

Annual Research Symposium 2021

Mechanical Engineering, IISc

Date: 30th and 31st July (Online)

July 30th 2021 (Friday)

09:15am-09:30am	Welcome
09:30am-10:00am	Keynote Lecture 1: Shyamprasad Karagadde (IITB) Student coordinator 1: Dipti Ranjan Parida Student coordinator 2: Vaghani Dipak Himmatbhai
10:00am-11:00am	Session 1: Faculty Chair 1: Shyamprasad Karagadde (IITB) Faculty Chair 2: Gaurav Tomar Student coordinator 1: Dipti Ranjan Parida Student coordinator 2: Vaghani Dipak Himmatbhai
	1.1: Study of unsteady axisymmetric starting jets with passive flexibility at the exit - B Ashok
	1.2: Impact phenomena in interfacial systems - Durbar Roy
	1.3: A sharp Interface Immersed Boundary Method for coupled fluid-rigid body dynamics - Mahesh Kisan Sawardekar
	1.4: Experimental and Numerical Studies on Chemically Active Flame Inhibitors - Pabitra Badhuk

11:00am-11:15am	BREAK
11:15am-12:30pm	<p>Session 2: Faculty Chair 1: Alope Kumar Faculty Chair 1: Ramsharan Rangarajan</p> <p>Student coordinator 1: Debendra Nath Sarkar Student coordinator 2: Thota Srinivas</p> <p>2.1: An experimental and numerical investigation of syngas combustion in a two-stage combustor - Atanu Dolai</p> <p>2.2: High-order non-oscillatory reconstruction and boundary closures on three-dimensional unstructured grids - Vaghani Dipak Himmatbhai</p> <p>2.3: Linear stability analysis of compressible channel flow - Mandeep Deka</p> <p>2.4: Synthesis and Characterization of Nano-porous Alumina Coating on 6061 Aluminium Alloy Substrate for Tribological Applications - Gautam Revankar A</p> <p>2.5: Friction Stir Processing as a method to form nano and microporous materials - Nisheeth Pandey</p>
12:30pm-02:00pm	BREAK
02:00pm-02:30pm	<p>Keynote Lecture 2: Arup Nandy (IITG)</p> <p>Student coordinator 1: Priyabrata Maharana Student coordinator 2: Suman Dutta</p>
02:30pm-03:45pm	<p>Session 3: Faculty Chair 1: Arup Nandy (IITG) Faculty Chair 2: Koushik Viswanathan</p>

	<p>Student coordinator 1: Priyabrata Maharana Student coordinator 2: Suman Dutta</p>
	<p>3.1: Elastic ribbons: model validation protocols, simulations, and a ribbon model - Arun Kumar</p>
	<p>3.2: An ALE-based finite element strategy for modelling two-phase flows - Nilesh Potghan</p>
	<p>3.3: Discrete Particulate Modeling of Cell Nuclei - Prasenjit Ghosh</p>
	<p>3.4: A monolithic finite element strategy for conjugate heat transfer - Santhosh A K</p>
	<p>3.5: Topological derivative for one-dimensional domain and its application - Vageesh Singh Baghel</p>
<p>04:00pm-05:00pm</p>	<p>Poster Session 1: Faculty Chair 1: M.S.Bobji Faculty Chair 2: Jishnu Keshavan Faculty Chair 3: Navaneetha Krishnan Ravichandran</p>
	<p>1.1: Capillary-fed Evaporative Microthruster for Micro/Nano Satellites - Akshay Sharma</p>
	<p>1.2: Rotary atomization of non-Newtonian liquids for spray drying applications - Amitesh K. Chaudhary</p>
	<p>1.3: Droplet dynamics on heated microtextured surfaces - Datta Prasad M R</p>

<p>1.4: Evaluating performance metrics in non-homogeneous cutting processes using a random-grid based digital image correlation (DIC) method - Deepika Gupta</p>
<p>1.5: Deformation and Fracture Behaviour of Mg AZ31 Alloy at Elevated Temperatures - Dhruvdyoti Baruah</p>
<p>1.6: Mechanism of Spherical Particles Formation During Surface Grinding - Harish Singh Dhani</p>
<p>1.7: Interaction of an elliptic vortex ring with a bubble: towards understanding bubbly turbulent flow - Manoj N. Dixit</p>
<p>1.8: Contact line pinning and de-pinning can modulate the Rod-climbing effect - Navin Kumar Chandra</p>
<p>1.9: Coalescence of polymeric droplets - Vegesina Sarath Chandra Varma</p>
<p>1.10: Two Phase Viscoelastic Flows - Bangar Sarika Shivaji</p>
<p>1.11: Secondary atomization of cough droplets through face masks - Shubham Sharma</p>
<p>1.12: Direct Numerical Simulations of Condensing Droplets - Thota Srinivas</p>

July 31st 2021 (Saturday)

09:30am-10:00am	<p>Keynote Lecture 3: Manjesh K Singh (IITK)</p> <p>Student coordinator 1: Vageesh Singh Baghel Student coordinator 2: Vivek Khatua</p>
10:00am-11:00am	<p>Session 4:</p> <p>Faculty Chair 1: Manjesh K Singh (IITK) Faculty Chair 2: Namrata Gundiah</p> <p>Student coordinator 1: Vageesh Singh Baghel Student coordinator 2: Vivek Khatua</p>
	<p>4.1: Fracture mechanism and toughness of a rolled magnesium alloy under dynamic loading - Arjun Sreedhar S</p>
	<p>4.2: Disassembly path planning: Multi-linear and mixed-Dimensional - Chandra Sekhar Sathua</p>
	<p>4.3: Switching dynamics of shallow arches - Priyabrata Maharana</p>
<p>4.4: A monolithic ALE-based FEM strategy for solving fluid-structure interaction problems involving compressible fluids. - Suman Dutta</p>	
11:00am-11:15am	BREAK
11:15am-12:30pm	<p>Session 5:</p> <p>Faculty Chair 1: Jaywant Arakeri Faculty Chair 2: Saptarshi Basu</p> <p>Student coordinator 1: Gautam Revankar A Student coordinator 2: Iqbal</p>

	<p>5.1: Study of Human Breathing Airflows - Debendra Nath Sarkar</p>
	<p>5.2: Data-driven analysis of molten-salt nanofluids for specific heat enhancement using unsupervised Machine learning methodologies - Dipti Ranjan Parida</p>
	<p>5.3: Numerical simulations of capsules and cells in flow - Kiran Satheesh</p>
	<p>5.4: Study on two stage air cooled Silica gel + water adsorption cooling system -M. Reddy Madhuri</p>
	<p>5.5: Dynamical Characterization Of Swirl Injector Flow Field Generated Through Radial Swirler Fitted In A Conical Nozzle -Rampada Rana</p>
12:30pm-02:00pm	BREAK
02:00pm-02:30pm	<p><u>Keynote Lecture 4: Harish Dixit (IITH)</u></p> <p>Student coordinator 1: Mahesh Kisan Sawardekar Student coordinator 2: Bangar Sarika Shivaji</p>
02:30pm-03:45pm	<p>Session 6: Faculty Chair 1: Harish Dixit (IITH) Faculty Chair 2: Raghuraman N. Govardhan</p> <p>Student coordinator 1: Mahesh Kisan Sawardekar Student coordinator 2: Bangar Sarika Shivaji</p>
	<p>6.1: Direct Numerical Simulation of Thin Fluid Films - Ananthan M</p>
	<p>6.2: Higher Order WENO methods for simulation of compressible multiphase flows on unstructured grids - Dasika Sunder</p>
	<p>6.3: Dynamics of polymer droplets under contact and non-contact environments - Gannena K S Raghuram</p>

	<p>6.4: Numerical and Experimental Investigation of Heat Pipes and PCM-Coupled Heat Pipes - H. Venu Madhav</p>
	<p>6.5: Droplet interaction with turbulence in moist tube convection - Visakh M G</p>
04:00pm-05:00pm	<p>Poster Session 2: Faculty Chair 1: M.S.Bobji Faculty Chair 2: Jishnu Keshavan Faculty Chair 3: Navaneetha Krishnan Ravichandran</p>
	<p>2.1: Crosslinks and Toughness of Gelatin Hydrogels in Tissue Engineering - Anshul Shrivastava</p>
	<p>2.2: A topological approach for wire harness design - Arun Rehal</p>
	<p>2.3: Analysis of Orifice Type Aerostatic Thrust Bearing for s-CO2 Turbomachinery - Ashutosh Patel</p>
	<p>2.4: Effect of Acoustic excitation on buoyant droplet diffusion flame - Gautham Vadlamudi</p>
	<p>2.5: Development of a Cryogenic Loop Heat Pipe (CLHP) with Coherent Porous Silicon (CPS) Wick in the Flat Plate Evaporator - Govind Kumar Mishra</p>
	<p>2.6: Robotic Hot Blade Cutting - Jay Prajapati</p>
	<p>2.7: Studies on metal hydride based thermal energy storage systems - Katamala Malleswararao</p>
	<p>2.8: Design and optimization of legged quadruped robot - Pramod Pal</p>
	<p>2.9: Design of novel LPG/PNG domestic burners for high efficiency</p>

	- S. Rahul Kashyap
	2.10: Analysis of Turbomachinery Losses Across Power Scales for a Super-Critical Carbon Dioxide Brayton Cycle - Lakshminarayanan Seshadri
	2.11: Profile and contact force estimation of cable-driven continuum robots in the presence of obstacles - Soumya Kanti Mahapatra
	2.12: A new mode of terrestrial locomotion - Sudhanva Bhat
	2.13: Vibration isolation in spacecraft using Stewart platform - Yogesh Pratap Singh
05:00pm	Closing ceremony