

7th Indian Conference on Applied Mechanics (INCAM 2026)
Indian Institute of Technology Kanpur
9-11 July 2026

PROGRAM SCHEDULE

Time	DAY 1, Thursday (9 July 2026)	
09:00 - 9:30	Inaugural Ceremony (Venue: L-18)	
09:30 - 10:15	Plenary Lecture 1: Alwar Memorial Lecture – Prof. R. Narasimhan (Venue: L18, Lecture Hall Complex) Title: Mechanics of fracture of basal-textured magnesium alloys: Experiments and finite element modelling	
10:15 - 10:45	Photo Session and Tea Break (L18 Foyer)	
	Parallel sessions	
10:45 – 13:15	Mini-symposium – Advances in Computational Solid Mechanics Venue: L18, Lecture Hall Complex	Invited Lecture by Prof. Srikanth Vedantam, IIT Madras Title: Constitutively informed particle dynamics: A novel discrete particle modelling approach
		Paper IDs: Titles 13: Modelling of damage and healing in viscoelastic materials 15: Development of a novel numerical meshless method based on Taylor’s series 17: Computational Investigations on high-density polyethylene-aluminium foam sandwich barriers for mitigation of sympathetic detonation 23: Viscoelastic materials damage modelling 27: Atomistic perspectives on the influence of re distribution on the glide characteristics of screw dislocation in W-Re alloy and its impact on yield behavior 30: Fatigue-induced damage in viscoelastic materials

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		<p>36: Experimental investigation of a low speed stability control system for an E-bike using active steering and adjustable wheel base</p> <p>81: Prediction of curing induced residual stress evolution in polymers with porosity</p>
	<p>Mini-symposium - AI and HPC for Applied Mechanics Venue: L8, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Rishita Das, IISc Bangalore Title: Machine learning for turbulent flows: From super-resolution to extreme events prediction</p>
		<p style="text-align: center;">Paper IDs: Titles</p> <p>11: Hybrid neural surrogate modeling for a data-driven turbofan engine digital twin</p> <p>41: Accelerating learning of crystal plasticity using fourier neural operator</p> <p>59: Learning resonance-driven crack evolution in a Warren girder using deep neural networks</p> <p>109: Tracking error for adaptive training of non intrusive reduced order models: Data driven approaches</p> <p>117: A PINNs based solution of heat transfer through longitudinal fin under temperature dependent parameters</p> <p>126: Spatiotemporal stress-strain fields prediction using DIC and deep learning</p> <p>139: Epileptic seizure classification using hybrid DenseNet - ViT based deep learning model</p> <p>152: A comparative case study on machine learning and ensemble modelling under sparse data conditions in predicting fracture toughness in bio-nanocomposites</p>
	<p>Mini-symposium - Fatigue and Fracture Venue: L9, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Gaurav Singh, IIT Delhi Title: State of stress in the crack-tip region: Theory, experiments and simulations Paper IDs: Titles</p>

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		<p>4: Synergistic application of digital image correlation and acoustic emission for Mode I fracture assessment of steel fiber reinforced concrete</p> <p>22: Influence of analysis methodology on fatigue life prediction of offshore structures</p> <p>63: Elastoplastic fracture toughness of amorphous solids at the atomistic scale</p> <p>65: Mechanics of crack interaction between parallel edge crack using near-tip SIF</p> <p>69: The impact of microstructural features on hydrogen permeation in dual-phase steels</p> <p>74: Influence of crack representation on near-tip stress fields in AT2 phase-field fracture for SENT specimens</p> <p>77: Stress intensity factors for the double internal cracked Brazilian disk under diametral compression</p> <p>78: A structural tensor-driven phase-field approach for fracture in composite laminates</p>
	<p>Mini-symposium – Mechanics in Bio-applications and Sports Venue: L12, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Jaywant Arakeri, IISc Bengaluru Title: Fluid mechanics of fish-like locomotion</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>33: Non-Linear statistical shape modelling of the femoral shaft using anatomically consistent correspondence</p> <p>35: Quantifying the biomechanics of various classical and Western dance postures among skilled individuals</p> <p>43: Analysis of experimentally recorded surface electromyography signals with varied muscle fiber type proportions using sample entropy</p> <p>49: Mathematical modeling and generation of surface electromyogram signal of calf muscles</p> <p>50: Spatial energy feature based seizure prediction using scalp EEG signals</p> <p>52: Region-wise multi-stage assessment of Alzheimer’s disease using radiomics-driven structural network analysis</p>

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		<p>53: Biomechanical evaluation of clavicle fracture fixation: a parametric study of implant material and thickness on healing outcomes</p> <p>61: Design and simulation of hydroxyapatite coated titanium alloy fracture plate using finite element analysis</p>
	<p>Mini-symposium – Design of Engineering Structures Venue: L13, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Devesh Punera, IIT Bhubaneswar Title: Manufacturing defect-dependent modelling of variable angle tow composites using refined structural models</p> <hr/> <p style="text-align: center;">Paper IDs: Titles</p> <p>294 (S01): Digital image correlation for vibration analysis of a decommissioned fighter jet wing using conventional and virtual calibration techniques</p> <p>25: Numerical modelling of jointed plain concrete pavements: A survey of methods</p> <p>93: Optimization of cross-section for structural members in airborne structure by using particle swarm optimization technique</p> <p>122: Optimisation of tuned mass damper inerter considering soil structure interaction for low-rise building</p> <p>142: Identification of stiffness and damping coefficients of a metamaterial-based casing from force-displacement relations obtained from experiments</p> <p>197: Mode extraction from ultrasonic guided wave signals under narrowband signal via broadband measurement</p> <p>234: Seismic behavior of tall building under long-period ground motions</p> <p>S01: Sponsors talk from Pyrodynamics</p>
	<p>Mini-symposium – Mechanics of Soft and Biological Matter Venue: TB 110, Tutorial Block</p>	<p style="text-align: center;">Invited Lecture by Prof. Sumit Basu, IIT Kanpur Title: Surface stresses in ultra-soft solids</p> <hr/> <p style="text-align: center;">Invited Lecture by Prof. Krishna Kannan, IIT Madras Title: A first-principles chemo-mechanical framework for smooth muscle contraction: From cellular kinetics to organ-level response</p>

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		<p style="text-align: center;">Paper IDs: Titles</p> <p>44: Modeling and FEM simulation on uniaxial deformation of hyperelastic 57: A variational thermodynamic model for pH and salt-responsive swelling of polyelectrolyte hydrogels 133: Thermodynamically consistent constitutive model for viscoelastic solids under finite deformation using evolving natural configurations 158: Nature-inspired spiral curling in splay-aligned liquid crystal polymers 169: Viscoelastic relaxation-induced evolution of anisotropy in liquid crystal elastomers 172: Sequence-encoded mechanics of DNA wrapping in nucleosomes</p>
	<p>Mini-symposium – Mechanics of Composite Materials Venue: TB 111, Tutorial Block</p>	<p style="text-align: center;">Invited Lecture by Prof. Prasad Patnaik, IIT Madras Title: Fluid-structure interaction: Cerebrovascular disease simulations for patient specific management</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>7: Role of ply orientation and ABD matrix characteristics on the in-plane dynamic crushing behavior of CFRP honeycombs 14: Experimental low velocity impact analysis of carbon-flax-sisal hybrid composite 76: Numerical modeling and thickness optimization of Type - IV composite pressure vessels 79: Numerical investigation of the potential energy landscape of a four-corner simply supported square bistable plate with macro fiber composite 98: Investigation of the mechanical behaviour of CFRP laminates fabricated by the vacuum assisted resin transfer molding (VARTM) 102: Prediction of mechanical behaviour of cementitious composites using a UMT-based micromechanical model 134: Characterization of damage in laminated composite material and its relations with existing damage measures and models 150: Dynamic response of bi-modular rectangular plates under moving point load using FEM</p>

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13:15 - 14:30	Lunch Break (Main Auditorium Lawn)	
14:30 - 16:15	Parallel sessions	
	Mini-symposium - Plasticity and Creep Venue: L18, Lecture Hall Complex	Invited Lecture by Prof. Praveen Kumar, IISc Bangalore Title: Length scale effects on power law creep of materials: Cases of uniform and graded stress fields
		Paper IDs: Titles 64: Plasticity of amorphous solids at the atomistic scale 105: A diffused-interface crystal plasticity grain boundary model to capture size effects in polycrystals 115: The effective behavior and field statistics of multiscale porous polycrystals 143: The role of geometrically necessary dislocation densities resolved on individual slip-systems in predicting micromechanics of single crystals 155: Effect of residual stress on low cycle fatigue behavior of Al-alloys 176: Thermo-mechanical modeling of void growth in glassy polymers under controlled stress states
	Mini-symposium - AI and HPC for Applied Mechanics Venue: L8, Lecture Hall Complex	Invited Lecture by Prof. Vadlamani Nagabhushana Rao, IIT Madras Title: High-fidelity turbulence simulation towards exascale: Methods, case studies, and HPC strategies
Paper IDs: Titles 164: Physics-informed neural networks for higher-mode buckling analysis of Euler-Bernoulli beams using loss curvature scanning 171: An energy-based FDM-PINN framework for nonlinear laminated composite plates with arbitrary edge constraints 289: An autonomous multi-scale ICME agent framework: seamless integration of ab initio DFT, molecular dynamics, and crystal plasticity finite element simulations via automated scale-bridging 317: COMPSQUARE: A GPU-accelerated high-fidelity solver for flows in all speed regimes and turbomachinery applications		

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		334: Data-free physics-informed deep operator network for generalized low-Reynolds-number aerodynamic flow prediction
	Mini-symposium - Fatigue and Fracture Venue: L9, Lecture Hall Complex	<p style="text-align: center;">Invited Lecture by Prof. Anirban Patra, IIT Bombay Title: Crystal Plasticity Modeling of Cyclic Deformation in Polycrystalline Ni-based Superalloys Paper IDs: Titles</p> <p>83: Experimental study on crack propagation in rotating machine elements under mixed-mode loading 87: FE analysis of FRP joints in bulkhead–deck region of ships 103: Finite element analysis of plasticity-induced crack closure in rotating porous functionally graded pre-twisted blades under cyclic thermo-mechanical loading 124: Bayesian updating of fracture toughness of concrete 127: Accelerating fatigue simulations in polycrystalline materials with second-phase particles</p>
	Mini-symposium – Mechanics in Bio-applications and Sports Venue: L12, Lecture Hall Complex	<p style="text-align: center;">Invited Lecture by Prof. Sanjay Mittal, IIT Kanpur Title: Sports aerodynamics: Cricket, badminton, frisbee</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>68: Investigating the conjunction of muscle fatigue and mental fatigue while performing biceps curls – a neuromechanical approach 71: Identification of differentially expressed genes in PDAC using integrated gradients and convolutional neural networks 72: Assessment of differentially expressed genes in ASD using DESeq2 analysis of integrated RNA-Seq datasets 107: Development of a wearable bio-piezoelectric sensor for real-time joint and finger movement monitoring 131: Comparative study of the release mechanics of diclofenac from gelatin hydrogels prepared by in-situ and post-loading methods</p>
	Mini-symposium – Design of Engineering Structures	Invited Lecture by Prof. Kaustubh Dasgupta, IIT Guwahati

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	<p style="text-align: center;">Venue: L13, Lecture Hall Complex</p>	<p style="text-align: center;">Title: Seismic design philosophy of RC wall-frame buildings with the role of floor slabs</p>
		<p style="text-align: center;">Paper IDs: Titles</p> <p>251: Surface crack detection and failure prediction in structures using machine learning</p> <p>257: Parametric study and optimization of concrete containing de-oiled spent bleaching earth, spent bleaching earth, and rice husk ash</p> <p>290: Connection performance and frame-level behavior of cold-formed steel moment-resisting frames with optimized beam cross-section</p> <p>323: A trilinear force deformation model of a novel damage prevention device</p> <p>341: Structural analysis and optimization of a lead-screw-actuated span-morphing wing with lattice core support</p>
	<p style="text-align: center;">Mini-symposium – Mechanics of Soft and Biological Matter Venue: TB 110, Tutorial Block</p>	<p style="text-align: center;">Invited Lecture by Prof. Viswanath Chinthapenta, IIT Hyderabad Title: Investigation of sutures and sutureability in ophthalmology</p>
		<p style="text-align: center;">Paper IDs: Titles</p> <p>371: Phase field model for mixed-mode fracture in hyperelastic materials</p> <p>205: Morphometric evaluation of perinuclear halo in koilocytotic cervical cells</p> <p>221: An experimental study on effect of illumination on crack propagation in liquid crystal network films</p> <p>225: Role of polymer volume fraction and crosslinker concentration on the elastic and fracture properties of polyacrylamide hydrogel</p> <p>242: Bio-derived ZnO and CaO nanoparticles from organic waste: structure-property relationships and functional interactions with biological systems</p>
	<p style="text-align: center;">Mini-symposium – Fluid-Structure Interaction Venue: TB 111, Tutorial Block</p>	<p style="text-align: center;">Invited Lecture by Prof. Sanjay Kumar, IIT Kanpur Title: Vortex shedding onset behind a circular cylinder in soap film flows</p>
		<p style="text-align: center;">Paper IDs: Titles</p> <p>55: Comprehensive 3D-FEM analysis of helicopter blade using GCFEM</p> <p>151: Computational aero acoustic analysis and material optimization of a low-noise VTOL rotor</p>

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		<p>209: Hydrodynamic damping effect in a fixed-fixed support beam resonator in a viscous medium</p> <p>212: Drag force on an oscillating very long circular cylinder and thin beam in viscous fluid</p> <p>219: Numerical study on magnetohydrodynamic oscillatory Couette flow with obstacle in channel using immersed boundary method</p>
16:15 -16:30	Tea Break (L18 Foyer)	
16:30 - 18:30	Parallel sessions	
	<p>Mini-symposium – Advances in Computational Solid Mechanics</p> <p>Venue: L18, Lecture Hall Complex</p>	<p>Invited Lecture by Prof. Venkatraman Pandurangan, IIT Tirupati</p> <p>Title: From data to physics: Machine learning in computational solid mechanics</p>
		<p style="text-align: center;">Paper IDs: Titles</p> <p>146: Stochastic phase field approach to model microstructure evolution</p> <p>175: A three-dimensional thermomechanical phase-field framework for modeling fracture in layered materials</p> <p>178: Wellbore integrity analysis using the phase-field fracture method</p> <p>180: Phase-field framework to model crack propagation in layered media with frictional interfaces in 3D</p> <p>196: Finite element modeling of adhesively bonded composite beams using zigzag theory</p> <p>239: Finite element-based investigation of compressive and fatigue properties of HA/PMMA composite bone scaffold</p>
	<p>Mini-symposium – Advances in Computational Fluid Dynamics</p> <p>Venue: L8, Lecture Hall Complex</p>	<p>Invited Lecture by Prof. Harshal Akolekar, IIT Jodhpur</p> <p>Title: Scientific machine learning for turbulence and transition modelling applications to gas turbine flows</p>
<p style="text-align: center;">Paper IDs: Titles</p> <p>S02: Ansys digital engineering and AI solution for technological innovation and academic research</p>		

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		<p>110: Numerical investigation of hydrodynamic resistance of a rectangular barge in shallow water</p> <p>170: Influence of rib height on flow and heat transfer in internal cooling channels</p> <p>210: Drop-wise condensation with non-uniform micro pillars</p> <p>211: Influence of various shape of vortex generator on characteristics of heat transfer in rectangular channel</p> <p>217: Numerical investigation of low-Reynolds-number aerodynamics of the NACA 2412 airfoil using SST $k-\omega$ and $\gamma-Re\theta$ transition modeling</p> <p style="text-align: center;">S02: Sponsors talk from CADFEM</p>
	<p>Mini-symposium – Contact Adhesion & Friction Venue: L9, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Dr Ramkumar Penchaliah, IIT Madras Title: Systematic approach for contact mechanics-based FEM wear simulation</p> <p style="text-align: center;">Invited Lecture by Prof. Gopakumar Parameswaran, BP Mumbai Title: A transient friction rig for differentiating engine lubricant performance at the high-pressure fuel pump roller-follower</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>38: Simulation of multipass sliding in soft ductile metals using a remeshing framework</p> <p>119: Enhancement of hardness and erosion performance of medium carbon steel through controlled hot compression</p> <p>160: Nonlinear dynamic stability analysis of misaligned dual-layer porous bearings using additive-induced couple-stress lubrication</p> <p>262: Influence of mixing ratio and process parameters on PDMS–glass interfacial friction and adhesion</p>
	<p>Mini-symposium – Mechanics of Composite Materials Venue: L12, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. C. S. Upadhyay, IIT Kanpur Title: The dawning age of plant-based composites: From waste to structure</p> <p style="text-align: center;">Paper IDs: Titles</p>

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		<p>154: Generation of synthetic microstructure images of composites for probabilistic failure analysis</p> <p>162: Flutter and vibration behaviour of damaged laminated composite plates with piezoelectric patches under thermal loads</p> <p>182: Micromechanical characterization of phenolic composites using nanoindentation techniques</p> <p>183: Thermo-chemo-mechanical-seepage modeling of curing of polymer composite</p> <p>244: Effect of gradation on the thermal conductivity of graded geopolymers foam concrete</p> <p>255: Experimental investigation of curvature evolution in bistable laminates using digital image correlation</p> <p>269: A novel strategic approach to incorporate bagasse ash as reinforcement in aluminum matrix composites for automotive application</p> <p>274: Stiffness degradation modeling of ramie fibre reinforced epoxy composite under fatigue loading using a microelement plastic strain accumulation model</p>
	<p style="text-align: center;">Mini-symposium – Mechanics for Sustainability Venue: L13, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. C. Chandraprakash, IIT Kanpur Title: Biodegradable soft materials for sound absorption Paper IDs: Titles</p> <p>92: A unified mechanics theory-based lithium plating and SEI degradation model in lithium-ion batteries</p> <p>184: Novel flame retardant material for potential application as battery spacers</p> <p>187: Effect of a composite battery spacer on thermal runaway mitigation: a 3D numerical modelling approach</p>
	<p style="text-align: center;">Mini-symposium – Undergraduate Research Program (URP) Venue: TB 110, Tutorial Block</p>	<p style="text-align: center;">Paper IDs: Titles</p> <p>114: Computation of effective thermal properties of porous fibrous materials through meso-scale simulations</p>

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		<p>179: Analysis of local temperature on vibration and its control of sandwich panels</p> <p>253: Design and analysis of planetary roller screws</p> <p>318: Effect of nanofluids on thermal performance of an 18S1P lithium-ion battery thermal management system</p> <p>363: Estimation of material properties and size of Heat-affected zone in welds using an inverse approach</p> <p>367: Polar-azimuthal infrared thermography using a motorized platform</p> <p>368: Classification of liquids with material property charts</p> <p>372: The water wave of varying amplitude with vibrating water buoy as a source of thrilling water ride</p>
	<p>Mini-symposium – Fluid-Structure Interaction Venue: TB 111, Tutorial Block</p>	<p style="text-align: center;">Invited Lecture by Prof. Prasad Patnaik, IIT Madras Title: Fluid-structure interaction: Cerebrovascular disease simulations for patient specific management</p> <hr/> <p style="text-align: center;">Paper IDs: Titles</p> <p>220: Computational study of magnetohydrodynamic flow over a rigid filament placed in a channel</p> <p>230: Overset mesh-based fluid–structure interaction simulation of flexible insect wings</p> <p>238: A study on turbulent flow induced motion in tandem cylinders</p> <p>286: Towards hypersonic flow sensing: design of advanced semiconductor thermopile sensors architectures</p> <p>325: CFD-CSD coupling for simulating fluid structure interaction of helicopter blades</p> <p>349: Wear-aware mixed-lubrication simulation and surface-texture optimization of V-combined tandem reciprocating rod seals</p>
18:30 - 19:30	AGM (L18, Lecture Hall Complex)	
19:30	Dinner (Main Auditorium Lawn)	

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Time	DAY 2, Friday (10 July 2026)	
09:00 - 09:45	Plenary Lecture 2: Prof L S Srinath Memorial Lecture - Prof. Jayant Sirohi (Venue: L18, Lecture Hall Complex) Title: Harvesting energy from aeroelastic instabilities	
09:45 - 10:15	Tea Break (L18 Foyer)	
	Parallel sessions	
	Mini-symposium – Advances in Computational Solid Mechanics Venue: L18, Lecture Hall Complex	Paper IDs: Titles 268: Modeling the cyclic mechanical behavior of Indian soft-block masonry using a physics-based finite element micro-model in OpenSees 314: A heat-transfer analogy framework for dynamic phase-field fracture in Abaqus/Explicit: application to hotspot dynamics in energetic materials 315: Mechanics of folded plates 347: Isogeometric Shape Optimization of a beams exhibiting snap-through buckling 352: A coupled BEM-FEM aproach for nonlinear electro-elastostatics of CNT-based MEMS structures
10:15 – 12:45	Mini-symposium – Advances in Computational Fluid Dynamics Venue: L8, Lecture Hall Complex	Invited Lecture by Prof. Ratnesh Shukla, IISc Bangalore Title: Adaptive-order unstructured methods for shock-driven flows Invited Lecture by Prof. Ashwani Assam, IIT Patna Title: Algorithmic advances in shock-resolving methods for compressible flow simulations
		Paper IDs: Titles 226: Numerical study of biomagnetic channel flow: Oscillating and steady shear wall configurations 228: Characterising spatial organisation of updrafts in a turbulent atmospheric boundary layer 232: Numerical investigation of crater formation on a dense granular bed due to air-jet impact

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		<p>291: A cost-effective simulation framework for the aerodynamic design and development of UAVs</p> <p>324: Development of wing-tip vortex in an inviscid, incompressible flow past a finite-span wing</p> <p>336: Buoyancy-driven instabilities of miscible two-fluid interfaces in layered porous aquifers</p>
	<p>Mini-symposium - Fatigue and Fracture Venue: L9, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Indra Vir Singh, IIT Roorkee Title: A numerical framework based on CDM to evaluate the fatigue life of laminated composites</p> <hr/> <p style="text-align: center;">Paper IDs: Titles</p> <p>194: Mixed-mode stress intensity factors of eccentric edge-cracked perforated plate</p> <p>216: Effect of load ratio on fatigue crack growth behaviour in AA7075-T651</p> <p>218: Effect of specimen size on fracture energy of foamed concrete</p> <p>247: Fracture analysis of edge-cracked column under eccentric loading</p> <p>293: Effect of build atmosphere on phase evolution and fracture behaviour in 18 Ni M300 maraging steel</p> <p>332: Effect of heat treatment and hydrogen charging on the mechanical behavior of Ti-6246 alloy</p> <p>346: Scalable elasto-plastic phase field fracture with adaptive mesh refinement</p>
	<p>Mini-symposium – Mechanics of Composite Materials Venue: L12, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Suresh Kumar, DMSRDE Title: C/SiC Composites for Thermo-structural Applications: Achievements, Mechanics Challenges and Development Methodology</p> <hr/> <p style="text-align: center;">Paper IDs: Titles</p> <p>278: Design and optimization of multifunctional hybrid composite flaperon</p> <p>280: Linear dynamic analysis of viscoelastic laminated composite shells</p> <p>281: RVE analysis of glass woven composite with embedded random short carbon fiber for stealth structures</p>

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		<p>304: Investigation of coupled electromechanical behaviour in CNT-based composites under stepwise fatigue loading</p> <p>307: Design of thermally induced multistable laminates for deployable structures</p> <p>340: Experimental and numerical investigation of buckling and vibration behavior in stainless steel wire-reinforced filament-wound hybrid composite cylinders</p> <p>359: Optimal design of viscoelastic variable stiffness laminated plates</p> <p>370: Aligned CNT reinforced UHMWPE fibers: thermo-mechanical behavior</p> <p>375: Effect of material processing on the mechanical and failure properties of radar absorbing paint materials</p>
	<p>Mini-symposium -Geomechanics and Planetary Science Venue: L13, Lecture Hall Complex</p>	<p>Invited Lecture by Prof. Manash Chakraborty, IIT (BHU) Varanasi Title: Seepage and consolidation flow through unsaturated soil</p> <p>Invited Lecture by Prof. Satyajit Pramanik, IIT Guwahati Title: Deformation-driven mixing in a soft porous medium</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>70: Understanding collapse and flow mechanism of lunar soil simulant employing smoothed particle hydrodynamics simulation</p> <p>82: Implementing fracture mechanics into a geodynamic modelling framework: a phase-field approach</p> <p>111: Advanced visco-hypoplastic model for gas hydrate-bearing sediments</p> <p>113: A coupled hydro-mechanical peridynamic model for instabilities in ductile geomaterials</p> <p>157: Open-channel granular flow over a semi-ellipsoidal obstacle</p> <p>259: Investigating appropriate confinement framework for studying behavioral evolution in size-dependent granular soils</p> <p>266: Numerical study of collapse dynamics and impact of annular inner granular flow front on the obstacle</p>

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		282: Dynamic response of floating piles in non-homogeneous soil: influence of boundary condition
	<p style="text-align: center;">Mini-symposium – Numerical Simulations for Static and Dynamic Studies Venue: TB 110, Tutorial Block</p>	Invited Lecture by Prof. S.K. Panda, IIT (BHU) Varanasi Title: Dynamic fracture behavior of nuclear graphite
		<p style="text-align: center;">Paper IDs: Titles</p> 19: Influence of extreme on-orbit thermal loading on the modal behaviour of inflatable space torus 21: Design and dynamic analysis of inflatable smart material membrane based space antenna 24: 3D progressive damage modeling of fracture and rake angle–influenced machining damage in heterogeneous layered materials 46: Prediction of underwater explosion-induced damage to a plate located at the free surface of a water tank using the finite volume method 48: Numerical study on blast response of sandwich and corrugated metallic panels: effect of geometry and material selection 54: Slope stability analysis of thermal power plant ash dyke using finite element method 86: A comparative study of heat transfer in functionally graded longitudinal fins of constant weight under temperature dependent parameters 136: A nonlinear Euler-Bernoulli beam framework for carbon nanotube nanoscale mass detection
	<p style="text-align: center;">Mini-symposium – Mechanics of Smart Materials and Structures Venue: TB 111, Tutorial Block</p>	Invited Lecture by Prof. Shaikh Faruque Ali, IIT Madras Title: Mechanics of energy harvesters
		<p style="text-align: center;">Paper IDs: Titles</p> 10: Hybrid hydraulic piezoelectric suspension energy harvester for enhanced power generation on smooth road conditions 20: Microstretch continuum theory modeling for nematic liquid crystalline elastomers 42: Finite deformation mechanics of electrostriction in elastic dielectrics

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		<p>91: Coupled multiphysics framework for modeling carbon fibre-based structural battery composites</p> <p>132: A multiphase phase-field study of grain boundary-induced martensitic phase transformations in polycrystalline materials at finite strains</p> <p>156: Analytical modeling of magnetization response in MSMAs via homotopy perturbation and unified Green's functions</p> <p>163: Auxetic meta-material for next-generation concrete reinforcement</p> <p>177: Design and nonlinear analysis of a hybrid linkage-SMA tendon morphing airfoil</p>
12:45 - 14:00	Lunch Break (Main Auditorium Lawn)	
	Parallel sessions	
14:00 - 16:00	<p>Mini-symposium - Plasticity and Creep Venue: L18, Lecture Hall Complex</p>	<p>Invited Lecture by Prof. Shyam Keralavarma, IIT Madras Title: Mechanics of plastic instability in thermo-viscoplastic solids</p> <p>Invited Lecture by Prof. P. J. Guruprasad, IIT Bombay Title: Dislocation mean free path and grain size effects in creep plasticity of polycrystalline metals</p>
		<p>Paper IDs: Titles</p> <p>271: Modeling temperature-dependent anisotropic deformation of Ti and Mg alloys using dislocation density-based crystal plasticity model</p> <p>273: In-situ investigation on hydrogen-induced deformation micro-mechanisms in commercially pure titanium</p> <p>276: Interplay of martensitic transformation and martensite plasticity in governing fracture behavior of FeMnCoCr high entropy alloy</p> <p>285: In-situ studies on deformation of WAAM printed commercially pure copper</p>
	<p>Mini-symposium - AI and HPC for Applied Mechanics Venue: L8, Lecture Hall Complex</p>	<p>Invited Lecture by Prof. Souvik Chakraborty, IIT Delhi Title: See, hypothesize, discover: Agentic AI for scientific discovery</p>

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		<p style="text-align: center;">Paper IDs: Titles</p> <p>360: On the use of machine learning for predicting railway vehicle derailment risk</p> <p>361: Reconstructing roughness-induced transition in boundary layer using super-resolution</p> <p>369: Physics-informed neural network for characterization of thermal properties</p> <p>373: Physics-informed graph neural networks for mesh-free stress analysis in heterogeneous materials</p>
	<p>Mini-symposium – Contact Adhesion & Friction Venue: L9, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Nitya Nand Gosvami, IIT Delhi Title: Anisotropic frictional characteristics of bioinspired nanopatterned surfaces</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>264: Tribological and corrosion performance of Al₂O₃-based thermal spray coatings</p> <p>267: Nano-silica based aqueous colloidal gels as eco-friendly thixotropic lubricant</p> <p>277: High-temperature tribological performance of hybrid nano-reinforced cold-sprayed CoCrFeNiSi high-entropy alloy coatings</p> <p>279: Genesis of adhesion and friction: from quantum scale to engineering scale- an AI driven approach</p> <p>305: Tribological study of PDMS+CNT composite membranes with different percentages of MWCNT</p> <p>309: Computational study of the adhesion and friction behavior of cross-linked polymer networks</p>
	<p>Mini-symposium – Mechanics in Bio-applications and Sports Venue: L12, Lecture Hall Complex</p>	<p style="text-align: center;">Paper IDs: Titles</p> <p>229: Biomechanical evaluation of impact on gender in plyometric exercise among trained and untrained individuals – a comparative study with rope skipping</p>

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		<p>235: Multimodal two-stream fusion network for early mild cognitive impairment classification using MRI and genetic data</p> <p>246: Automated detection of neurological disorders using EEG spectral analysis and Quantum support vector machine</p> <p>248: A proposal for deep learning-based quantitative interpretation of lateral flow assays using YOLOv8n and intensity profiling</p> <p>321: Muscle-specific characterization of micro-expression in facial electromyography signals using relative wavelet energy</p> <p>335: Biomimicking the autorotation of hollow seed</p> <p>353: Assessment of abductor pollicis brevis muscle function using myotonometry and infrared thermography</p> <p>355: Differentiation Of Fatiguing muscle contractions in the dominant and non-dominant hands using electromyography signals and synchrosqueezed wavelet transform</p>
	<p>Mini-symposium - Design of Engineering Structures Venue: L13, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Avik Samanta, IIT Patna Title: Behavior of class-4 steel beams with opening</p> <hr/> <p style="text-align: center;">Paper IDs: Titles</p> <p>342: Effect of overshooting error caused by Giuffrè-Menegotto-Pinto material model in seismic analysis of buckling-restrained braced frame buildings</p> <p>350: Complementary energy-based modal optimization in lattice metamaterials</p> <p>364: Experimental investigation of a dual-beam marine propeller</p> <p>125: Experimental investigation on the efficacy of a friction damper in attenuating vibrations of a system of coupled cantilever beams</p>
	<p>Mini-symposium – Numerical Simulations for Static and Dynamic Studies Venue: TB 110, Tutorial Block</p>	<p style="text-align: center;">Invited Lecture by Prof. B. Venkataraman, Amrita Vishwa Vidyapeetham Title: Mechanics of static and dynamic indentation and its relevance in engineering application</p> <hr/> <p style="text-align: center;">Paper IDs: Titles</p>

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		<p>144: Effect of discretization on fracture response of cement mortar using XCT-derived models under tension, compression, and shear</p> <p>165: Triumph of safety-critical frame unit installation in the rig</p> <p>189: Dynamics of a geometrically exact beam carrying a unprescribed moving mass</p> <p>207: Finite element-based rotordynamic analysis of gas turbine rotor assembly with curvic coupling</p> <p>326: Numerical Analysis of a dual-beam marine propeller</p> <p>327: Numerical investigation of V-shaped metallic plates coated with polyurea under blast loading</p> <p>366: Finite element investigation of inflation deployment in thin-film metal-polymer laminated inflatable structures</p> <p>372: The water wave of varying amplitude with vibrating water buoy as a source of thrilling water ride</p>
	<p>Mini-symposium - Mechanics of Highly Deformable Bodies & Materials Venue: TB 111, Tutorial Block</p>	<p style="text-align: center;">Invited Lecture by Prof. M. S. Bobji, IISc Bengaluru Title: Controlled cone crack formation in hydrogels during needle insertion: Influence of network structure</p> <p style="text-align: center;">Invited Lecture by Prof. Akshay Joshi, IISc Bengaluru Title: Hetero-EUCLID: Interpretable model discovery for heterogeneous hyperelastic materials using stress-unsupervised learning</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>34: Effects of the curvature sign on the peeling of thin films from curved substrates</p> <p>145: Study of the crater size and morphology of the debris cloud against the hypervelocity impact of the projectile using smooth particle hydrodynamics</p> <p>153: Membrane mechanics and dynamics of vesiculation</p> <p>287: Numerical analysis of structural performance of Kapton® inflatable booms</p>

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16:00 -16:30	Tea Break (L18 Foyer)	
16:30 - 18:30	Mini-symposium - Plasticity and Creep Venue: L18, Lecture Hall Complex	<p style="text-align: center;">Invited Lecture by Prof. Ilaksh Adlakha, IIT Madras Title: Effect of hydrogen on plasticity of α-Fe: a multi-scale assessment</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>322: Coupled effects of nanosize precipitates and dislocation loops on the fracture toughness of irradiated martensitic steels</p> <p>356: Experimental investigation and constitutive modeling of alloy 690 using the Johnson-Cook model up to 800°C</p> <p>358: Multi-step heat treatment for dual microstructure engineering in titanium alloys: Implications for crystal plasticity modeling</p>
	Mini-symposium - Turbulent and Complex Flows Venue: L8, Lecture Hall Complex	<p style="text-align: center;">Invited Lecture by Prof. Aniruddha Sinha, IIT Bombay Title: Modelling non-axisymmetric jet noise</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>80: Numerical investigation of laminar separation bubble and transition onset over a low Reynolds number airfoil</p> <p>88: Unsteady behavior of low Reynolds number confined impinging jet</p> <p>104: Comprehensive study of role of Atwood number in two-layer Rayleigh-Taylor instabilities</p> <p>116: Role of elevated free-stream turbulence on the separation-induced transition in low pressure turbines</p> <p>118: Effect of Mach number on wake dynamics in compressible flow past a rotating cylinder</p>
		<p style="text-align: center;">Paper IDs: Titles</p> <p>311: Designing bioactive and mechanically tunable hydrogels for soft tissue reconstruction</p> <p>362: Characterization of Stick-slip phenomenon in boundary lubricated contacts</p> <p>374: Shear-driven tribochemistry of MXenes at sliding interfaces</p>
		<p style="text-align: center;">Paper IDs: Titles</p> <p>311: Designing bioactive and mechanically tunable hydrogels for soft tissue reconstruction</p> <p>362: Characterization of Stick-slip phenomenon in boundary lubricated contacts</p> <p>374: Shear-driven tribochemistry of MXenes at sliding interfaces</p>
		<p style="text-align: center;">Paper IDs: Titles</p> <p>311: Designing bioactive and mechanically tunable hydrogels for soft tissue reconstruction</p> <p>362: Characterization of Stick-slip phenomenon in boundary lubricated contacts</p> <p>374: Shear-driven tribochemistry of MXenes at sliding interfaces</p>
	Mini-symposium – Contact Adhesion & Friction Venue: L9, Lecture Hall Complex	<p style="text-align: center;">Paper IDs: Titles</p> <p>311: Designing bioactive and mechanically tunable hydrogels for soft tissue reconstruction</p> <p>362: Characterization of Stick-slip phenomenon in boundary lubricated contacts</p> <p>374: Shear-driven tribochemistry of MXenes at sliding interfaces</p>

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		<p>376: Enhanced magnetic and tribological performance of CNT-reinforced polyacrylamide/Ni ferrogel for advanced functional applications</p> <p>377: Adhesion of rough and soft solids</p>
	<p style="text-align: center;">Mini-symposium - Mechanics in Bio-applications and Sports Venue: L12, Lecture Hall Complex</p>	<p style="text-align: center;">Paper IDs: Titles</p> <p>357: Proposal of a hardware system for the measurements of center of pressure during postural instabilities</p> <p>365: EEG-based multidimensional emotion level classification using dual-input LSTM</p>
	<p style="text-align: center;">Mini-symposium - Mechanics of Smart Materials and Structures Venue: L13, Lecture Hall Complex</p>	<p style="text-align: center;">Paper IDs: Titles</p> <p>193: Nonlinear dynamics and chaos prediction in a coupled two-cylinder bistable VIV harvester</p> <p>200: Effect of substrate material on vibration-based piezoelectric energy harvester</p> <p>204: Simulation and design of tunable bistable auxetic metamaterials</p> <p>233: Experimental investigation of magnetically induced nonlinear dynamics in a piezoelectric cantilever energy harvester</p> <p>243: Design and experimental performance analysis of a damper for vibration mitigation in automobiles</p> <p>250: SH-Wave propagation in a flexoelectric layer overlying a piezoelectric substrate with micro-inertia and electro-mechanical flawed coupling effects</p> <p>261: Comparative study of geometric tapering effects in smart structures</p>
	<p style="text-align: center;">Mini-symposium - Mechanics of Soft and Biological Matter Venue: TB 110, Tutorial Block</p>	<p style="text-align: center;">Paper IDs: Titles</p> <p>256: Single and double network hydrogels under complex loading: Role of effective chains</p> <p>295: Characterization of two third-order kinematical tensors relevant to soft shells</p>

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		306: Mechanical behavior of accelerated-aged composite solid propellants 319: Topological defects in nematic liquid crystals
18:30 – 19:30	Cultural Program (Outreach Auditorium)	
19:30	Gala Dinner (Main Auditorium Lawn)	

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Time	DAY 3, Saturday (11 July 2026)	
09:00 - 09:45	Plenary Lecture 3: Karunakaran Memorial Lecture - Prof. Ravindra Adusumilli (Venue: L18, Lecture Hall Complex) Title: When development devours people: A critique of S&T competency in grassroots solutioning	
09:45 - 10:15	Tea Break (L18 Foyer)	
10:15 - 12:45	Parallel sessions	
	Mini-symposium - Ayurveda Venue: L18, Lecture Hall Complex	Invited lecture by Prof. V Srinivas Chackravathy, IIT Madras Title: Rethinking the tridosha theory of Ayurveda: A biothermodynamic perspective
		Paper IDs: Titles 60: Spectroscopy, acoustics, and AI-based studies of nanoparticles formed from ultra-diluted homoeopathic medicines 224: Investigating lipid-vesicle mediated curcumin-transport pathways In turmeric milk 283: Mechanics of ayurvedhic therapies (Swedhanam-Pottali application)
	Mini-symposium - Turbulent and Complex Flows Venue: L8, Lecture Hall Complex	Invited Lecture by Prof. Somnath Roy, IIT Kharagpur Title: Flow features over bileaflet mechanical heart valves
Paper IDs: Titles 215: Dispersed two-phase flow over a plate: influence of elastic and inelastic collisions 223: Modelling the flow behind an abrupt roughness transition in a high-Reynolds number boundary-layer 297: Measurement of species concentration and temperature using coherent anti-Stokes Raman spectroscopy in combustors 302: Optimal perturbation of vortex pair evolving in a stratified medium 313: Unsteady oscillations of separated shear flows on a flat plate with adverse pressure gradient		

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		<p>338: Dual-mask Minkowski and skeleton-graph analysis of air-assisted spray atomization</p> <p>339: Integral estimates of thermal boundary layer thickness under a transverse magnetic field</p> <p>345: Enhanced two-stage prediction of spatio-temporal wind pressure field using multivariate analysis and deep neural network</p>
	<p style="text-align: center;">Mini-symposium – Mechanics of Smart Materials and Structures Venue: L9, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Bishakh Bhattacharya, IIT Kanpur Title: Evolution of intelligent autonomous system based on smart materials</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>292: Energy harvesting using friction-induced self-excited vibration of a bimorph piezoelectric cantilever beam</p> <p>328: Design and optimisation of acoustic metamaterials for underwater anechoic tiles</p>
	<p style="text-align: center;">Mini-symposium – Extreme Mechanics Venue: L12, Lecture Hall Complex</p>	<p style="text-align: center;">Invited Lecture by Prof. Dhiraj K. Mahajan, IIT Ropar Title: Understanding the interplay of multiple mechanisms of hydrogen embrittlement using experiments and simulations</p> <p style="text-align: center;">Paper IDs: Titles</p> <p>62: Influence of elevated temperatures on the dynamic shear behaviour of carbon-epoxy woven composites</p> <p>85: Simulation of plasma jet emission in flat plate electromagnetic welding</p> <p>90: Shock response of additively manufactured onyx composite specimens under high-speed shock loading</p> <p>99: Shock response of kevlar and carbon laminates under shock tube loading</p> <p>108: Simulation and analysis of flat coil for magnetic pulse welding of Al/Cu flat sheet</p> <p>138: High strain rate tensile behaviour of woven carbon/kevlar hybrid composite</p> <p>174: Response of modified GLARE composites under dynamic tensile loading conditions</p>

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		181: A numerical study for laser induced ablation of protective coating and failure of composite substrate
12:45 - 14:00	Lunch Break (Main Auditorium Lawn)	
14:00 - 16:00	Parallel sessions	
	Mini-symposium - Ayurveda Venue: L18, Lecture Hall Complex	Paper IDs: Titles Invited Lecture by Dr. GRR Chakravarthy, SJSACH, Chennai Title: Yukti Vyapāśraya: Scientific characterisation of rational therapeutics Invited Lecture by Dr Rishi Manivannan, Director, Vaidyarishi Ayurveda Title: Daivavyapasraya chikitsa – Unmada & Apasmara: wrt autism spectrum disorder Invited Lecture by Prof Shripathi Acharya, Muniyal Institute of Ayurveda Medical Sciences Title: Role of daiva vyapashraya chikitsa in the management of autism Invited Lecture by Dr. P. K. Partheeban, Swabhimaan Trust – Holistic Solutions for Autism Title: Bridging neurodiversity, tradition, and technology
	Mini-symposium - Geomechanics and Planetary Science Venue: L8, Lecture Hall Complex	Paper IDs: Titles
	Mini-symposium - Mechanics of Highly Deformable Bodies & Materials Venue: L9, Lecture Hall Complex	Invited Lecture by Prof. Abir Bhattacharyya, IIT Jodhpur Title: Elastic modulus and strain-dependent lateral to axial strain ratio in semi-dilute polyacrylamide hydrogels

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		<p style="text-align: center;">Paper IDs: Titles</p> <p>301: Transient thermo-fluid–structure interaction analysis of pneumatic hose snapping using viscoelastic and isotropic material modeling</p> <p>312: Modal characterization of flapping wings using 3D-DIC</p>
	<p>Mini-symposium – Extreme Mechanics</p> <p>Venue: L12, Lecture Hall Complex</p>	<p style="text-align: center;">Paper IDs: Titles</p> <p>260: High strain rate compressive strength of boron carbide prepared by different processing routes</p> <p>272: Deformation behavior of hydrogen-charged CP-Titanium: Effect of temperature and strain rate</p> <p>337: Design of auxetic sandwich panels for improved blast resistance and energy absorption</p> <p>344: Multiphysics modeling of stress corrosion cracking in materials with manufacturing-induced residual stress</p>
	Tea Break (L18 Foyer)	
16:15 -16:30	Valedictory Function	