumar, and Soumyadip Sett	Delayed Condensation on Nanoparticle Coated Transparent Lubricant-Infused Surfaces
9:30-10:30 AM	Session 7B	Venue: LT103
(Chair: Prof. Premachandran B., IIT Delhi)		
9:00-9:30 AM	Keynote Lecture 10	
Speaker:	Dr. Sivasankaran Harish, The University of Tokyo, Japan	
Topic:	Micro-Nano Thermal Transport Based Energy Efficient Technologies for Carbon-Neutral Society	
9:30-10:30 AM	Heat and Mass Transfer Enhancement - II	
Paper #	Authors	Title
201	Mantri Sandeep Kumar , Satyanand Abraham	Experimental studies on local heat transfer characteristics in annular channel flows with wire coils as turbulence promoters
33	Rahul Pandey and Umesh Madanan	Numerical Investigations into the Effect of Pitch of Butterfly Inserts on Heat Transfer Enhancement in a Minichannel Heat Sink
192	Trailokya Lochan Tripathy , Sukanta Kumar Dash	Numerical study of natural convection heat transfer using interrupted branching fins on radial heat sinks for LED cooling
9:00-10:30 AM	Session 7C	Venue: LT001
(Chair: Prof. Rajan Jha, IIT Bhubaneswar)		
9:00-9:30 AM	Industry Sponsored Lecture 2	
Speaker:	Dr. Mr. Jayaraj Balasubramanian, Vision Research, India	
Topic:	Advancements in High-Speed Imaging: Enhanced Performance with BSI Sensors in Heat & Mass Transfer	
9:30-10:30 AM	Measurement and Experimental Techniques - I	
Paper #	Authors	Title
83	Sunil Rout , Ranjit Kumar Sahoo, and Kaustav Chaudhury	On temperature characteristics of a cover plate placed over a boiling water container
97	Saumya Singh , Motilal Chavhan, Pawan Kumar Singh, and Soubhik Kumar Bhaumik	Thickness Profile Measurement of a Nanofluid Thin Film Meniscus using Reflectometry
285	Arvind Kumar Maurya, Venugopal Arumuru , and Rajan Jha	Photonic Crystal Fiber Interferometer for Flow Sensing and Measurement

9:30-10:30 AM	Session 7D (Chair: Dr. Somnath Roy, IIT Kharagpur)	Venue: LT101
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Numerical Algorithms and Schemes

Paper #	Authors	Title
138	Niladri Sekhar Panda, Amitabh Bhattacharya, and Anupam Dewan	Development of an Interpolated RANS-LES Solver for Turbulent Heat Transfer
266	Nishad Mahajan, Arumugaraj S. and Pradeep Kumar	Implementation of spectral line weighted-sum-of-gray-gases (SLW) property model in open source software
273	Runa Samanta, Himadri Chattopadhyay	Study of Natural Convection in Corner Melting of Low Prandtl Number Materials using Modified Lattice Boltzmann Method
355	Srujan K. Naspoori, Ahilan Appar, Kishore K. Kammara, Rakesh Kumar	Implementation of surface chemistry model in in-house DSMC solver

9:30-10:30 AM	Session 7E (Chair: Dr. Arnab Dasgupta, BARC)	Venue: LT002
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Nuclear Heat Transfer - III

Paper #	Authors	Title
270	Swapan Paruya, Jyoti Bhati, Asha Rani Patra	Interfacing the heat transfer model of Fuel-Rod Bundles of a PHWR with DFM4
374	Vikas Bhumarker, Harish Pothukuchi and Patnaik B. S. V	Thermal Hydraulics of a 2x2 rod bundle subjected to clad swelling
295	Iniya Adhithya J, Jonish Abisheck J, G Vikram, Amit Kumar Chauhan and K Natesan	Simulation of Operational Transients Performed During Startup Tests of Superphénix Reactor Using PINET Code

9:30-10:30 AM	Session 7F (Chair: Dr. Saket Verma, BITS Pilani)	Venue: LT102
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Heat Transfer

Paper #	Authors	Title
47	Haotian Huang, Yuan Zhu	Application of 4D Thermal Imaging to the Emissivity Measurement of Uneven Surfaces
153	Kapilkumar Patil, Kuljeet Singh, and Pradeep Kumar	Calculation of spectral radiative properties of fly ash and radiative heat transfer
308	Pandiyan Rajaiah, Praveen Kumar Govindasamy and Saravanan Rajagopal	Energy, Exergy, and Economic Assessments of Sky Radiative Cooling System
377	Manoj Kumar Moharana	Heat Conduction Through Eccentric Hollow Prismatic Cylinders

10:30-11:00 AM	High Tea	Venue: Auditorium
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11:00-12:00 noon	Plenary Lecture 3 (Chair: Prof. Arvind Pattamatta, IIT Madras)	Venue: Auditorium
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Speaker: Prof. Patrick Phelan, ASU, USA

Topic: Energy Efficiency—It's Mostly About Thermofluids Engineering

12:00-1:00 PM	Session 8 Poster Presentation	Venue: Auditorium
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1:00-2:30 PM	Lunch	Venue: IC IITP
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2:30-3:30 PM	Plenary Lecture 4 (Chair: Prof. Sameer Khandekar, IIT Kanpur)	Venue: Auditorium
Speaker: Prof. Amit Agrawal, IIT Bombay, India		
Topic: Quest for Equations beyond the Navier-Stokes		

3:30-4:00 PM	High Tea	Venue: Auditorium
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4:00-6:00 PM	Session 9A (Chair: Dr. Mukesh Prakash Mishra, DRDO)	Venue: LT003
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4:00-4:30 PM	Keynote Lecture 11	
Speaker: Prof. Andallib Tariq, IIT Roorkee, India		
Topic: Voyage across the Interface: A Heat Transfer Perspective		

4:30-6:00 PM	Measurement and Experimental Techniques - II	
Paper #	Authors	Title
344	Jasafa Showket , Nirbhay Kumar, Soumyadip Sett	Shear-Induced Drainage Characterization of Lubricant-Infused Surface Degradation through Digital Interferometry based In-Situ Measurement of Lubricant Thickness
385	Swapnil Chitnis , Mohan Kumar, Akram Khan, Ram Dayal, and Amit Arora	Lab scale manufacturing and testing of Hermetic and Flexible Vapour Chambers for cost effective experimentation
90	Nidheesh Virakante and Ankit Jain	Considerations for ab-initio based thermal conductivity prediction of ThO ₂
309	Motilal Chavhan , Pawan Kumar Singh, and Saumya Singh	An Experimental Investigation on Thermal Performance of Heat Pipe
240	Mahesh N Malage , Onkar S Gokhale, Mithilesh Kumar and Dharmanshu Mittal	Experimental Investigation on Heated Pipe under Spray Cooling

4:00-6:00 PM	Session 9B (Chair: Dr. Deb Mukhopadhyay, BARC)	Venue: LT103
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4:00-4:30 PM	Keynote Lecture 12	
Speaker: Prof. Malay K. Das, IIT Kanpur, India		
Topic: Gas hydrate: methane recovery and carbon-di-oxide sequestration		

4:30-6:00 PM	Transport in Porous Media	
Paper #	Authors	Title
171	Akash Bhardwaj , Harsh Kumar Chaturvedi, Manish Kumar, and Gajendra Nhaichaniya	Numerical investigation of triply periodic minimal surface based Gyroid lattice architecture for heat sink application
172	Prabhakar Zainith, and Niraj Kumar Mishra	Numerical study for the Evaluation of Radiation Efficiency of Wood Volatile Combustion in a Two-Layer Porous Radiant Burner
205	Ram Thapa , Amrit Ambirajan , Pratikash P Panda, Pradip Dutta	Optimization of CO ₂ Removal Rate by Activated Carbon using an Adsorption-Desorption Cycle
215	Pratyush Kumar , Sandip K. Saha, Atul Sharma	Computational Analysis of Coolant Flow in Packed Bed for VHTR Design: Investigation of Thermal-Hydraulic Characteristics using OpenFOAM
367	Rupak Bhowmik , Anugrah Singh	Effect of Microstructural Heterogeneity on Immiscible Fluid Displacement in Five-spot Pattern Porous Micromodel: Pore-scale Simulation Using Volume of Fluid Method

4:00-6:00 PM	Session 9C (Chair: Dr. Sivasankaran Harish, The University of Tokyo)	Venue: LT001
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4:00-4:30 PM	Keynote Lecture 13	
Speaker:	Prof. Anandaroop Bhattacharya, IIT Kharagpur, India	
Topic:	Challenges and Recent Advances Thermal Management of Low Form Factor Computing Platforms	

4:30-6:00 PM	Machine Learning for Fluid Mechanics and Heat Transfer	
Paper #	Authors	Title
101	Mathiyazhagan Shanmugam , Lakshmi Sirisha Maganti	Predicting the Nusselt Number of Parallel Microchannel and Oblique Pin-Fin Heat Sinks Using a Machine Learning Approach
130	Kashief S Md and Srinivasa Ramanujam Kannan	Downscaling Solar Insolation Data using Image Processing and Neural Networks
191	Gokul R , Balaji Srinivasan, Arvind Pattamatta	Application of the Distributed Physics Informed Neural Networks in approximating solutions to multi-phase flow problems
227	Rajat Chourasia , Abhijit Avinash Adoni, Balaji Srinivasan	Non-Intrusive model reduction: Investigations on Conductive-Radiative Systems
318	Syed Ahsan Haider and Abhishek Raj	Ellipsoid Based Model for Volume Measurement of Droplets Placed Over Rigid and Compliant Substrates

4:30-6:00 PM	Session 9D (Chair: Dr. Shine S. R., IIST)	Venue: LT101
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Propulsion and Power - II		
Paper #	Authors	Title
139	Ronanki Suresh , Joshua Kumar Saladi, Santanu Prasad Datta	Energy and Exergy Performance Emulation of a Novel Ejector-Integrated Organic Rankine Cycle-Driven Tri-Generation System for CCHP
200	Gyandeep and Rajiv Kumar	Effect of change in port shape on the performance of a hybrid rocket motor
203	Arpit Dubey , Rajiv Kumar and Shelly Biswas	Experimental Studies on Pintle Injector in Hybrid Rocket Engine
293	Shrey Sahai Gupta , Pramod Kumar	Maximum Power Operation Of A Supercritical Carbon Dioxide Simple Recuperated Brayton Power Block
255	Devavrat Kashyap , Chandrashekar M, Jophy Peter, Harikumar TR and Jagannathan S	Experimental & Theoretical studies on un-insulated Liquid Oxygen tank for Semi-Cryogenic propulsion stage
132	Mansu Navaneethan , T Sundararajan, K Srinivasan, and T Jayachandran	Compressible Multiphase Flow Modelling and Experimental Validation of Film Cooling Effectiveness for a Rocket Thrust Chamber with Ablative Nozzle

4:30-6:00 PM	Session 9E (Chair: Prof. Anurag Goyal, IIT Delhi)	Venue: LT002
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Refrigeration and Air-Conditioning - I		
Paper #	Authors	Title
89	Rishabh Srivastava , Ankush Kumar Jaiswal, Sunil Kumar Trupati, Sarun Kumar Kochunni and Jaichander Swaminathan	Membrane-enhanced M-cycle coupled with VCRES for improved cooling
92	Shubham Kumar, Gaurav Singh , and Ranjan Das	Radiant Air-Cooling Strategies for Medium Scale Buildings using Vapour Absorption and Cooling Towers
94	Snehangshu Mondal , Maddali Ramgopal, and Siddhartha Mukhopadhyay	Mathematical analysis of personalized air conditioning and ventilation system

105	Ananthkrishnan K and Anurag Goyal	Numerical modeling of compact and high-efficiency liquid desiccant dehumidification systems using micro-structured membranes
109	Mrinal Pradhan , Koushik Das, and Rajat Subhra Das	Numerical analysis of liquid desiccant regenerator with corrugated surface
117	Deen Bandhu , Maddali Ramgopal	Performance evaluation of a large, centrally conditioned classroom complex with an energy recovery system for hot and humid climates

4:30-6:00 PM	Session 9F	Venue: LT102
(Chair: Prof. Sandip Kumar Saha, IIT Bombay)		

Phase Change Materials - II

Paper #	Authors	Title
325	Goutam Nayak , Mayank Maroliya, Mohammed Qadeer, Midhun V.C., Sandip K. Saha, and C.	Development and Characterization of a Solid-Solid-Phase Change Material for Low-Temperature Applications
402	Abhash Shukla , Ajay D. Thakur, and Rishi Raj	Experiment and Modeling of a Modified Atmospheric Water Harvester for Arid and Semi-arid Climates
375	Md. Tabrez Alam , Anoop K. Gupta	Triplex-Tube Heat Storage Systems with Copper Foam Composite PCM of Diverse Configurations under Simultaneous Charging and Discharging Environment
392	Mudit Gupta , Ippaka Naveen Kumar , Chinige Sampath Kumar	A Numerical study on Thermal Management of Electronic Components using a Liquid Metal and Phase Change Materials
142	Kulbhushan Yadav , Manish Agrawal , Himanshu Tyagi	Numerical Analysis of Latent Heat Storage System for Industrial Process Heat using Phase Change Material for Medium Temperature Range
150	Anto Zacharias , Akash James, Rahul E R2, Sanjay K V, Yadhu Krishna, Rajesh Baby	Exploring the Use of Nano-Enhanced Phase Change Material for Vaccine Cold Storage: An Experimental Study

7:00-9:00 PM	Dinner	Venue: IC IITP
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Day 4: December 17, 2023

9:00-10:30 AM		Session 10A (Chair: Dr. Chetankumar Patel, IIT Patna)	Venue: LT003
Refrigeration and Air-Conditioning - II			
Paper #	Authors	Title	
137	Ravi Beniwal and Himanshu Tyagi	Thermodynamic Analysis of Desiccant based Air Conditioning System	
51	Prakash Chandra Singh, and Pabitra Halder	Assessing Performance and Economics of Vapor Compression Refrigeration system with Low GWP Refrigerants: A Multi-Objective Optimization Approach	
58	Sathyabhama A, Pranali Waghare Ramakrishna N Hegde	ASPEN PLUS simulation of NH ₃ /H ₂ O and NH ₃ /LiNO ₃ vapour absorption refrigeration systems	
135	Sobiya Maqbool, Ramgopal Maddali	Performance analysis of a hybrid air conditioning system for hot and humid climatic conditions	
324	Vinay Pratap Singh Negi and Chennai Ranganayakulu	Design of an Energy-efficient Electrically-driven Environmental Control System in a Civil Aircraft	
82	Anilkumar Sannapareddy, Anilkumar Emadabathuni	Numerical Study on Ammonia Sorption in a CaCl ₂ -Expanded Natural Graphite composite for Refrigeration Applications	

9:00-10:30 AM		Session 10B (Chair: Dr. Ashwani Assam, IIT Patna)	Venue: LT103
Fluid-Structure Interaction			
Paper #	Authors	Title	
225	Sambit Majumder, Dipankar N Basu, and Ganesh Natarajan	Comparative Appraisal of Direct-Forcing Immersed-Boundary Lattice-Boltzmann Method And Partially Saturated Cells Method for Thermofluidic Applications	
242	Vivek Kumar, Ashwani Assam and P. Deepu	Dynamics of 2D Elastic Cantilever Plate placed in a Channel at low Reynolds number transverse Flow	
332	Kumar Amit, Ashwani Assam, and Abhishek Raj	Analysis of a Deformable Stenosed Microchannel for Cell Migration: A Guide for Blockage Prediction	
56	Sanjeev Kumar and Md. Islam	Fluid-Structure Interaction: Flow-Induced Vibration and Heat Transfer in Three Staggered Cylinders	
121	Manav Dharewa, Bharat Soni, Ameeya Kumar Nayak	Impedance of Peristaltic Flow for Low Reynold Number	
78	Tarak Nath Mal, Bharat Soni, and Ameeya Kumar Nayak	Numerical Study of Fluid-Structure Interaction for Blood Flow in Human Viscoelastic Artery	

9:00-10:30 AM		Session 10C (Chair: Dr. Anil Bhaurao Wakale, ANSYS Inc. Pune)	Venue: LT001
Multiphase Flows - II			
Paper #	Authors	Title	
316	Deboprasad Talukdar and Yujiro Suzuki	Numerical investigation on the effect of solid particle size and concentration in a polydisperse gas-solid multiphase flows	
116	Saurabh Patel and Parmod Kumar	Effect of inclination of steam injection pipe on steam bubble profile and frequency characteristics in direct contact condensation	
252	K.N.V. Adinarayana, P. Mangarjuna Rao, and Seik Mansoor Ali	Numerical Investigations on the Dynamics of Coupled Two-Phase Thermosyphon	
180	Thota Srinivas and Gaurav Tomar	Particle cloud patterns in Rayleigh-Benard convection	
327	Manjeet Meena, Gudlavalleti V V S Vara Prasad, Chandra Shekhar, Purbarun Dhar , Manigandan Sabapathy and Devranjan Samanta	Postponement of dynamic Leidenfrost phenomenon during impact of Oil/water (O/W) Emulsions droplet	

9:30-10:30 AM	Session 10D (Chair: Dr. Md. Qaisar Raza, NIT Patna)	Venue: LT101
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Thermal Management

Paper #	Authors	Title
202	S. Ananth Narayan and Satyanand Abraham	Heat transfer and flow characteristics in square and filleted square channels rotating about a parallel axis
220	Shahnawaz Ahmed , Soham Mukherjee, Susmita Dash, and Amrit Ambirajan	A Theoretical Approach to Optimize The Fill Ratio of a Micro Loop Heat Pipe and Estimate its Performance
254	Devisingh Rawat and Tanuja Sheorey	Thermal Management of Electronic packages using Al ₂ O ₃ /water Nanofluid as Coolant in microchannel heat sink
386	Vanam Nagendra , Boddeti Jagadish and Dr. Ch Sampath Kumar	Investigation of Thermal Performance of Minichannel with Slot in Parallel and Counter Flow Configuration
396	K. Naga Vasista, Sayan Majumder , and C. Balaji	Thermal management of high heat flux electronics subjected to power surge using a double layered wavy minichannel

9:30-10:30 AM	Session 10E (Chair: Dr. Anirban Bhattacharya, IIT Patna)	Venue: LT002
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Heat and Mass Transfer Enhancement - III

Paper #	Authors	Title
60	Debtanay Das, Swarup Bag , and Sukhomay Pal	Investigation of Material Flow to Predict Defect Formation in Friction Stir Welding
275	Prabhav Agrawala , Amit Arora and Yatharth Lilhare	Deployment of fins for augmentation in heat exchange capacity of annular flows
70	B. Chandrakala, S. Anil , and E. Anil Kumar	Entropy Generation Analysis of LaNi ₅ and MmNi ₅ Alloys with Partial Substitution of Ni by Al
400	Samarendra Panda, Chandan Kumar Sethi , and Venugopal Arumuru	Heat Transfer Aspect of an Independently Controlled Coaxial Synthetic Jet
244	Dnyanesh Mirikar , Venugopal Arumuru, Harekrishna Yadav	A Way of Improving the Heat Removal Uniformity Using Pulsating Air Jet Impingement on a Dimpled Surface

9:30-10:30 AM	Session 10F (Chair: Dr. Devranjan Samanta, IIT Ropar)	Venue: LT102
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Non-Newtonian Fluid Flow

Paper #	Authors	Title
57	Adepu Harish Raja, Preeti Suri, Swati A Patel , and Raj P Chhabra	Laminar forced convection from a 2-D heated transverse plate in power-law fluids
127	Onkar V. Bichkar , Madhusudhana G.	Effect of presence of a wall near two lateral bubbles rising in a viscoelastic fluid
297	Ashish Sonker, Rohit , and Abhishek Raj	Investigation of Dynamics of Non-Newtonian Droplet over Thin Compliant PDMS Membrane

10:30-11:00 AM	High Tea	Venue: CLH
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11:00-12:30 PM	Session 11A (Chair: Prof. Mayank Tiwari, IIT Patna)	Venue: LT003
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BIS Sponsored Lecture

11:00-11:45 AM	Dr. Pramod Kumar, IISc, India	Establishing Successfully Industry Academia Relationship
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IC IITP Sponsored Lecture

11:45-12:30 PM	Dr. Sameer Khandekar, IIT Kanpur, India	Establishing Entrepreneurship Ecosystem inside Educational Institutions: Issues and Challenges
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11:00-12:30 PM	Session 11B (Chair: Dr. Abhijeet Mohan Vaidya, HBNI)	Venue: LT103
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Instability, Transition & Turbulence - II

Paper #	Authors	Title
185	Deepak Kumar and Bhaskar Kumar	Effect of blockage on critical parameters that mark the instability of linear modes in the elliptic cylinder wake
208	Pratyaksh Maru, Mulani Feroz Osman , and M. Deepu	Experimental and numerical investigations of Rayleigh-Bénard Convection in a micro-particle laden liquid
302	Sadham Usean Ramasamy , Shyama Prasad Das, and Shaligram Tiwari	Two frequency excitation of Faraday waves in a cylindrical container
312	Deven Patel , Virkeshwar Kumar, Sameer Khandekar	Understanding Behaviour of Double Diffusive Convection during Seawater Freeze Desalination
373	Sourabh Kumar and B. Premachandran	Large Eddy Simulation of Mixed Convection Heat Transfer for Turbulent Channel Flow

11:00-12:30 PM	Session 11C (Chair: Dr. Ajay Kumar Yadav, IIT Patna)	Venue: LT001
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Solar Energy - II

Paper #	Authors	Title
194	Anjan Nandi, Samarendu Biswas, Nirmalendu Biswas , Dipak Kumar Mandal and Nirmal K.	Enhancing the Performance of Hybrid Photovoltaic Thermal Collectors (HPVTC): Numerical Investigation of the Impact of Inclination Angle and Reynolds Number
207	Wasim Ashraf , M Ramgopal and V M Reddy	CO ₂ as a Promising Heat Transfer Fluid for Solar Flat Plate Collectors
213	Abhijeet M. Vaidya , Alok Kumar and Sunil K. Sinha	Wind Load Calculation on Hyperbolic Reflector of Beam-Down Solar Plant using CFD
288	Mintu Kumar Mahato and S. N. Singh	Experimental Study of Influence of Geometry on the Performance of Two – Pass Jet Impingement Flat Plate Solar Collector
347	Mukesh Kumar , Bikash Jaiswal , P K Verma and D K Chandraker	Design options of solar receiver: A heat receiving system for solar thermal plant
38	Sohan Lal Sharma and Ajoy Debbarma	Experimental Study on Double Pass Reverse Flow Solar Air Heater with Delta Wings and Perforation on Absorber Plate

11:00-12:30 PM	Session 11D (Chair: Dr. Akhileendra Singh, IIT Patna)	Venue: LT101
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Computational Fluid Dynamics - II

Paper #	Authors	Title
362	Nikhil Chitnavis , Harish Pothukuchi, and B.S.V. Patnaik	Numerical investigation of axial flow induced vibration of a single rod in a 2×2 rod bundle
195	Kumar Sourav, and Deepak Kumar	Unraveling Vortex Interactions in Vibrating Tandem Diamond Cylinders
75	Gokhul K and Soma Sundaram S	Numerical Investigation of the Influence of the Bell-Shaped Primary Nozzle on Ejector Performance
398	Aditya Kumar , Shubham Kumar, and Ashwani Assam	Validation of hypersonic CFD solver hy2FOAM with emphasis on the need for modelling chemical non-equilibrium
292	Reesav Barik , Parvez Alam, Gyanesh Kumar, and Umesh Madanan	Enhancement of Free Convective Heat Transfer Inside an Enclosure with Discrete Heat Sources

11:00-12:30 PM	Session 11E (Chair: Dr. Subrata Kumar, IIT Patna)	Venue: LT002
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Multiphase Flows - III

Paper #	Authors	Title
230	Kodati Srinivas , Sarath Chandran Nair S, Vasudevan R, and A. K. Asraff	Design Verification of an Inverted Conical Slosh Suppression Baffle of an Oxidiser tank of an Inter-planetary mission through CFD Simulations
66	Pranjal Agrawal and Susmita Dash	Bouncing Dynamics of a Binary Solution Droplet in the Leidenfrost State
149	Muthukumar. C. K. , Ashish Kumar, Vikash Kumar, Assiz. M. P, John Tharakan. T	Investigation on Atomization Characteristics of the 3D Printed and Conventional Swirl Coaxial Injector
183	D. Ajay Vincent, Rajesh Sadanandan	Spray Characteristics of a Swirl Co-axial Aerated Liquid Injector
50	Ketan Atulkumar Ganatra and Achintya Mukhopadhyay	Investigation of SiO ₂ – Water Nanofluid Jet Impingement using Eulerian Multiphase Model

11:00-12:30 PM	Session 11F (Chair: Dr. Abhishek Raj, IIT Patna)	Venue: LT102
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Miscellaneous

Paper #	Authors	Title
88	Shivam Gupta and Kaustav Chaudhury	Residence time method for the analysis of a model cooling process with noise
260	Gaurav Shakya , Purbarun Dhar, and Prasanta Kumar Das	Thermo-fluid-dynamics of small hot cylindrical objects levitating over liquid pools
329	Satish Lukka , Samiran Sengupta, Vimal K. Kotak, and Nilesh C. Gohel	Validation of mathematical modelling for high precision-temperature controlled cooling water system for a proton accelerator
159	Ankita Kumari and Vivek V. Buwa	Investigation of Effect of Tube-to-Particle Diameter Ratio on Heat Transfer Mechanisms through Particle-Resolved CFD Simulations

12:30-1:00 PM	Valedictory Function	Venue: Auditorium
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1:00-2:30 PM	Lunch	Venue: IC IITP
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Poster schedule

11:45-1:00 PM	Day 1: December 14, 2023	Venue: Auditorium
Session 1		

Paper #	Authors	Title
307	Ram Mohan Gupta , Niraj Kumar Mishra, Vinod Singh Yadav, and Prabhakar	Thermal and hydraulic performance analysis of Radiator tubes at different angels
405	Hemantkumar B Mehta , Durga Nand Jha, Milan Vachhani, Vipul M Patel and Kalpak R Sagar	Electro-Thermal Characteristics of Loop Heat Pipe based BTMS: An Experimental Investigation
406	Tina Thomas , Raghavendra Kumar, Dhananjay W Tijare , Arjun Dey	Performance validation of Battery Thermal Control of a typical mini Satellite during Thermovac Test and In-Orbit
407	Atri Bandyopadhyay, Bharatkrishnan I, Tapas Kumar Nag, Sanjoy Kumar Saha, and Dr Prashant G K	Mean aerodynamic flow field of an impinging jet issuing from a convergent nozzle with varying nozzle to plate distance
408	Gopi Kannan K , Vinoth Kumar P , and Pawan Kumar Singh	Enhancement in thermal management of electronic devices using thermosyphon assist phase change material: An experimental study
409	Prashant Kumar , Sudhakar Subudhi, and Arup Kumar Das	Sequential Melting and Solidification of Droplet on Surfaces of Different Wettability
410	Shrabani Ghosh and Swapan C. Sarkar	Performance study of Aluminized Mylar as Multi-Layer Insulation in an Indigenously Developed Cryogenic Dewar Vessel
411	Ashish Chandran K , Harendra B. Rathod and Sujith Kumar C S	Experimental Investigation on Effect of Heterogeneous Wettable Structures on Condensation Heat Transfer
414	Vinay D. Patel , R.S.Maurya	Thermal Characterisation of a Phase Change Interface under Directional Exponential Heating
415	Md Quamar Alam , Avinash Upadhyay, Ashwani Assam, and Rishi Raj	Improving Acoustic Emission Modeling of Underwater Bubble Detachment by Accounting for Compressibility Effects
417	Adarsha Narayan Mallick, Mukesh Kumar , Rahul Nadda, K Manoj Kumar, Sarju Ralhan, Bishav Moahn, Ramjee Repaka and Ashish Sahani1	Investigation of Failure Prevention Study of Coronary Artery Bypass Grafting Using Computational Fluid Dynamics Approach
418	Arun Kumar Shukla , Ashwini Kumar Yadav, and Ravi Prakash	Thermal Mass-Based Measures for Thermal Load Reduction of a Tropical Building
419	Khashti Datt Pandey , Yuvraj D. Kamble, Atul Thakur, and Ajay D. Thakur	Evaluation of elastic modulus of hydrogel as a function of water content
420	Mayank Srivastava , Jahar Sarkar, Arnab Sarkar	Comparative energy-exergy analysis of ejector integration in ORC by optimization method for ultra-low to medium temperature heat sources
421	B Thilak , P. Mangarjuna Rao and B. Venkatramanan	Evaluation of Molten Fuel Droplet Size Distribution in a Fuel Bubble under Energetic CDA in SFR
422	Sumer B. Dirbude, Shahul H V , and Niveditha K V V S K	Combustion Instability Analysis in Rotating Detonation Engine Using Dynamic Mode Decomposition
423	Suriyaprasaad B , Avinash Upadhyay, and Rishi Raj	Boiling Regime Classification via Principal Component Analysis on Bubble Images and Acoustics
424	Amit and Rajendra P. Vedula	Experimental Study of Heat transfer Enhancement using Delta Wing Vortex generators in a Rectangular Channel with pin fins
425	Tibin M. Thomas , Pallab Sinha Mahapatra	A critical investigation of heat transfer analysis during atmospheric water vapor condensation
426	Mathiyazhagan Shanmugam, Manikanta Bandlamudi , Lakshmi Sirisha Maganti	Experimental study on U, I and Z flow configuration based microchannel cold plate for non-uniform heat loads

428	Subhajyoti Sahoo , Ameeya Kumar Nayak	Electroosmotic flow and micromixing of Carreau fluid in a nozzle-diffuser shaped microchannel connected with a microchamber
429	Srinivasa Rao Gurralla , Sanjay Singh Rawat, SAR Kabir, Danda Aman Kumar	Computational Analysis of Afterburner Models with Convergent Divergent Nozzle for Different Combustion Chamber Lengths
433	Venkatesh N , Deepak Kumar Agarwal, A Salih, and S Sunil Kumar	Experimental investigation on influence of thermophysical properties and coatings on cryogenic feed line chilldown performance
434	Prasanth Subramaniyan , Shivangi Tiwari, Akhil Dass, and Sateesh Gedupudi	Common Heat Exchanger Section of a Coupled Natural Circulation Loop: 1-D Modelling of the Influence of Wall Conduction and Inclination on the Dynamics of Component Loops
435	Kartik kumar , Jahar sarkar, and Swasti Sunder Mondal	CFD Analysis of microchannel nanofluid cooled lithium-ion battery thermal management system applying MSMD model
437	Ajinkya K Patil , S. V. Chaitanya, and Sharad D. Patil	Numerical Investigation of Metal Hydride Hydrogen Storage Reactor Using Glycol Based Cooling Fluids
439	Samar Singhal , Ashwini Kumar Yadav, and Ravi Prakash	Thermal Performance of Saw-Tooth and Photovoltaic Roof Greenhouse in natural circulation mode for Tropical Climatic conditions.
440	Rajat Kumar , Varun Goel, Brij Bhushan and Muneesh Sethi	Experimental Investigation of Water Aided Concentrated Photovoltaic/Thermal System with Phase Change Material
441	Md. Danish Eqbal , Akash Priy, Piyush Kumar, Manabendra Pathak and Mohd. Kaleem Khan	Flow boiling heat transfer enhancement through vapor venting technique in an open microchannel heat sink
442	S. Muthu Saravanan , P. Mangarjuna Rao, B. Venkatraman	Development of CFD based Models for Basic Configuration Cable Tray Fire Scenarios Pertaining to Safety of SFR Systems
443	Madhu Kalyan Reddy Pulagam , Sachindra Kumar Rout, Sunil Kumar Sarangi	Numerical Analysis of the Effect of Geometrical Parameters on the Performance of Brazed Plate Heat Exchangers Using Periodic Boundary Conditions and Response Surface Methodology
446	Rajendrakumar M , Natesan K, and Devan K	Transient simulation of sodium flow inside the primary sodium pumps of Future Indian Fast Breeder Reactors
447	Rajendrakumar M , Natesan K, and Devan K	CFD study of cavitation in the primary sodium pump of future indian fast reactors using Schnerr and Sauer Model
448	Raghavan K.S , Kumaresan V, Iyyappan J and Dinesh M.D	Integration of thermal energy storage in Buildings for space cooling; Real time Investigation
450	Abhijeet M. Vaidya	Computational Study of Melting of Nitrate Salt in a Cylindrical Tank
451	Jitendra D Patil , Umesh V Awasarmol, Ramshiromani R Verma, and Laxmikant D Jathar	Enhancement of heat transfer due to shuttle heat transfer mode in oscillating flow heat exchanger: A case study
452	Kanhaiya P. Powar, Sharad D. Patil	Study of Discharge Behavior of 18650 Cylindrical Lithium Ion Cell at Various Discharge Rate
453	Bhaskar Halder , Md Naim Hossain, and Koushik Ghosh	Effect of furnace heat flux on boiler evaporator downcomer circuit
454	Ankush Kumar , Sunil, Rahul Sinha, Indranil Maity, Rishi Raj and Ajay D. Thakur	Biomass Gasification Residue as a Rich Source of Carbon Nanomaterials
456	Ajit Kumar and Manabendra Pathak	Migration and Transportation Dynamics of an Impacting Droplet with Hybrid-Wettability Surface
457	Rajiv Kumar , Anand Tripathi, and Ashwani Assam	Towards enhanced cooling techniques in the reservoir section of a closed-loop liquid cooling system
461	Rahul Sinha , Sunil, Abhash Shukla, Ajay D Thakur, and Rishi Raj	Experimental Investigation of Biomass Gasification-Based Dryers for Neem Leaves
465	Veerasha D R, Akanksha Baggan, Nidhi Sharma, Srikanth T, Subramanya, Padmanabhan, Abhijit A Adoni , and Debasis Chakraborty	Thermal Balance test for SoLEXS instrument

Paper #	Authors	Title
31	Mahesh J. Vaze , Anurag Nandwana, Subhashish Dasgupta	CFD Modelling Methodology for Mine Gas Dynamics and Temperature rise
32	Atul Kumar Ahirwal, Krishna Kumar Yadav , Ashwini Kumar Yadav, Tej Pratap	Experimental and Numerical Investigations on Nucleate pool boiling over flat surface
42	Ankush Kumar, Vaibhav K Arghode	Experimental Investigation of LPG/Air-Premixed Combustion in a Single-Layer Porous Media Reactor
46	Pushpender Chaudharuy , Ravi Prakash and Sumana Ghosh	Effect of Surface Properties on Hydrodynamics and Mass Transfer in Straight Mini-Capillary
55	Vijay Kumar , Arun Kumar Tiwari	Performance Assessment of Alkaline Water Electrolysis for Hydrogen Production
64	Aiswarya V, Sudev Das , Johnsan R, Sujith Kumar CS	Enhanced Microencapsulated Phase Change Material with Co-fillers for Thermal Energy Storage
71	Nitish Gupta and D. Bhargavi	Influence of Local Thermal Non-Equilibrium on Forced Convection Heat Transfer in a Duct Packed with Porous Medium: Iso-thermal Walls
79	Jobin Jose and Tapano Kumar Hotta	Thermal Characteristics of Nano-fluid-Based Wickless Heat Pipe for Electronic Thermal Management
125	Jetty. Dindiba Phanikumar , G Muthuselvan, Muralidhara HS, Jeyaseelan AR, Rajeshwari N, Shambhoo yadav, Ashish Vishnu Shelke, Antonio Davis	Analytical Design and Computational Analysis on Mixing Duct of a Gas Generator Test Rig
128	Vasa, Adarsh , Chaudhury, Kaustav	Vortex Interactions in Turbulent Flow through 90-degree Bend Pipe: A Parametric Study
152	Shashi Kant Verma	CFD analysis of an extruder die at cryogenics temperature
169	Santhosh SP , Abhiram Ramachandran, Kiran Raj M	Droplet Impact on paper – morphology and splash pattern
176	Bipin Kumar , Anil Kumar Patil, Manoj Kumar	Effect of Perforations In Double Twisted Tape Inserts Fitted In Cylindrical Tube Heat Exchanger
188	Swati Gangwar , S.Gupta, Ashish Budakoti, S. S. Bhogilla, Goutam Dutta, P.K. Vijayan	Performance Validation of THTD for Solar Chulha for Indoor Cooking Purposes
214	Prabhansu, Mukesh Kumar , Prakash Chandra	Experimental investigations on fixed and sensor-based single-axis and dual-axis solar tracking systems of solar cooker for sustainable development of rural Bihar
226	Ankit Kumar , Pawan Kumar Singh, S. Narayanan	A 3D Numerical Approach for a Microchannel Flow Characteristics under an Acoustic Field
237	Narayan Korde , Amol Deshpande	Design of a Novel Waste Heat Recovery System Focusing on Avoiding Flue Gas Acidic Corrosion Issue
245	Mayank Bhardwaj , Yatharth Lahare, Amit Arora	Deployment of Longitudinal Serrations in Pipe Flow for Augmented Thermal Conductance
251	Abhishek Raj , Manish Kumar Jaisal, Nishant Singh, Shalendra Kumar, and Ram Vinoy Sharma	CFD analysis of natural convection in parabolic enclosure
286	Nithyanandham G , Jayavel S	Prandtl-number effects and correlation for axisymmetric jet impinging on flat surface
289	Kartik Srivastava , Rashmi Rekha Sahoo	Performance enhancement of Thermoelectric Generator using Dissimilar Material employing multistage configuration
294	Bor Abubakr, Alok Kumar, and Atul Srivastava	Gradients-based diagnostics of nucleate pool boiling phenomena under atmospheric and sub-atmospheric conditions

299	Udaya Karthik B S, B Sudarshan , Sanat J Kumar, and Pratik Agarwal	Flow Visualization study on an NACA0020 airfoil with sinusoidal tubercles using photo luminescence particles
315	Karan Dhuper , Lalit Kumar, Siddhartha Dutttagupta	Thermal Optimization of MCHS with Conical Microfins using Non Dominating Sorting Genetic Algorithm (NSGA-II)
319	Maheswar Rout , Jnana Ranjan Senapati, Suman Ghosh	The effect of radial gap on the performance of an IRS device
323	Pratik Punj , Abhijeet M. Vaidya, Ananta Borgohain, Sanjib Majumdar, S. K. Sinha	Review of Recent Developments in Experimental Investigation of Forced Convective Heat Transfer in Molten Nitrate Salt Systems
328	Rupesh Baroniya , Rahul Bisen, Narendra Gajbhiye, Rajesh Gupta	Numerical investigation of a liquid metal MHD flow in a gradually expanded microchannel
334	Mallikarjuna B , Rathish Kumar B.V, Giridhar G	Convective Heat Transfer In Lid Driven Porous Cavity Filled With Ternary Hybrid Nanofluids
338	Y. Usha , H. Pothukuchi, V. C. Srivastava, R. Jayaganthan, B. S. V. Patnaik	Design Optimisation study of a Plate Fin Heat Exchanger using a Porous Media Model Approach
343	Champakumari M , B. Mallikarjuna	Convective Heat Transfer In An Open Trapezoidal Cavity Below A Horizontal Channel Inscribed By Porous Media
348	K. V. Srinivasan, M. Arulprakasajothi , Vipin Bimalkumar Tiwari	High-Efficiency Hybrid Regenerator for Cryogenic Applications Using Additive Manufacturing
354	Suvechha Hota , Kaustav Chaudhury	A base-lag-mean (BLM) method for approximating the temperature rise in a swirl chamber-based inline water heater
369	Venkatesh T Lamani , Sudarshan B, Ramesh M. Chalkapure, Bheemsha Arya D, Ajay Kumar Yadav	Effect of pressure drop on multi-phase flow of high-pressure homogenizer- CFD study
378	Vaibhav Pathak , Snehasish Panigrahy	A comparison of auto-ignition characteristics of alkanes, alkenes, and alcohols ranging from C1 to C3
379	Suhas Jagtap , Manish Mishra	Performance Analysis of Packed Bed Rectangular Duct and Comparison with Empty and Finned Duct
393	Partha Sarathi Mallick , Karali Patra	Numerical analysis of heat transfer for cryogenic chamber design improvement used in mechanical micro-machining of soft polymer

12:00-1:00 PM

Day 3: December 16, 2023

Venue: Auditorium

Session 8

Paper #	Authors	Title
28	Sanjeev Kumar Sharma , Ankush Yadav, Manoj Kansal, Sameer Hajela, D.K. Chandraker & N.K. Maheshwari	Optimization Of Critical Opening In Between Different Compartment of Containment For Future 700 MWe IPHWRS
36	Md Imtiaz Alam , Himadri Chattopadhyay	Transport Phenomena in Differentially-side-heated Lid-driven-cavity with Shear-thinning Fluid
44	Harishchandra Thakur	Thermal Analysis of a Radial Fin with Half-Elliptical Profile
86	Anjaneer Kumar , Kaustav Chaudhury	The Dynamics of Distributed Thermals
91	Indra Kumar Lokhande , Nishant Tiwari	A Numerical Study on Enhancing Lithium-ion Battery Cooling through Phase Change Material Filled in Mini-Chambers
95	Ritwik Kumar and Sayantan Sengupta	Influence of Prandtl number on closed cavity convective flow structures formed adjacent to an anti-symmetrically heated cylinder pair
98	Keerthana Raghu , Deepu M, and Shine S R	Numerical investigation of wedge geometry effects on snow accumulation
99	Rakesh Kumar , Vivek Pandey, Pramod Kumar, Pradip Dutta	A Thermal Resistance Network Model For Serpentine Channel Cooling Plate Used In Thermal Management Of Rectangular Li-Ion Battery
112	Nandan Sarkar, Alok Mishra, and Somnath Roy	On the three-dimensionality aspect of flows through sudden expansion
118	Sanu Adhikary , Bharat Soni, Aameeya Kumar Nayak	Analysis of Fluid Flow through a Channel with Porous Patches: A resistance-based approach
122	Abhishek Raj and Madhusudhana G.	Effect of evaporation on dynamics of drop impact on a solid surface
123	Abhijit Dutta and Himadri Chattopadhyay	Entropy Generation in the Human Molar Tooth
129	Chandranath Banerjee, Kaustav Chaudhury , Emmanuel Cid, Eric Climent and Arun Kumar Majumder	Velocity measurements inside a hydrocyclone using particle image velocimetry (PIV)
141	Krushna Mohan Das , Abhijit Guha, and Maddali Ramgopal	Studies on CO ₂ based two-phase natural circulation loop
146	Prabhakar Kumar , Rajesh Reddy	Computational study of Transient Cavitating flow on 3D NACA4412 pimped Hydrofoil
166	Sayantan Biswas , Vivek V Buwa, Vikas Singh	Effect of Physical Properties of Slag Layer on Liquid-phase Hydrodynamic behaviour in Basic Oxygen Furnace using Eulerian Multi-fluid Approach
174	Surendra Singh Rathore , Balkrishna Mehta, Pradeep Kumar, and Mohammed Asfer	Numerical Validation of Lee's Evaporation Model for Heat Pipe Applications
184	Rishav Kumar , Pradipta Kumar Panigrahi	A novel corona wind-based battery thermal management system
222	Hira A , Kumar M, Pasi DS, Prasad RK, Chandekar AC and Debnath BK	Investigation of F- Shape Manifold for Air-Hydrogen Mixing Affected by EGR in Twin Cylinder, CRDi, Dual-Fuel Diesel Engine
231	Shubham Kumar , Manish Agrawal, Himanshu Tyagi	Thermal Analysis of Effect of Thermal Emissivity Enhancement on Cooling of Photovoltaic Solar Cell: A Numerical Study
233	Nagendra Kumar Chaurasia , Shubhankar Chakraborty	Reconstruction of the temperature field using the data points at boundary using physics informed neural network
250	Jeet N. Hadavani, Kalpak Sagar, Milan Vachhani, Vipul M. Patel, and Hemant B. Mehta	Performance Analysis of Thermosyphon using Different Working Fluids

263	Ankur Kumar , Vivek Chauhan and Anubhav Sinha	Dispersion of Cough Droplets in an Enclosed Environment – Effect of Ambient Airflow
284	Rather Laasani Sanya Shabir, and Navneet Kumar	Search for suitable artificial surfaces to predict health of a plant
287	Kumar Amit , Ashwani Assam, and Abhishek Raj	Heat Transfer Analysis in Pulsating Laminar Flow for Biological Applications
296	Rahul Kumar Mondal , Kanika Thakur, Lokesh Rohilla and Parmod Kumar	Experimental and numerical study of air-entrained patterns in liquid extraction using two outlets
306	Tejasvi Singh and Amitesh Kumar	Effect of arc and fillet radius on the performance of a lab-scale model of solar chimney power plant
311	Amita Singh , Chunendra K Sahu	Quantifying transport and retention profile of contaminant plumes in a saturated porous medium
314	Kumari Deepika , Ashutosh Kumar, and Pawan Kumar Singh	Numerical simulation of air-water two phase flow regimes in mini channel heat sink
320	Aathira Sarath Chandran, Syed Ahsan Haider , Rohit, and Abhishek Raj	Facile Fabrication of PDMS Microparticles Using Fluid Shearing Based Methods
326	Marwein D , Yadav P, Debnath BK, and Das RS	Effect of Variation of Water Depth on the Performance of a Double Slope Solar Still for Shillong Weather Condition – A CFD Study
341	Indranil Maity , Richa Bharti, A. K. Mukherjee, and Ajay D. Thakur	Exploring the Potential of Thermal Avalanche in Resistive Switching Memory
349	Aishwary Pratap and Amitesh Kumar	Experimental study of cryospray outcomes on a cylindrical surface using a single hole nozzle
352	Aswathy Mohan , Sivan Nair, Abhiram R Nair, Shivam Kumar, Samik Jash	Thermophysical Property Estimation of Anisotropic Materials Through Inverse Heat Transfer Using Optimization Algorithms
358	Prashant Narayan Panday , Shreyansh Darshan, Prasanta Kumar Das, and Aditya Bandopadhyay	Experimental investigation of shape evolution and contact angle measurement of droplets over the vibrating liquid surface
360	Jaydeep Singh	Comparison of Atomization Characteristics of Methanol with Diesel fuel Injection in Isothermal Conditions: A Numerical Study
361	Harshad Raghuwanshi , K. R. Aharwal, and Narendra Gajbhiye	Effect of different Stacking Arrangements of the Crates on Temperature Inhomogeneity inside the Cold Room: A Numerical Study
363	Ravi Raushan , Vineet Pandey, Yogesh Nimdeo	Experimental Mapping of Single Bubble Growth in Ethylene Glycol Water Mixture
394	S. Muthu Saravanan , P. Mangarjuna Rao and B. Venkatraman	Analysis of Droplet Generation Process by Liquid Jet Impingement on Solid Surface Pertaining to Sodium Spray Fire Event in SFR
397	Akhilesh Kumar Tiwari , Sudhansu Sekhar Panda	Finite element simulation of ECDM machining for temperature distribution and Thermal stress on borosilicate glass drilling
427	Sonika Sharma , Abhishek Sit, Prabal Talukdar	Solar Radiation Absorption and Thermo-Mechanical Analysis of Porous Absorbers

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