Conference Programme

NMAMLD 2026

International Conference on Nonlocal Mechanics Approaches for Modelling Localized Deformations

IIT Hyderabad · 14th-16th December 2026

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Venues

Session Type	Venue	Session Codes
Plenary Lecture	Auditorium 2, Convention Center	PL1 to PL12
Technical Session	Auditorium 2, Convention Center	TS1A to TS5A
Technical Session	Conference Room 2, Convention Center	TS1B to TS5B
Technical Session	Conference Room 3, Convention Center	TS1C to TS5C
Technical Session	Conference Room 4, Convention Center	TS1D to TS5D
Technical Session	Conference Room 5, Convention Center	TS1E to TS5E
Technical Session	Seminar Hall 8, Convention Center	TS1F to TS5F
Technical Session	Seminar Hall 9, Convention Center	TS1G to TS5G

Summary

Programme At A Glance

Day 1 · Mon, 14th December	
08:00-09:00	*Registration*
09:00-09:30	*Inauguration*
09:30-10:15	**PL1** Prof. J. N. Reddy
10:15-11:00	**PL2** Prof. Tarun Kant
11:00-11:15	*Tea Break*
11:15-12:00	**PL3** Prof. Erdogan Madenci
12:00-12:45	**PL4** Prof. Paul Steinmann
12:45-13:00	*Sponsor Presentation*
13:00-14:00	*Lunch*
14:00-16:10	**TS1 Technical Session 1**
16:10-16:30	*Tea Break*
16:30-18:00	**TS2 Technical Session 2**

Day 2 · Tue, 15th December	
08:00-09:00	*Registration*
09:30-10:15	**PL5** Prof. Dayanand Reddy
10:15-11:00	**PL6** Prof. Arun R. Srinivasa
11:00-11:15	*Tea Break*
11:15-12:00	**PL7** Prof. K. Ravi Chandar
12:00-12:45	**PL8** Prof. Pedro Camanho
12:45-13:00	*Sponsor Presentation*
13:00-14:00	*Lunch*
14:00-16:10	**TS3 Technical Session 3**
16:10-16:30	*Tea Break*
19:00-22:00	*Gala Dinner*

Day 3 · Wed, 16th December	
08:30-09:00	*Registration*
09:30-10:15	**PL9** Prof. Ramesh Talreja
10:15-11:00	**PL10** Prof. K. V. L. Subramaniam
11:00-11:15	*Tea Break*
11:15-12:00	**PL11** Prof. Ramulu Mamidala
12:00-12:45	**PL12** Prof. Debasish Roy
12:45-14:30	*Lunch*
14:30-16:30	**TS4 Technical Session 4**
16:30-17:00	*Tea Break*
17:00-18:30	**TS5 Technical Session 5**

Summary

Technical Sessions By Venue

Venue	TS1 Mon, 14th Dec 14:00-16:10	TS2 Mon, 14th Dec 16:30-18:00	TS3 Tue, 15th Dec 14:00-16:10	TS4 Wed, 16th Dec 14:30-16:30	TS5 Wed, 16th Dec 17:00-18:30
Auditorium 2, Convention Center	TS1A Nonlocal Elasticity And Length-Scale Effects	TS2A Computational Methods For Nonlocal Fracture	TS3A Nonlinear Response Of Concrete And Masonry Structures	TS4A Nonlocal Damage And Material Interfaces	TS5A Phase-Field Models Of Crack Growth And Fatigue
Conference Room 2, Convention Center	TS1B Experimental Characterization Of Material Degradation	TS2B Fatigue Life And Crack Growth	TS3B Higher-Order Models Of Beams, Plates And Membranes	TS4B Fracture Of Soft Solids And Bonded Interfaces	TS5B Higher-Order Theories For Shells And Thick Plates
Conference Room 3, Convention Center	TS1C High-Rate Testing And Predictive Impact Mechanics	TS2C Lightweight Structures For Aerospace Loading	TS3C Crystal Plasticity And Grain-Scale Localization	TS4C Smart Structures And Vibration Control	TS5C Cyclic Loading And Fracture Of Concrete
Conference Room 4, Convention Center	TS1D Cracking And Load Transfer In Concrete And Masonry	TS2D Cellular Materials Under Impact And Blast	TS3D Coupled Simulation And Multiscale Mechanics	TS4D Propellants And Impact Protection In Aerospace Laminates	TS5D Vibration Monitoring And Structural Acoustics
Conference Room 5, Convention Center	TS1E Damage In Printed Composites And Architected Solids	TS2E Finite Deformation And Fracture Of Polymers	TS3E Rupture And Localization In Rocks And Granular Media	TS4E Concrete Mix Design And Structural Performance	TS5E Higher-Order And Coupled-Field Response
Seminar Hall 8, Convention Center	TS1F Blast Response Of Concrete Structures	TS2F Sandwich Panels And Composite Plate Mechanics	TS3F Phase-Field Models Of Thermal And Interfacial Damage	TS4F Thermomechanics Of Layered And Graded Materials	TS5F Peridynamic Models Of Brittle And Layered Solids
Seminar Hall 9, Convention Center	TS1G Composite Interfaces And Structural Diagnostics	TS2G Data-Driven Material And Constitutive Models	TS3G Prediction And Optimization Of Material Response	TS4G Seismic And Extreme Loads On Civil Structures	TS5G Rate Effects In Impact And Localized Deformation

Day 1

Monday, 14th December

Day Programme

Time	Code	Programme	Lecture Title
08:00-09:00		*Registration*	
09:00-09:30		*Inauguration*	
Session Chair: Prof. Arun R. Srinivasa (PL1 and PL2)			
09:30-10:15	PL1	**Prof. J. N. Reddy** Texas A&M University, USA	*An overview of nonlocal models in structural mechanics*
10:15-11:00	PL2	**Prof. Tarun Kant** IIT Bombay, India	*Title to be announced*
11:00-11:15		*Tea Break*	
Session Chair: Prof. Raghu Prakash (PL3 and PL4)			
11:15-12:00	PL3	**Prof. Erdogan Madenci** The University of Arizona, USA	*Peridynamics: Modeling beyond material failure*
12:00-12:45	PL4	**Prof. Paul Steinmann** University of Erlangen, Germany	*Integral-type nonlocal elasticity: Challenges and perspectives*
12:45-13:00		*Sponsor Presentation*	
13:00-14:00		*Lunch*	
14:00-16:10	TS1	**Technical Session 1**	TS1A to TS1G
16:10-16:30		*Tea Break*	
16:30-18:00	TS2	**Technical Session 2**	TS2A to TS2G

TS1 · Technical Session 1 · Day 1, Monday, 14th December

14:00-16:10 IST

Overview

Code	Venue	Session Theme	Lead Lectures
TS1A	Auditorium 2, Convention Center	Nonlocal Elasticity And Length-Scale Effects Chair: Dr. Archana Arbind	Prof. Noël Challamel Keynote Dr. Senthilkumar Vaiyapuri Invited
TS1B	Conference Room 2, Convention Center	Experimental Characterization Of Material Degradation Chair: Prof. Manoj Pandey	Prof. Raghu Prakash Keynote Dr. Anshul Faye Invited
TS1C	Conference Room 3, Convention Center	High-Rate Testing And Predictive Impact Mechanics Chair: Dr. Abir Bhattacharyya	Prof. R. Velmurugan Keynote Dr. Pattabhi Ramaiah Budarapu Invited
TS1D	Conference Room 4, Convention Center	Cracking And Load Transfer In Concrete And Masonry Chair: Dr. Keerthana Kirupakaran	Prof. G. Appa Rao Keynote Dr. Nitin Kumar Invited
TS1E	Conference Room 5, Convention Center	Damage In Printed Composites And Architected Solids Chair: Dr. Basant Kumar	Dr. Sanhita Das Invited Dr. Madhukar Somireddy Invited
TS1F	Seminar Hall 8, Convention Center	Blast Response Of Concrete Structures Chair: Dr. Saurabh Shiradhonkar	Prof. Vasant Matsagar Keynote Dr. T. Phanirama Tezeswi Invited
TS1G	Seminar Hall 9, Convention Center	Composite Interfaces And Structural Diagnostics Chair: Dr. B. Radhika	Prof. D. Roy Mahapatra Keynote Prof. Padmanabhan Krishnan Invited

TS1A · Auditorium 2, Convention Center — 14:00-16:10 IST

Nonlocal Elasticity And Length-Scale Effects

Session Chair: Dr. Archana Arbind

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. Noël Challamel**, University of South Brittany, France (Online) *Branching between integral (strain-driven or peridynamics), micromorphic and gradient continuum damage mechanics approaches*
14:30-14:55	Invited Lecture	**Dr. Senthilkumar Vaiyapuri**, CSIR-National Institute of Data Science and AI, India *New insights in Toupin-Mindlin nonlocal/microstructure strain-gradient elasticity*
		Contributed Papers
14:55-15:10	Paper ID 15	**Gaurab Kumar Khanra, Animesh Pandey**, JNCASR Bengaluru, India *A general nonlocal beam finite element for static two-point boundary value problems of nanobeams*
15:10-15:25	Paper ID 58	**Malapeta Hemasundara Rao, Shubham Desai, Sai Sidhardha**, IIT Hyderabad, India *Force-at-a-distance effects reduce stress concentration around holes: A fractional-order nonlocal elasticity study*
15:25-15:40	Paper ID 61	**Siva Poornan Vasudevan, Phanisri Pradeep Pratapa**, IIT Madras, India *Higher-gradient homogenization of hybrid morph origami metamaterial: Stretching and bending Poisson's ratios*

Time	Type	Speaker And Title
15:40-15:55	Paper ID 62	**Kanishka Bhattacharya, Amar Prakash, Venkatesan J, Ramesh Kumar V, N Anandavalli**, CSIR-SERC Chennai, India *A modified peridynamics formulation with the horizon as a localisation limiter*
15:55-16:10	Paper ID 271	**Neelima Bhengra, Vivek Kumar Gupta**, Visvesvaraya National Institute of Technology, Nagpur, India *Investigation of mode-I crack in a micropolar orthotropic medium using nonlocal theory*

TS1B · Conference Room 2, Convention Center 14:00-16:10 IST

Experimental Characterization Of Material Degradation

Session Chair: Prof. Manoj Pandey

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. Raghu Prakash**, IIT Madras, India *Use of small specimen test technique to assess the mechanical behavior of materials - correlation of results with standard specimen test data*
14:30-14:55	Invited Lecture	**Dr. Anshul Faye**, IIT Bhilai, India *Title to be announced*
Contributed Papers		
14:55-15:10	Paper ID 173	**Navish Jain, Piyush Gaur, Hemant Chouhan**, UPES Dehradun & Ahmedabad University, India *Strain-rate-dependent constitutive modelling of UHMWPE under 9 mm ballistic impact: Comparison of damage and elastoplastic frameworks*
15:10-15:25	Paper ID 16	**S.K Pandey, M.K Samal, S.D Sajish**, HBNI, BARC & IGCAR, India *Numerical investigation of ductile damage propagation in pressure vessel steel using Johnson-Cook model and comparison with experiment*
15:25-15:40	Paper ID 117	**Ayitha Sreenivasulu, Mallikarjuna Reddy D, Siddalingappa Venkatappagari, Rajasekhara Reddy Mutra**, VIT Vellore, India *Investigation of tensile behaviour, damage and fracture mechanisms of LPBF-processed IN718 under different post-processing conditions*
15:40-15:55	Paper ID 243	**Rishabh, Rohit, Anil Singh, Paras Kumar, Qasim Murtaza**, Delhi Technological University, Delhi, India *Experimental screening of molybdenum-based additives in lithium-complex grease for railway bearing applications*
15:55-16:10	Paper ID 19	**Pankaj K. Sharma, M. K. Samal, Ather Syed**, HBNI & BARC Mumbai, India *Influence of molten-glass-induced surface defects on localized deformation and damage evolution in alloy 690*

TS1C · Conference Room 3, Convention Center 14:00-16:10 IST

High-Rate Testing And Predictive Impact Mechanics

Session Chair: Dr. Abir Bhattacharyya

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. R. Velmurugan**, IIT Madras, India *High strain rate studies of metallic and non metallic materials- experimentation and simulation*
14:30-14:55	Invited Lecture	**Dr. Pattabhi Ramaiah Budarapu**, IIT Bhubaneswar, India *From high-fidelity impact simulation to AI-enabled predictive mechanics*
		Contributed Papers
14:55-15:10	Paper ID 245	**Jagan K, Lokavarapu Bhaskara Rao**, Vellore Institute of Technology, Chennai, India *A comparative numerical computation between two spaced target systems with different material strength sequencing against high velocity impact of a spherical projectile*
15:10-15:25	Paper ID 269	**Shrimanti Gawande, Vatsalya Budhraja, Gaurav Tiwari**, Ramdeobaba University, Nagpur & VNIT Nagpur, India *Predictive modeling of residual velocity in hybrid alumina-aluminum armor using finite element analysis and machine learning*
15:25-15:40	Paper ID 194	**Mahendralal Behera, Pattabhi Ramaiah Budarapu**, IIT Bhubaneswar, India *Generative deep learning for impact simulation: Parameter-to-image synthesis using cGAN*
15:40-15:55	Paper ID 272	**Phani Kutani, Ravi Mudragada, Jailsingh Bassi, Sindhuja Kashana**, Mahindra University, Anurag University & GIET Hyderabad, India *Data-driven prediction of impact resistance of UHPFRC slabs using machine learning techniques*
15:55-16:10	Paper ID 270	**Melekkalam Aswathi, Ravi Mudragada, Sri Kalyana Rama Jyosyula**, Mahindra University, Hyderabad, India *Drop-weight impact response of shear span-dependent UHPFRC beams*

TS1D · Conference Room 4, Convention Center 14:00-16:10 IST

Cracking And Load Transfer In Concrete And Masonry

Session Chair: Dr. Keerthana Kirupakaran

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. G. Appa Rao**, IIT Madras, India *Influence of tension softening of quasi-brittle material on global behaviour of RC structures*
14:30-14:55	Invited Lecture	**Dr. Nitin Kumar**, IIT Patna, India *Development of an OpenSees framework for detailed micro-modeling of masonry*
		Contributed Papers
14:55-15:10	Paper ID 139	**Vidya Malgonda Patil, Mahesh M. Awati, Abhijeet Chandrakant Lande**, ADCET Ashta & TCE Gadag, India *Evaluation of cyclic and monotonic performance of high strength concrete beam column joints*
15:10-15:25	Paper ID 237	**Prashanth M H, Pruthviraj S, Chandra Kishen J M**, NITK Surathkal & IISc Bangalore, India *Damage evolution and shear failure behaviour in reinforced concrete beam without shear reinforcement using size effect model through acoustic emission technique*

Time	Type	Speaker And Title
15:25-15:40	Paper ID 21	**Prashanth VP, Karthik S, Amirtham Rajagopal**, JSSSTU, DSCE & IIT Hyderabad, India *Bi-material interfaces fracture studies and failure predication of conventional and recycled aggregate concrete composite system systems using size effect analysis and digital image correlation*
15:40-15:55	Paper ID 138	**Harmin B. Budheliya, Sandip Mondal, Mahesh Gaikwad, Sanjaykumar M. Dave**, MSU Baroda & CSIR-CRRI New Delhi, India *Flexural stress response of rigid pavement slabs under varying concrete elastic modulus*
15:55-16:10	Paper ID 262	**Hemam Amarjit Singh, Rimen Jamatia**, Indian Institute of Technology Jammu, India *Modified Hsieh-Ting-Chen (HTC) equivalent strain based localizing gradient damage model for concrete fracture simulation*

TS1E · Conference Room 5, Convention Center 14:00-16:10 IST

Damage In Printed Composites And Architected Solids

Session Chair: Dr. Basant Kumar

Time	Type	Speaker And Title
14:00-14:25	Invited Lecture	**Dr. Sanhita Das**, IIT Jodhpur, India *Non-local models for damage, intrinsic and extrinsic self-healing in amorphous materials*
14:30-14:55	Invited Lecture	**Dr. Madhukar Somireddy**, University of Louisville, USA *Challenges in damage modeling of 3D printed composites*
Contributed Papers		
14:55-15:10	Paper ID 183	**A Chinnu, R Ramakrishnan, Shrutika Mane**, Vellore Institute of Technology, India *Experimental and numerical investigation of strain localization in 4D printed lattice structure for recoverable energy absorption*
15:10-15:25	Paper ID 136	**Sarvesh Joshi, S. Mohammad Mousavi, Jingye Tan, Craig M. Hamel, Stavros Gaitanaros, Prashant K. Purohit, Ryan Alberdi, Nikolaos Bouklas**, Cornell, Sandia Labs, USC, Penn & DTU, USA & Denmark *Influence of heterogeneity in architected metamaterials: A gradient-enhanced continuum approach*
15:25-15:40	Paper ID 238	**Manoj S, Sangamesh C. Godi, Shivashankar R. Srivatsa, K Dhanush, Anil Chandra A.R.**, BMS College of Engineering, Bengaluru & TUV Rheinland, India *Effect of conditioning temperature and raster orientation on the flexural behavior of 3D printed short carbon fibre-reinforced nylon (Onyx)*
15:40-15:55	Paper ID 239	**K Dhanush, Shivashankar R. Srivatsa, Sangamesh C. Godi, Manoj S, Anil Chandra A.R.**, BMS College of Engineering, Bengaluru & TUV Rheinland, India *Low-temperature tensile performance of 3D printed Onyx composite with uniform and sequential layer orientations*
15:55-16:10	Paper ID 232	**Upanshu Jha, Vishesh Prasanna Sarapure, Shubhrodeep Sen, Benedict Thomas**, VIT Vellore, India *Design and numerical investigation of amethyst starling feather-inspired lattice structures for enhanced energy absorption*

TS1F · Seminar Hall 8, Convention Center 14:00-16:10 IST

Blast Response Of Concrete Structures

Session Chair: Dr. Saurabh Shiradhonkar

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. Vasant Matsagar**, IIT Delhi, India *Title to be announced*
14:30-14:55	Invited Lecture	**Dr. T. Phanirama Tezeswi**, NIT Warangal, India *Title to be announced*
		Contributed Papers
14:55-15:10	Paper ID 115	**Md Imran Mohnavi, G. Appa Rao**, IIT Madras, India *Reinforced concrete columns under close-proximity simultaneous blast along their length: A numerical assessment*
15:10-15:25	Paper ID 118	**Gulshan Kumar Yadav, Mukund Lahoti, Anant Mishra, Ravi Kant Mittal**, BITS Pilani & Navrachana University, India *Comparative assessment of reinforced concrete, hollow steel and concrete filled steel tube piles under blast load*
15:25-15:40	Paper ID 292	*Blast-induced strain response of UHPC slabs*
15:40-15:55	Paper ID 205	**Kangkana Kaushik Baruah, Hrishikesh Sharma**, IIT Guwahati, India *Numerical modelling of sequential warhead penetration and embedded explosion damage in reinforced concrete protective structures*
15:55-16:10	Paper ID 286	**Prudhvi Rani Anneboina, Dharun Krishna, Rajagopal Amirtham**, Indian Institute of Technology Hyderabad, India *Theoretical and numerical analysis of ultra-high performance concrete beams under blast loading*

TS1G · Seminar Hall 9, Convention Center 14:00-16:10 IST

Composite Interfaces And Structural Diagnostics

Session Chair: Dr. B. Radhika

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. D. Roy Mahapatra**, IISc Bengaluru, India *Title to be announced*
14:30-14:55	Invited Lecture	**Prof. Padmanabhan Krishnan**, VIT Vellore, India *A failure theory for the local interfacial failures in fibre-polymer composites after hygrothermal degradation and the implications at the laminate level failures*
		Contributed Papers
14:55-15:10	Paper ID 281	**Venugopal M M**, Nitte Meenakshi Institute of Technology (NMIT), Bengaluru, India *Coupon-aware machine learning benchmark for Lamb-wave-based composite damage diagnosis*
15:10-15:25	Paper ID 133	**Sarath Chandra Dangeti, Sivaramakrishna Valiveti, M.S. Srinivasa Rao, CH. Rajeswari**, VNRVJIET Hyderabad, India *Development and characterization of nano-reinforced GFRP and metal matrix composites for lightweight automotive body applications*
15:25-15:40	Paper ID 157	**Goutham Boda, PM Mohite**, IIT Kanpur, India *Fabrication and experimental investigation of carbon-veil integrated GFRP for radar absorption*

Time	Type	Speaker And Title
15:40-15:55	Paper ID 154	**Siddalingappa Venkatappagari, Rajasekhara Reddy Mutra, Ayitha Sreenivasulu, D. Mallikarjuna Reddy**, VIT Vellore, India *Experimental investigation of load-carrying capacity in CFRP flat-joggle-flat adhesive joints: Comparison with single-lap joints and different bonding techniques*
15:55-16:10	Paper ID 244	**Sanjeev Kumar Sarswat, Azhar Jamil, Kunwar Masoom**, Aligarh Muslim University, Aligarh, India *Assessment of fracture data-reduction methods for mode I, mode II and mixed-mode loading of CFRP-Nomex® honeycomb sandwich structures*

TS2 · Technical Session 2 · Day 1, Monday, 14th December

16:30-18:00 IST

Overview

Code	Venue	Session Theme	Lead Lectures
TS2A	Auditorium 2, Convention Center	Computational Methods For Nonlocal Fracture Chair: Dr. Raghu Piska	Prof. Timon Rabczuk Keynote
TS2B	Conference Room 2, Convention Center	Fatigue Life And Crack Growth Chair: Prof. Manoj Pandey	Prof. I. V. Singh Keynote
TS2C	Conference Room 3, Convention Center	Lightweight Structures For Aerospace Loading Chair: Prof. P. J. Guruprasad	Prof. Srikanth Vedantam Keynote
TS2D	Conference Room 4, Convention Center	Cellular Materials Under Impact And Blast Chair: Prof. Vasant Matsagar	Prof. Raj Das Keynote
TS2E	Conference Room 5, Convention Center	Finite Deformation And Fracture Of Polymers Chair: Dr. Sanhita Das	Prof. Sumit Basu Keynote
TS2F	Seminar Hall 8, Convention Center	Sandwich Panels And Composite Plate Mechanics Chair: Dr. Archana Arbind	Prof. S. Pradyumna Keynote
TS2G	Seminar Hall 9, Convention Center	Data-Driven Material And Constitutive Models Chair: Dr. Pattabhi Ramaiah Budarapu	Prof. Hüsnü Dal Keynote

TS2A · Auditorium 2, Convention Center — 16:30-18:00 IST

Computational Methods For Nonlocal Fracture

Session Chair: Dr. Raghu Piska

Time	Type	Speaker And Title
16:30-17:00	Keynote Lecture	**Prof. Timon Rabczuk**, Bauhaus University Weimar, Germany (Online) *Nonlocal operator based computational mechanics: From variational fracture to constitutive uncertainty*
		Contributed Papers
17:00-17:15	Paper ID 79	**Kalyan N S S P, Sathvik Sanapala, Ramesh Kannan Kandasami, Alagappan Ponnalagu**, IIT Madras, India *GPU-accelerated peridynamics coupled with the discrete element method: Implementation and applications*
17:15-17:30	Paper ID 81	**Sarthak K. Vora, Srikanth Vedantam**, IIT Madras, India *Reliability analysis of a brittle fracture: A probabilistic constitutive-informed particle dynamics approach*
17:30-17:45	Paper ID 56	**Ved Prakash, Upadhyayula MMA Sai Gopal, Debasish Roy**, IIT Roorkee & IISc Bengaluru, India *Nonlocal interaction of damage through covariance of random bond-breaking in quasi-brittle materials*

Time	Type	Speaker And Title
17:45-18:00	Paper ID 53	**Upadhyayula M M A Sai Gopal, Ved Prakash, Ananth Ramaswamy, Debasish Roy**, IISc Bengaluru & IIT Roorkee, India *Blast-induced fracture of quasi-brittle materials using a probabilistic continuum damage model*

TS2B · Conference Room 2, Convention Center 16:30-18:00 IST

Fatigue Life And Crack Growth

Session Chair: Prof. Manoj Pandey

Time	Type	Speaker And Title
16:30-17:00	Keynote Lecture	**Prof. I. V. Singh**, IIT Roorkee, India *Title to be announced*
	Contributed Papers	
17:00-17:15	Paper ID 218	**Murali Akkula, Velu M**, VIT Vellore, India *Experimental studies of fracture and fatigue crack growth rates of electron beam welded dissimilar titanium joints*
17:15-17:30	Paper ID 236	**Naveen Kumar, Gaurav Singh**, IIT Delhi, India *Study on crack propagation in rotating machine elements under mixed-mode fatigue loading*
17:30-17:45	Paper ID 166	**Anil kumar Manapuram, Aravind Rajan, Ratna kumar Annabattula**, IIT Madras & VSSC ISRO, India *Uncertainty quantification of fatigue life in functionally graded materials*
17:45-18:00	Paper ID 127	**K. Rakesh, Ch. Siddeshwar, M. L. Pavan Kishore**, ICFAI Foundation for Higher Education, Hyderabad, India *Material-dependent fatigue and structural reliability of an automotive steering knuckle: A finite element study*

TS2C · Conference Room 3, Convention Center 16:30-18:00 IST

Lightweight Structures For Aerospace Loading

Session Chair: Prof. P. J. Guruprasad

Time	Type	Speaker And Title
16:30-17:00	Keynote Lecture	**Prof. Srikanth Vedantam**, IIT Madras, India *Space science through ISRO & structural dynamics of launch vehicles*
	Contributed Papers	
17:00-17:15	Paper ID 159	**Sagar VC, Ankit Patel, PM Mohite**, IIT Kanpur, India *Experimental and finite element analysis of bending-induced wrinkling and load-deflection behaviour in thin-walled inflatable cylindrical booms*
17:15-17:30	Paper ID 201	**Namita Nanda, Santosh Kapuria**, IIT Delhi, India *Guided wave propagation analysis in composite curved beams with stepped cross-section using a time domain spectral finite element method*
17:30-17:45	Paper ID 153	**Satyajeet Dash, B N Rao**, IIT Madras, India *Localized deformation associated with dynamic buckling of variable stiffness laminated composite plates*
17:45-18:00	Paper ID 177	**Meera G Nair, Arbind Kumar Singh**, IIT Guwahati, India *Progressive failure analysis and damage evaluation of GLARE laminates using peridynamics*

TS2D · Conference Room 4, Convention Center 16:30-18:00 IST

Cellular Materials Under Impact And Blast

Session Chair: Prof. Vasant Matsagar

Time	Type	Speaker And Title
16:30-17:00	Keynote Lecture	**Prof. Raj Das**, RMIT University, Australia *Deformation behaviour of hybrid FCC-TPMS lattices under high strain rate loading*
	Contributed Papers	
17:00-17:15	Paper ID 59	**Kaviarasu K., Alagappan P., Prosenjit Das**, IISc Bengaluru & IIT Madras, India *Numerical investigation of blast-wave infiltration, strain localization and fracture in open-cell ceramic foam*
17:15-17:30	Paper ID 279	**Amit Prakash, Shankar Krishnapillai, R. Gnanamoorthy**, Indian Institute of Technology Madras, India *Experimental study on flexural strength and energy absorption of spinodoid based cellular beams*
17:30-17:45	Paper ID 122	**Abhishek David, Arun Kumar Singh, Vinod Kumar, Indrasen Singh**, IIT Indore, India *Load-dependent transition in the blast response of in-plane and out-of-plane honeycomb sandwich structures*
17:45-18:00	Paper ID 263	**Mohnish Rajpoot, Suman Chandel, Suman Kumar**, CSIR-CBRI Roorkee & AcSIR Ghaziabad, India *Localized deformation of double arrowhead auxetic panel under blast loading: A numerical investigation*

TS2E · Conference Room 5, Convention Center 16:30-18:00 IST

Finite Deformation And Fracture Of Polymers

Session Chair: Dr. Sanhita Das

Time	Type	Speaker And Title
16:30-17:00	Keynote Lecture	**Prof. Sumit Basu**, IIT Kanpur, India *Title to be announced*
	Contributed Papers	
17:00-17:15	Paper ID 10	**Hari Kishan Adusumilli, Turaka Srinivasa Rao, Ashok Kumar Nallathambi**, NIT Tiruchirappalli, India *Elastic-viscoelastic-viscoplastic bond-associated NOSB-PD modelling of fracture initiation in notched polycarbonate specimens*
17:15-17:30	Paper ID 200	**Hari Kishan Adusumilli, Turaka Srinivasa Rao, Ashok Kumar Nallathambi**, NIT Tiruchirappalli, India *Effect of impactor geometry on the dynamic fracture of PMMA: A rate-dependent viscoelastic peridynamic analysis*
17:30-17:45	Paper ID 246	**Shubham Prajapati, Harini Subramanian**, Indian Institute of Technology Gandhinagar, India *A fully coupled constitutive model for polymers under hygrothermal conditions*
17:45-18:00	Paper ID 266	**Devashish Das, Sanjeev Kumar, Deep Chatterjee, Rashmi Ranjan Das**, IIT (ISM) Dhanbad, India *Experimental and numerical investigation of 3D surface flaw mechanics in PMMA and rock-like materials*

TS2F · Seminar Hall 8, Convention Center 16:30-18:00 IST

Sandwich Panels And Composite Plate Mechanics

Session Chair: Dr. Archana Arbind

Time	Type	Speaker And Title
16:30-17:00	Keynote Lecture	**Prof. S. Pradyumna**, IIT Delhi, India *Fracture analysis of multi-directionally functionally graded materials*
	Contributed Papers	
17:00-17:15	Paper ID 144	**Ravi Kant Kumar, Nomendra Tomar, S. Pradyumna**, IIT Delhi, India *Dynamics analyses of functionally graded plates with auxetic sandwich core using experimentally characterized properties*
17:15-17:30	Paper ID 64	**Pavan Kishore M.L., Manmadha Chary A., Avinash M.**, ICFAI Tech Hyderabad, India *Fibre orientation and stacking symmetry effects on the free vibration of simply supported plates*
17:30-17:45	Paper ID 180	**Aditya Sinha, Pranavi Shrimali, Suresh Kumar Reddy Narala**, BITS Pilani - Hyderabad Campus, India *Development of a lightweight sandwich structure incorporating Kevlar and gyroid TPMS for high strain rate impact response*
17:45-18:00	Paper ID 250	**Deep Chatterjee, Krishna Kumar Verma, Deepak kumar Sah, Rashmi Ranjan Das**, IIT (ISM) Dhanbad, India *Non-local strain progressive damage-based computational failure analysis of a notched FRP composite plate using 3D orthotropic solid/shell finite elements*

TS2G · Seminar Hall 9, Convention Center 16:30-18:00 IST

Data-Driven Material And Constitutive Models

Session Chair: Dr. Pattabhi Ramaiah Budarapu

Time	Type	Speaker And Title
16:30-17:00	Keynote Lecture	**Prof. Hüsnü Dal**, Middle East Technical University, Turkey *Towards material digital twins: Data-driven constitutive mechanics of rubberlike materials*
		Contributed Papers
17:00-17:15	Paper ID 284	**Janani Anbu Anandhan, Shankar Krishnapillai, Velmurugan Ramachandran**, Indian Institute of Technology Madras, India *Machine learning for constitutive tensor prediction of lattice structures*
17:15-17:30	Paper ID 50	**Bhukya Venkatesh, Sunny Sharma, Phanindra Paravastu**, IIT Madras, India *Physics-informed transfer learning for rapid adaptation across elasticity problems with geometric and loading variations*
17:30-17:45	Paper ID 242	**Samiksha Shibin, Anannya Paritosh Sule, Hirdaya Pradeep, K. V. Mohankumar**, Vellore Institute of Technology, Vellore, India *An invariant-space framework for the generation and qualification of multiaxial deformation states for constitutive modeling*
17:45-18:00	Paper ID 255	**Chandaluri Sri Manaswini, Koushik Vatsavai, Mudit Bhalla, Sharan Chandran**, Vellore Institute of Technology, Vellore, India *Generalizable physics-constrained machine learning for mechanical property prediction in natural-fibre-reinforced polymer composites*

Day 2

Tuesday, 15th December

Day Programme

Time	Code	Programme	Lecture Title
08:00-09:00		*Registration*	
Session Chair: Prof. Paul Steinmann (PL5 and PL6)			
09:30-10:15	PL5	**Prof. Dayanand Reddy** University of Cape Town, South Africa	*Modelling plasticity at the microscale*
10:15-11:00	PL6	**Prof. Arun R. Srinivasa** Texas A&M University, USA	*Size effect in concrete fracture*
11:00-11:15		*Tea Break*	
Session Chair: Prof. Dayanand Reddy (PL7 and PL8)			
11:15-12:00	PL7	**Prof. K. Ravi Chandar** The University of Texas at Austin, USA	*Nucleation and growth of cracks in elastomers*
12:00-12:45	PL8	**Prof. Pedro Camanho** Universidade do Porto, Portugal	*Inelastic deformation and fracture of composite material across the scales*
12:45-13:00		*Sponsor Presentation*	
13:00-14:00		*Lunch*	
14:00-16:10	TS3	**Technical Session 3**	TS3A to TS3G
16:10-16:30		*Tea Break*	
19:00-22:00		*Gala Dinner*	

TS3 · Technical Session 3 · Day 2, Tuesday, 15th December

14:00-16:10 IST

Overview

Code	Venue	Session Theme	Lead Lectures
TS3A	Auditorium 2, Convention Center	Nonlinear Response Of Concrete And Masonry Structures Chair: Prof. G. Appa Rao	Prof. S. Suriya Prakash Keynote Dr. Saurabh Shiradhonkar Invited
TS3B	Conference Room 2, Convention Center	Higher-Order Models Of Beams, Plates And Membranes Chair: Prof. Sumit Basu	Dr. Prakhar Gupta Invited Dr. Sushma Santapuri Invited
TS3C	Conference Room 3, Convention Center	Crystal Plasticity And Grain-Scale Localization Chair: Prof. I. V. Singh	Dr. Chandra Prakash Invited Prof. P. J. Guruprasad Invited
TS3D	Conference Room 4, Convention Center	Coupled Simulation And Multiscale Mechanics Chair: Dr. Basant Kumar	Dr. Sai Sidhardh Invited Prof. Manoj Pandey Invited
TS3E	Conference Room 5, Convention Center	Rupture And Localization In Rocks And Granular Media Chair: Dr. Mahendra Kumar Pal	Prof. Maddegedara Lalith Lakshman Wijerathne Keynote
TS3F	Seminar Hall 8, Convention Center	Phase-Field Models Of Thermal And Interfacial Damage Chair: Dr. Raghu Piska	Prof. Ravindra Duddu Keynote Dr. Mohammad Masiur Rahaman Invited
TS3G	Seminar Hall 9, Convention Center	Prediction And Optimization Of Material Response Chair: Dr. Abir Bhattacharyya	Prof. Rajib Chowdhury Invited Dr. Jayavenkateswaran Invited

TS3A · Auditorium 2, Convention Center — 14:00-16:10 IST

Nonlinear Response Of Concrete And Masonry Structures

Session Chair: Prof. G. Appa Rao

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. S. Suriya Prakash**, IIT Hyderabad, India *Confinement-dependent plasticity constitutive model for FRP confined concrete: Capturing dilation-compaction transitions and non-uniform confinement effects*
14:30-14:55	Invited Lecture	**Dr. Saurabh Shiradhonkar**, IIT Roorkee, India *Challenges in experimental testing and micromodelling of RC joints with post-installed reinforcement bars*
Contributed Papers		
14:55-15:10	Paper ID 28	**Kilaru Divya, Amirtham Rajagopal**, IIT Hyderabad & PVPSIT, India *A hydrostatic damage-based microplane damage-plasticity model for localized failure in porous concrete*
15:10-15:25	Paper ID 234	**Likitha Manepalli, Yadamma Gounikadi, Sri Kalyana Rama Jyosula, B. Murali Krishna**, VNR VJIET, Hyderabad, India *Static load performance of 3D-printed concrete walls: Finite element assessment using concrete damaged plasticity and cohesive interlayer interfaces*

Time	Type	Speaker And Title
15:25-15:40	Paper ID 248	**Manoj kumar Sambram, Banti A Gedam**, Sardar Vallabhbhai National Institute of Technology, Surat, India *Construction stage analysis of high-rise buildings*
15:40-15:55	Paper ID 46	**Sushma Dasam, Ramesh Kothakonda, Umesh Basappa**, NIT Warangal, India *Significance of pressure dependent plasticity through comparative study of pressure independent and dependent models using UMAT in Abaqus*
15:55-16:10	Paper ID 273	**Karthik Nekkanti, Sri Kalyana Rama Jyosyula, Ravi Mudragada**, Mahindra University, Hyderabad, India *A unified input-driven rate-dependent tensile constitutive model for UHPFRC*

TS3B · Conference Room 2, Convention Center 14:00-16:10 IST

Higher-Order Models Of Beams, Plates And Membranes

Session Chair: Prof. Sumit Basu

Time	Type	Speaker And Title
14:00-14:25	Invited Lecture	**Dr. Prakhar Gupta**, IIT Hyderabad, India *Effect of higher-order boundary conditions on strain-gradient nonlinear slender structures*
14:25-14:50	Invited Lecture	**Dr. Sushma Santapuri**, IIT Delhi, India *A gradient electromechanical theory for flexoelectric plates and soft membranes*
		Contributed Papers
14:50-15:05	Paper ID 134	**S L Akhil, I R Praveen Krishna**, IIST Thiruvananthapuram, India *Element-free Galerkin method for buckling analysis of stress-driven nonlocal nanobeams*
15:05-15:20	Paper ID 150	**Jaishree Chauhan, Manish More, Gaurav Tiwari, Tushar Saratkar**, VNIT Nagpur, India *What integral nonlocal averaging of uncoupled damage regularizes: A mesh study of ballistic plugging in Ti-6Al-4V*
15:20-15:35	Paper ID 42	**Kammari Vinodachari, Rajesh Kumar, Shuvendu Narayan Patel**, BITS Pilani, India *Dynamic instability and nonlinear response of nanoplates under non-uniform in-plane loading: A nonlocal strain gradient and surface elasticity model*
15:35-15:50	Paper ID 63	**Shankar N. Mahendru, Tanmay K. Bhandakkar**, IIT Bombay, India *Mode-II loaded periodic array of cracks in couple stress elasticity*
15:50-16:05	Paper ID 163	**Amiya Das, Mayank Shekhar, Subhayan De, Mohammad Masiur Rahaman**, IIT Bhubaneswar & Northern Arizona University, India & USA *Open-source Julia implementation of reaction-diffusion level-set topology optimization using couple-stress theory*

TS3C · Conference Room 3, Convention Center 14:00-16:10 IST

Crystal Plasticity And Grain-Scale Localization

Session Chair: Prof. I. V. Singh

Time	Type	Speaker And Title
14:00-14:25	Invited Lecture	**Dr. Chandra Prakash**, IIT Hyderabad, India *Competing intergranular and intragranular fracture in polycrystalline metals: A coupled crystal-plasticity and multi-phase-field framework*
14:25-14:50	Invited Lecture	**Prof. P. J. Guruprasad**, IIT Bombay, India *Dislocation mean free path and grain size effects in creep plasticity of polycrystalline metals*
Contributed Papers		
14:50-15:05	Paper ID 67	**G Ganga Raju, Chandrashekhar Machhindra Pilgar**, IIITDM Kancheepuram, India *Microstructure sensitive statistical disorder awared crystal plasticity model for the high entropy alloys: Application to CoCrFeNi*
15:05-15:20	Paper ID 39	**Newton, Anup Basak**, IIT Tirupati, India *Grain boundary network-induced martensitic phase transformations in polycrystalline materials at finite strains: A multiphase-field study*
15:20-15:35	Paper ID 23	**Sanjay Patil, Avinash Parashar**, IIT Roorkee, India *Atomistic study of the effects of vacancy defects on the shock response of zirconium crystal*
15:35-15:50	Paper ID 45	**Abhishek Nath Thakur, Anup Basak**, IIT Tirupati, India *Continuum theory of martensitic nucleation, kinetics and size effects in isotropic inhomogeneous elastic-plastic solids*
15:50-16:05	Paper ID 54	**Ajith Kumar, Srikanth Vedantam**, IIT Madras, India *Computational mesoscale model for cyclic plasticity*

TS3D · Conference Room 4, Convention Center 14:00-16:10 IST

Coupled Simulation And Multiscale Mechanics

Session Chair: Dr. Basant Kumar

Time	Type	Speaker And Title
14:00-14:25	Invited Lecture	**Dr. Sai Sidhardh**, IIT Hyderabad, India *Title to be announced*
14:25-14:50	Invited Lecture	**Prof. Manoj Pandey**, IIT Madras, India *Title to be announced*
Contributed Papers		
14:50-15:05	Paper ID 14	**Ravi Patel, Pradeep Kumar Jha**, IIT Roorkee, India *3D microstructure-based modelling of deformation and fracture behaviour in SiC/Al7075 metal-matrix composite*
15:05-15:20	Paper ID 20	**Valeriy Buryachenko**, Micromechanics & Composites LLC, USA *Unified nonlocal micromechanics of composites*
15:20-15:35	Paper ID 155	**Telanakula Venkata Naga Nikhitha, Mayank Shekhar, Mohammad Masiur Rahaman**, IIT Bhubaneswar, India *Open-source Julia implementation of scale-dependent homogenization for non-periodic composites*
15:35-15:50	Paper ID 52	**Balijireddy Gowtham, Srikanth Vedantam, Mahendaran Uchimali**, IIT Bhubaneswar & IIT Madras, India *A discrete particle framework for contact of deformable bodies*

Time	Type	Speaker And Title
15:50-16:05	Paper ID 231	**B Karthikeyan, Siva Poornan Vasudevan, Phanisri Pradeep Pratapa**, IIT Madras, India *Finite deformation homogenization of origami metamaterials as higher gradient continuum*

TS3E · Conference Room 5, Convention Center 14:00-16:10 IST

Rupture And Localization In Rocks And Granular Media

Session Chair: Dr. Mahendra Kumar Pal

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. Maddegedara Lalith Lakshman Wijerathne**, The University of Tokyo, Japan *Dynamic rupture simulations of complex fault systems: Verification, laboratory scale validation and applications*
		Contributed Papers
14:30-14:45	Paper ID 165	**Pinki Debnath, Ranjith Kunnath**, Mahindra University, Hyderabad, India *Effect of metasurface on slip rupture propagation in a layered elastic solid*
14:45-15:00	Paper ID 172	**Pushpendra Patel, Siddhi Kesharwani, Harsh Kumar Verma, Manoj Kumar Mishra, Purushottam Das**, CSIR-CIMFR Bilaspur & NIT Rourkela, India *Effects of perimeter-hole spacing and burden-to-spacing ratio on blast-induced rock mass damage around tunnel*
15:00-15:15	Paper ID 213	**Adil Nazir, Madhu Sudan Negi, Mousumi Mukherjee**, IIT Mandi, India *Influence of stress path on strain localization and fabric envelopes in dense sand*
15:15-15:30	Paper ID 156	**Cathryn Sebastian, N.S.S.P. Kalyan, Yutaka Fukumoto, Ramesh Kannan Kandasami**, IIT Madras & Nagaoka University of Technology, India & Japan *Development of a 2D hydro-mechanical coupled peridynamic solver for hydraulic fracturing*
15:30-15:45	Paper ID 17	**Deepak Kumar Pawar, Animesh Pandey**, JNCASR Bengaluru, India *Interaction of defects as a non-local effect in ordered granular media*

TS3F · Seminar Hall 8, Convention Center 14:00-16:10 IST

Phase-Field Models Of Thermal And Interfacial Damage

Session Chair: Dr. Raghu Piska

Time	Type	Speaker And Title
14:00-14:30	Keynote Lecture	**Prof. Ravindra Duddu**, Vanderbilt University, USA *Phase field modeling of fracture in glaciers and composite plates using FEniCS*
14:30-14:55	Invited Lecture	**Dr. Mohammad Masiur Rahaman**, IIT Bhubaneswar, India *Title to be announced*
		Contributed Papers
14:55-15:10	Paper ID 60	**Soumyajit Ghosh, Svetha Venkatachari, Mohammad Masiur Rahaman**, IIT Delhi & IIT Bhubaneswar, India *Micropolar phase-field modeling of laminated glass subjected to fire*
15:10-15:25	Paper ID 44	**Lalit Kushwaha, Ushasi Roy**, IIT Kanpur, India *A coupled phase-field finite element model to simulate frictional heating in energetic materials*

Time	Type	Speaker And Title
15:25-15:40	Paper ID 41	**Sunny Sharma, Srikanth Vedantam, Balkrishna C. Rao**, IIT Madras, India *Multiscale thermal-phase-field modelling of grain morphology evolution during laser powder bed fusion of Inconel 718*
15:40-15:55	Paper ID 168	**Krishna Lok S.**, CSIR-NAL Bengaluru, India *Nonlocal and phase-field modelling of buckling-induced damage and fatigue interaction in stiffened composite structures*
15:55-16:10	Paper ID 229	**Abhishek Kumar, S. Parivallal, Sundararajan Natarajan**, CSIR-SERC Chennai, AcSIR & IIT Madras, India *Hydrogen-induced strength degradation and fatigue crack initiation life in a microplasticity-coupled cohesive phase-field model*

TS3G · Seminar Hall 9, Convention Center 14:00-16:10 IST

Prediction And Optimization Of Material Response

Session Chair: Dr. Abir Bhattacharyya

Time	Type	Speaker And Title
14:00-14:25	Invited Lecture	**Prof. Rajib Chowdhury**, IIT Roorkee, India *Title to be announced*
14:25-14:55	Invited Lecture	**Dr. Jayavenkateswaran**, Saeyon Innovations LLP, India *Title to be announced*
		Contributed Papers
14:55-15:10	Paper ID 169	**Saneesh A S, Bharanidaran R**, VIT Vellore, India *A deep energy method (DEM) and adaptive momentum projected-gradient (AMPG) optimizer for the topology design of multi-functional compliant mechanisms*
15:10-15:25	Paper ID 143	**Mayank Shekhar, Ayyappan Unnikrishna Pillai, Subhayan De, Mohammad Masiur Rahaman**, IIT Bhubaneswar & Northern Arizona University, India & USA *SIMP-based topology optimization of micropolar solids under thermo-mechanical loading*
15:25-15:40	Paper ID 49	**Mansi Gupta, Sonali Bhowmik**, NIT Rourkela, India *Atomistic investigation of interfacial shear fracture in concrete through ReaxFF and deep learning molecular dynamics*
15:40-15:55	Paper ID 207	**Siva Surya Mulugundam, Sriram Nuligonda**, GITAM University, Hyderabad, India *Machine learning-based multi-property prediction of aluminium metal matrix composites using random forest and XGBoost*
15:55-16:10	Paper ID 208	**Ashwani Kushwaha, Amit Singh**, IIT Bombay, India *First-principles versus machine-learned toughness anisotropy in biphenylene: Implications for phase-field fracture models*

Day 3

Wednesday, 16th December

Day Programme

Time	Code	Programme	Lecture Title
08:30-09:00		*Registration*	
Session Chair: Prof. Srikanth Vedantam (PL9 and PL10)			
09:30-10:15	PL9	**Prof. Ramesh Talreja** Texas A&M University, USA	*Microstructural considerations in manufacturing sensitive design of composite materials*
10:15-11:00	PL10	**Prof. K. V. L. Subramaniam** IIT Hyderabad, India	*Propagation of a compaction front in compressible cellular materials: Implications for blast response*
11:00-11:15		*Tea Break*	
Session Chair: Prof. K. V. L. Subramaniam (PL11 and PL12)			
11:15-12:00	PL11	**Prof. Ramulu Mamidala** University of Washington, USA	*Title to be announced*
12:00-12:45	PL12	**Prof. Debasish Roy** IISc Bengaluru, India	*From bond survival to fracture: A probabilistic and thermodynamic theory of quasi-brittle damage*
12:45-14:30		*Lunch*	
14:30-16:30	TS4	**Technical Session 4**	TS4A to TS4G
16:30-17:00		*Tea Break*	
17:00-18:30	TS5	**Technical Session 5**	TS5A to TS5G

TS4 · Technical Session 4 · Day 3, Wednesday, 16th December

14:30-16:30 IST

Overview

Code	Venue	Session Theme	Lead Lectures
TS4A	Auditorium 2, Convention Center	Nonlocal Damage And Material Interfaces Chair: Dr. Chandra Prakash	Prof. Marco Paggi Keynote
TS4B	Conference Room 2, Convention Center	Fracture Of Soft Solids And Bonded Interfaces Chair: Prof. Sumit Basu	Prof. Mokarram Hossain Keynote
TS4C	Conference Room 3, Convention Center	Smart Structures And Vibration Control Chair: Dr. B. Radhika	Dr. Manoj Kumar Buragohain Keynote
TS4D	Conference Room 4, Convention Center	Propellants And Impact Protection In Aerospace Laminates Chair: Dr. Pattabhi Ramaiah Budarapu	Dr. Salil Kanj Jalan Keynote
TS4E	Conference Room 5, Convention Center	Concrete Mix Design And Structural Performance Chair: Dr. Keerthana Kirupakaran	Dr. Mahendra Kumar Pal Invited
TS4F	Seminar Hall 8, Convention Center	Thermomechanics Of Layered And Graded Materials Chair: Prof. P. J. Guruprasad	Dr. Basant Kumar Invited
TS4G	Seminar Hall 9, Convention Center	Seismic And Extreme Loads On Civil Structures Chair: Prof. Vasant Matsagar	Dr. Takuzo Yamashita Keynote

TS4A · Auditorium 2, Convention Center
14:30-16:30 IST

Nonlocal Damage And Material Interfaces

Session Chair: Dr. Chandra Prakash

Time	Type	Speaker And Title
14:30-15:00	Keynote Lecture	**Prof. Marco Paggi**, IMT Lucca, Italy (Online) *Nonlocal damage simulation in architected materials*
	Contributed Papers	
15:00-15:15	Paper ID 51	**Sai Kumar Bai, Ramesh KothaKonda, Umesh Basappa**, NIT Warangal, India *Understanding of nonlocal damage plasticity in concrete failure*
15:15-15:30	Paper ID 152	**Abhirohan Kashyap, Sushobhan Sen**, IIT Gandhinagar, India *Non-local damage evolution in concrete-dowel bar pavement systems using peridynamics*
15:30-15:45	Paper ID 57	**Arthesh Basak**, GITAM Visakhapatnam, India *Shear-induced nonlocal damage modeling of anisotropic composites using right-stretch structural tensors*
15:45-16:00	Paper ID 226	**Rakesh Kumar, S. Mrunmayee, A. Rajagopal, Basant Kumar, J.K. Mishra, M. Nithyadharan**, IIT Hyderabad, ASL (DRDO) Hyderabad & IIT Tirupati, India *Investigation of cohesive zone modelling parameters for two dimensional rectangular CZM elements for modelling of defects in composites*

TS4B · Conference Room 2, Convention Center 14:30-16:30 IST

Fracture Of Soft Solids And Bonded Interfaces

Session Chair: Prof. Sumit Basu

Time	Type	Speaker And Title
14:30-15:00	Keynote Lecture	**Prof. Mokarram Hossain**, Swansea University, UK (Online) *Fatigue-fracture characterisation for soft materials: Combining numerical simulations with experimental study*
		Contributed Papers
15:00-15:15	Paper ID 140	**Radhika Chavan, Nitin Kamble, Sandeep Sarnobat, Chetan Kuthe**, D Y Patil Pune & MIT Sambhajinagar, India *Modelling for estimation of elastic constants of skeletal muscle tissue*
15:15-15:30	Paper ID 268	**Ruhul Amin, Krishna Kumar Verma, Deep Chatterjee, Rashmi Ranjan Das**, IIT (ISM) Dhanbad, India *Numerical investigation of resin-rock interfacial debonding in resin-grouted rock bolts under axial pull-out loading*
15:30-15:45	Paper ID 161	**Kanishka Bhattacharya, Amar Prakash, Venkatesan J, Ramesh Kumar V, N Anandavalli**, CSIR-SERC Chennai, India *Hyperelastic-plastic peridynamics for large deformation, strain localisation and fracture*
15:45-16:00	Paper ID 249	**Krishna Kumar Verma, Deep Chatterjee, Rashmi Ranjan Das**, IIT (ISM) Dhanbad, India *Computational fracture mechanics of multiple voids in epoxy-bonded DCB joint: Crack interaction and critical spacing for coalescence*
16:00-16:15	Paper ID 182	**Vidhwath K. Rameshaiah, Shivashankar R. Srivatsa, Kaushik S.**, BMSCE & Volvo, India *Investigation on influence of loading rate on bending behaviour of flexible pneumatic hoses*

TS4C · Conference Room 3, Convention Center 14:30-16:30 IST

Smart Structures And Vibration Control

Session Chair: Dr. B. Radhika

Time	Type	Speaker And Title
14:30-15:00	Keynote Lecture	**Dr. Manoj Kumar Buragohain**, DRDO, Advanced Systems Laboratory (ASL), Hyderabad, India *Title to be announced*
		Contributed Papers
15:00-15:15	Paper ID 210	**Vinayak Chavan, Srinivasa Prasad K S**, PES University, Bengaluru, India *Active vibration control of a functionally graded material plate using artificial neural network based control*
15:15-15:30	Paper ID 265	**Danish Bashir, P. M. Anilkumar, A. Haldar, B. N. Rao**, IIT Madras, IIT Delhi & IIT (BHU) Varanasi, India *Tailoring static and dynamic asymmetry in cantilever bistable piezoelectric energy harvesters*
15:30-15:45	Paper ID 114	**Khogesh Kumar Rathore, Saurabh Biswas**, Amity University Hyderabad & IIT Jammu, India *Stability analysis of the delayed tuned mass asymmetric hysteretically damped system*
15:45-16:00	Paper ID 252	**Sourov Roy, M. R. Sunny**, Indian Institute of Technology Kharagpur, India *Memory-dependent bandgap formation and vibration localization in fractional Euler-Bernoulli beams with nonlinear local resonators*

TS4D · Conference Room 4, Convention Center 14:30-16:30 IST

Propellants And Impact Protection In Aerospace Laminates

Session Chair: Dr. Pattabhi Ramaiah Budarapu

Time	Type	Speaker And Title
14:30-15:00	Keynote Lecture	**Dr. Salil Kanj Jalan**, Vikram Sarabhai Space Centre, ISRO, India *Space science through ISRO & structural dynamics of launch vehicles*
		Contributed Papers
15:00-15:15	Paper ID 132	**Nomesh Kumar, Anupam Sharma**, DRDO New Delhi, India *Nonlocal peridynamic simulation of damage evolution in composite HTPB solid propellant grains during thermal cooldown*
15:15-15:30	Paper ID 83	**Stuti Devendra Upadhyay, Raghavan Ranganathan**, IIT Gandhinagar, India *Nanoscale ballistic performance of bio-inspired CNT-PMMA Bouligand composites*
15:30-15:45	Paper ID 151	**Manish More, Jaishree Chauhan, Gaurav Tiwari, Tushar Saratkar**, VNIT Nagpur, India *Numerical investigation of ballistic performance of jute alumina composite structure against fragment simulating projectiles*
15:45-16:00	Paper ID 274	**Indupriyaa.G, Karishma Addanki, S. Shreya, Lokavarapu Bhaskara Rao**, Vellore Institute of Technology, Chennai, India *Numerical investigation of ballistic impact on curved fibre metal laminate targets using different nose shaped projectiles*
16:00-16:15	Paper ID 164	**Tushar Saratkar, Gaurav Tiwari, Jaishree Chauhan, Manish More**, VNIT Nagpur, India *Computational analysis of oblique projectile impact and damage evolution in jute/epoxy composite laminates*

TS4E · Conference Room 5, Convention Center 14:30-16:30 IST

Concrete Mix Design And Structural Performance

Session Chair: Dr. Keerthana Kirupakaran

Time	Type	Speaker And Title
14:30-14:55	Invited Lecture	**Dr. Mahendra Kumar Pal**, IIT (BHU) Varanasi, India *Title to be announced*
		Contributed Papers
14:55-15:10	Paper ID 7	**Keerti Malipatil**, Visvesvaraya NIT, Nagpur, India *Self-compacting geo-polymer concrete using slag sand as fine aggregate*
15:10-15:25	Paper ID 171	**Abhijeet Yadav, Meena Murmu**, NIT Raipur, India *Performance evaluation of concrete with partial replacement of cement by red mud and hydrated lime with basalt fiber reinforcement*
15:25-15:40	Paper ID 176	**Abhijeet Yadav, Meena Murmu**, NIT Raipur, India *A critical review of superabsorbent polymer-based self-curing concrete: Internal curing mechanisms, mechanical performance and durability*
15:40-15:55	Paper ID 142	**Danikonda Kumar, Savya Deepika Adabala, Vyshnavi Chapala, Deepsitha Pechetty**, Sasi Institute of Technology and Engineering, India *Hybrid ANN-FEA framework for predicting the structural behaviour of fly ash-based sustainable concrete beams*

Time	Type	Speaker And Title
15:55-16:10	Paper ID 283	**Tallapalem Umamaheswara Rao, Kampa Ravinder, Sarella Venkateswara Rao**, National Institute of Technology Warangal, India *Predicting the compressive strength of geopolymer concrete using machine learning algorithms*

TS4F · Seminar Hall 8, Convention Center 14:30-16:30 IST

Thermomechanics Of Layered And Graded Materials

Session Chair: Prof. P. J. Guruprasad

Time	Type	Speaker And Title
14:30-14:55	Invited Lecture	**Dr. Basant Kumar**, ASL, DRDO Hyderabad, India *Title to be announced*
	Contributed Papers	
14:55-15:10	Paper ID 228	**Venkatraman G**, PSG College of Technology, Coimbatore, India *Nonlinear free vibration analysis of non-uniform bi-directional functionally graded micro-Euler beams in variable elastic media*
15:10-15:25	Paper ID 235	**Sorab Khan, Amit Singh**, IIT Bombay, India *Thermal fracture analysis of interface cracks in a Fe/TEM bi-material system using the finite element analysis*
15:25-15:40	Paper ID 216	**Votarikari Naveen Kumar, Mulugundam Siva Surya, Basant Kumar**, GITAM University Hyderabad & ASL, DRDO Hyderabad, India *Effect of hexagonal boron nitride on the processability, thermal stability of filament wound carbon fibre/epoxy composites*
15:40-15:55	Paper ID 219	**Madhav Kumar Gupta, Abinash Kumar Swain, Vishwas A. Sawant**, IIT Roorkee, India *Dynamic assessment of triangular corrugated core sandwich panels under blast loads through dimensionless parameters*

TS4G · Seminar Hall 9, Convention Center 14:30-16:30 IST

Seismic And Extreme Loads On Civil Structures

Session Chair: Prof. Vasant Matsagar

Time	Type	Speaker And Title
14:30-15:00	Keynote Lecture	**Dr. Takuzo Yamashita**, National Research Institute for Earth Science and Disaster Resilience, Japan *Damage plasticity modelling of a full-scale RC building: Shaking table validation and response to the 2026 Kumamoto earthquake*
	Contributed Papers	
15:00-15:15	Paper ID 275	**Srinath Gundogi, Mothilal M, Gopikrishna K**, National Institute of Technology Warangal, India *Effect of damage progression on failure probability assessment of reinforced concrete multi storied buildings under repeated earthquake events*
15:15-15:30	Paper ID 276	**Jagadeeshwer Kancharla, M. Mothilal, K. Gopi Krishna**, National Institute of Technology Warangal, India *Influence of pier height on the seismic response of RCC T-beam highway bridges*

Time	Type	Speaker And Title
15:30-15:45	Paper ID 278	**Sarmili Swain, K. Gopikrishna**, National Institute of Technology Warangal, India *Time-to-collapse assessment of seismically damaged reinforced concrete structures exposed to elevated fire temperatures*
15:45-16:00	Paper ID 256	**Suman Kumar, Debdutta Ghosh**, CSIR-CBRI Roorkee & AcSIR Ghaziabad, India *Modeling of localized damage in reinforced concrete (RC) elements subjected to confined contact explosions using adaptive FE-SPH techniques*
16:00-16:15	Paper ID 224	**K. Padmanabhan**, VIT Vellore, India *Applicability of laminate level failure theories to fibre composite interfacial failures after hygrothermal degradation*

TS5 · Technical Session 5 · Day 3, Wednesday, 16th December

17:00-18:30 IST

Overview

Code	Venue	Session Theme	Lead Lectures
TS5A	Auditorium 2, Convention Center	Phase-Field Models Of Crack Growth And Fatigue Chair: Prof. Ravindra Duddu	Dr. Raghu Piska Invited
TS5B	Conference Room 2, Convention Center	Higher-Order Theories For Shells And Thick Plates Chair: Prof. I. V. Singh	Dr. Archana Arbind Invited
TS5C	Conference Room 3, Convention Center	Cyclic Loading And Fracture Of Concrete Chair: Prof. G. Appa Rao	Dr. Keerthana Kirupakaran Invited
TS5D	Conference Room 4, Convention Center	Vibration Monitoring And Structural Acoustics Chair: Maganti Janardana	Dr. B. Radhika Invited
TS5E	Conference Room 5, Convention Center	Higher-Order And Coupled-Field Response Chair: Dr. Mohammad Masiur Rahaman	Prof. Eugenio Ruocco Invited
TS5F	Seminar Hall 8, Convention Center	Peridynamic Models Of Brittle And Layered Solids Chair: Dr. Mahendra Kumar Pal	Dr. Arun C O Invited
TS5G	Seminar Hall 9, Convention Center	Rate Effects In Impact And Localized Deformation Chair: Dr. Nitin Kumar	Dr. Abir Bhattacharyya Invited

TS5A · Auditorium 2, Convention Center — 17:00-18:30 IST

Phase-Field Models Of Crack Growth And Fatigue

Session Chair: Prof. Ravindra Duddu

Time	Type	Speaker And Title
17:00-17:25	Invited Lecture	**Dr. Raghu Piska**, BITS Pilani, Hyderabad Campus, India *Phase field model for modeling fracture in solids subjected to static and dynamic loads*
	Contributed Papers	
17:25-17:40	Paper ID 277	**Paturi Mythili, Shreya R D, Geetha K N**, Amrita Vishwa Vidyapeetham, Bengaluru, India *Effect of temporal observation sparsity on fatigue-threshold detection in phase-field fatigue simulations*
17:40-17:55	Paper ID 217	**Jayaprakash, Chandra Prakash**, IIT Hyderabad, India *Microscale damage modeling of CFRP using an explicit phase field approach under dynamic loading conditions*
17:55-18:10	Paper ID 131	**Kalyan Boyina, Raghu Piska, Anna Mariya Shajan**, BITS Pilani Hyderabad & MACE Kerala, India *Anisotropic fracture resistance phase field model for transversely isotropic polycrystals under dynamic loading*

Time	Type	Speaker And Title
18:10-18:25	Paper ID 227	**Rakesh Kumar, S. Mrunmayee, A. Rajagopal, Basant Kumar, M. Nithyadharan, J.K. Mishra**, IIT Hyderabad, ASL (DRDO) Hyderabad & IIT Tirupati, India *Calibration of non local parameters for modelling of defects in composite by using non local gradient enhanced cohesive zone modelling method*

TS5B · Conference Room 2, Convention Center 17:00-18:30 IST

Higher-Order Theories For Shells And Thick Plates

Session Chair: Prof. I. V. Singh

Time	Type	Speaker And Title
17:00-17:25	Invited Lecture	**Dr. Archana Arbind**, IIT Kharagpur, India *A general higher-order shell theory using orthonormal frame and its application to isotropic, anisotropic and morphoelastic hyperelastic shell*
	Contributed Papers	
17:25-17:40	Paper ID 162	**Dolly Tiwari, Archana Arbind**, IIT Kharagpur, India *General higher-order 1D theory for general hyperelastic soft tubular structures*
17:40-17:55	Paper ID 146	**Kundan Kumar Chandrakar, Prashik Malhari Ramteke**, NIT Raipur, India *Finite element static deflection analysis of bi-directional functionally graded cylindrical shells with through-central crack*
17:55-18:10	Paper ID 220	**Venu Shankabattula, Abinash Kumar Swain, Vishwas A Sawant**, IIT Roorkee, India *Geometrically nonlinear isogeometric analysis of metal foam sandwich plates using a layerwise shear deformation theory*
18:10-18:25	Paper ID 247	**Uttam Kumar Pandit**, Indian Institute of Technology Kanpur, India *Size-dependent free vibration and forced dynamic response of functionally graded sandwich nano-beams*

TS5C · Conference Room 3, Convention Center 17:00-18:30 IST

Cyclic Loading And Fracture Of Concrete

Session Chair: Prof. G. Appa Rao

Time	Type	Speaker And Title
17:00-17:25	Invited Lecture	**Dr. Keerthana Kirupakaran**, IIT Madras, India *Micromechanics of fatigue fracture in concrete: Experimental insights and analytical modelling*
	Contributed Papers	
17:25-17:40	Paper ID 175	**Richa Gupta, Alfia Bano, G.D. Ramtaker**, NIT Raipur, India *Fatigue and cyclic performance of reinforced concrete circular columns: A nonlinear finite element investigation using ABAQUS*
17:40-17:55	Paper ID 47	**Ram Lal Riyar, Sonali Bhowmik**, NIT Rourkela, India *Structural integrity of polypropylene-enforced steel slag concrete under static and fatigue fracture loading*
17:55-18:10	Paper ID 48	**Mohammad Azhar U Din Mir, Rajneesh Sharma**, IIT Mandi, India *Inverse characterization of the post-yield hardening-softening function for foam concrete*
18:10-18:25	Paper ID 174	**Richa Gupta, Alfia Bano, G.D. Ramtaker**, NIT Raipur, India *Cyclic and fatigue behaviour of reinforced concrete circular columns: A literature review*

TS5D · Conference Room 4, Convention Center 17:00-18:30 IST

Vibration Monitoring And Structural Acoustics

Session Chair: Maganti Janardana

Time	Type	Speaker And Title
17:00-17:25	Invited Lecture	**Dr. B. Radhika**, NIT Calicut, India *Monitoring the unseen - detecting time-dependent variations in dynamical systems*
	Contributed Papers	
17:25-17:40	Paper ID 222	**Sandeep Rajan Nagarajan, Sakthivel Palanivelu**, VIT Vellore, India *Acoustic source quantification and acoustic path characterization for synthesis of perception of noise at operator's ear location of an agricultural tractor using Q-Source*
17:40-17:55	Paper ID 251	**Sidhartha Kumar, Pritam Bari, Husain Kanchwala**, IIT Delhi & BITS Pilani, India *A coupled structural-acoustic model of a rotating tyre for analysis of tyre cavity resonance*
17:55-18:10	Paper ID 254	**Sakthivel Palani, Sandeep Rajan Nagarajan, Sakthivel Pazhanivelu**, Vellore Institute of Technology, Vellore, India *Assessment of whole-body vibration and interior noise perception of a driver in a passenger car*
18:10-18:25	Paper ID 241	**Bharat C S, Shashiraj, Vasudev Prashant**, BMS College of Engineering, Bengaluru & PESCOM IND, India *Design improvement and comparative FSI-non-FSI analysis of a hydrodynamic precision spindle for ball bearing noise testing*

TS5E · Conference Room 5, Convention Center 17:00-18:30 IST

Higher-Order And Coupled-Field Response

Session Chair: Dr. Mohammad Masiur Rahaman

Time	Type	Speaker And Title
17:00-17:25	Invited Lecture	**Prof. Eugenio Ruocco**, University of Campania Luigi Vanvitelli, Italy *Revisiting Reddy's beam theory: Poisson effects and localized stresses*
	Contributed Papers	
17:25-17:40	Paper ID 181	**Shubham Desai, Sai Sidhardh**, IIT Hyderabad, India *Modeling and experimental validation of nonlocal piezoelectric response using fractional calculus*
17:40-17:55	Paper ID 9	**Turaka Srinivasa Rao, Hari Kishan Adusumilli, Arockia Rajan A, Ashok Kumar Nallathambi**, NIT Trichy & IIT Madras, India *Stabilized non-ordinary state-based peridynamic modelling of crack-induced magneto-electro-mechanical response in piezoelectromagnetic composites*
17:55-18:10	Paper ID 43	**Subrata Mondal**, IIT Kharagpur, India *Wave propagation in coupled nonlocal thermomechanical systems*
18:10-18:25	Paper ID 195	**Swapnaswadhina Sahoo, Pattabhi Ramaiah Budarapu**, IIT Bhubaneswar, India *Coupled electro-thermal-mechanical modeling and data-driven risk assessment of internal short circuits in lithium-ion batteries*

TS5F · Seminar Hall 8, Convention Center 17:00-18:30 IST

Peridynamic Models Of Brittle And Layered Solids

Session Chair: Dr. Mahendra Kumar Pal

Time	Type	Speaker And Title
17:00-17:25	Invited Lecture	**Dr. Arun C O**, IIT Palakkad, India *A correction-free bond-based peridynamic framework with a cubic kernel for brittle and quasi-brittle fracture*
	Contributed Papers	
17:25-17:40	Paper ID 12	**Amish Kumar Aman, Arun C. O.**, IIT Palakkad, India *Numerical investigation of dynamic fracture in brittle materials using cubic bond-based peridynamics*
17:40-17:55	Paper ID 8	**Turaka Srinivasa Rao, Hari Kishan Adusumilli, Ashok Kumar Nallathambi**, NIT Tiruchirappalli, India *Rate-dependent ordinary state-based peridynamic modelling of low-velocity impact fracture in laminated glass with surface flaws*
17:55-18:10	Paper ID 233	**N.S.S.P. Kalyan, Jean-François Molinari**, EPFL & IIT Madras, Switzerland & India *Energy evolution and strain-rate dependence in peridynamic modelling of dynamic fragmentation*
18:10-18:25	Paper ID 212	**Vatsalya Budhraja, Gaurav Tiwari**, Ramdeobaba University, Nagpur & VNIT Nagpur, India *Numerical investigation of high-velocity projectile impact on laminated glass windshields for high-speed trains using LS-DYNA*

TS5G · Seminar Hall 9, Convention Center 17:00-18:30 IST

Rate Effects In Impact And Localized Deformation

Session Chair: Dr. Nitin Kumar

Time	Type	Speaker And Title
17:00-17:25	Invited Lecture	**Dr. Abir Bhattacharyya**, IIT Jodhpur, India *Title to be announced*
		Contributed Papers
17:25-17:40	Paper ID 158	**Amar Kawale, Gaurav Tiwari, Ayan Khan, Tushar Fulzele, Nishant Chikhalkar, Himanshu Landge**, VNIT Nagpur, India *Localized deformation, damage evolution and energy absorption of aluminium and 3D-printed PLA rectangular tube under axial crushing*
17:40-17:55	Paper ID 55	**Praveen Kumar, Pradeep Seshadri, P Alagappan**, IIT Madras, India *A novel material characterization technique using shock tube*
17:55-18:10	Paper ID 147	**Srishti Mishra, Abhishek Singh, Srihari Dodla**, IIT (BHU) Varanasi & DRDO, India *Microstructure-resolved multiscale modeling of localized deformation and damage in tungsten heavy alloy under high-strain-rate impact*
18:10-18:25	Paper ID 264	**Maitri Kathayat, Suman Kumar**, CSIR-CBRI Roorkee & AcSIR Ghaziabad, India *Numerical investigation of re-entrant auxetic lattice-reinforced UHPC under impact and blast loading*