



International Symposium on
**Nonlocal Mechanics Approaches for
Modeling Localized Deformations**
NMAMLD 2022

7th & 8th June, 2022

IIT Hyderabad

Organiser: Prof. Amirtham Rajagopal, IIT Hyderabad

Co-Organiser: Dr. Basant Kumar, Scientist-F, ASL-DRDO

The main objective of the symposium is to provide graduate students, engineers, and researchers working in aerospace, automotive, civil, mechanical engineering, and materials and manufacturing industries with the theory and applications of nonlocal mechanics approaches for modelling localized elastic and inelastic deformations.

This symposium was attended by 50 participants who were graduate students, engineers, and researchers working in aerospace, automotive, civil, mechanical engineering, and materials and manufacturing industries from organizations such as IISc, IITs, NITs and reputed universities in India and abroad including scientists from CSIR-NAL, DRDO-DMRL, DRDO-ASL, CSIR-CBRI. This helped them in gaining knowledge and information in the following areas: (a) nonlocal mechanics theories, (b) nonlinear analysis, c) elastic-plastic models, and d) damage and fracture in solids.

This symposium was conducted by Prof. J. N. Reddy from the university of Texas A&M, USA and Prof. Amirtham Rajagopal from IIT Hyderabad. Over a course of 2 days, the participants were introduced to Nonlocal/Non-Classical Mechanics, Continuum Peridynamic Formulations, Nonlocal Approaches in Fracture/Damage Mechanics, Nonlocal Plasticity, Applications of Nonclassical Mechanics in Defence and Aerospace Sector. We hope that the participants were familiarized with the theory and applications of nonlocal and nonlinear mechanics approaches for modelling localized elastic and inelastic deformations from this course and are able to apply and do research on these topics.

For more details:

Please visit <http://www.nmamld2022.com/>

Contact us:

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NMAMLD 2022, 7th-8th June, IIT Hyderabad, India

#Day 1- 7th June 2022

Session Chair	Time (IST)	SCHEDULE
	8:00-9:30	REGISTRATION
	9:30-10:00	INAUGURAL SESSION Welcome address by Prof. A . Rajagopal, IIT Hyderabad Welcome address by Prof. Suriya Prakash, Head of the Department, IIT Hyderabad
Prof. Arun Srinivasa, Texas A&M University	10:00-11:00	Prof. J.N. Reddy, Texas A&M University, U.S.A. Title: Modified couple stress theories of beams and plates, and modeling of web core structures
	11:00-11:30	BREAK
Prof. Sivakumar, IIT Madras	11:30-12:00	Prof. Arun Srinivasa, Texas A&M University, U.S.A. Title: GraFEA a nonlocal discrete graph based Finite element approach for simulating damage and fracture
	12:00-12:30	Prof. Debashish Roy , IISc Bangalore, India Title: Geometric Origins of Nonlocality in the Mechanics of Solids
	12:30-13:00	Prof. Srikanth Vedantam, IIT Madras, India Title: Constitutively informed multi-body interactions for discrete particle models
	13:00-14:00	LUNCH
Prof. Arun Srinivasa, Texas A&M University	14:00-14:30	Dr.Ali Javili, Bilkent University, Turkey Title: A Novel Take on Nonlocal Continuum Mechanics: Continuum-kinematics-inspired Peridynamics
	14:30-15:00	Prof. Sivakumar M. Srinivasan, IIT Madras,India Title: Is the material length scale parameter the same across all non-classical models?
	15:00-15:30	Prof. Liqun Tang, South China University of Technology, China Title: A three dimensional model of fiber network of hydrogel and its prediction of hydrogel's mechanical properties
	15.30-16:00	BREAK
Prof. JN Reddy, Texas A&M University	16:00-16:30	Prof. Pablo Seleson, Oak Ridge National Laboratory, USA Title: Peridynamics modeling of failure in composite laminates
	16:30-17:00	Prof. Prakash Thamburaja, National University of Malaysia, Malaysia Title: Fracture in nonlinear viscoelastic solids: Theory and finite-element computations
	17:00-17:30	Prof. Ashok Kumar Pandey, IIT Hyderabad,India Title: Frequency Analysis of Micro/Nano beams based on Nonlocal Elasticity and Strain Gradient Approach



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#Day 2- 8th June 2022

Session Chair	Time (IST)	SCHEDULE
Prof. Srikanth, IIT Madras	9:00-10:00	Prof. Erdogan Madenci, University of Arizona, United States Title: Advances in Peridynamic Modeling for Deformation and Failure
	10:00-10:30	Prof. S. Gopalakrishnan, Iisc Bangalore, India Title: Wave Dispersion in Non-local Waveguides
	10:30-11:00	BREAK
Prof. Ratnakumar, IIT Madras	11:00-11:30	Prof. Alankar, IIT Bombay, India Title: Multiscale Computational Mechanics of Deformation and Fracture
	11:30-12:00	Prof. Saswata Bhattacharya, IIT Hyderabad, India Title: Nonlocal Phase-field Model of Domain Dynamics in Ferroelectrics
	12:00-12:30	Dr. Ratna Kumar Annabattula, IIT Madras, India Title: Influence of contact and non-contact particle interactions on the quality of powder bed spreading for additive manufacturing
	12.30 -13:00	Dr. Sai Sidhardh, IIT Hyderabad, India Title: Fractional-order constitutive models for nonlocal elasticity
	13:00-14:00	LUNCH
Prof. Saswata, IIT Hyderabad	14:00-14:30	Prof. Krishnan NM Anoop, IIT Delhi, India Title: Machine learning constitutive models in Peridynamics using PeriDyn
	14.30-15:00	Prof. Noël Challamel, University of South Brittany, France Title: On the capability of Eringen's nonlocal elasticity to capture scale effects of lattice elasticity
	15:00-15:30	Dr. Raghu Piska BITS Hyderabad, India Title: Phase field modeling of damage in thick plates subjected to transverse loads
	15:30-16:00	Prof. Mahendra Kumar Pal, IIT BHU Varansi, India Title: Development of Higher order particle discretization scheme and its application
		BREAK
Prof. Ashok Pandey, IIT Hyderabad	16.00-16:30	Dr. Saikat Sarkar, IIT Indore, India Title: A derivative-free route to understand dynamics: A journey from stochastic filtering to mechanics
	16:30-17:00	Pranavi Dhaldhuli, IIT Hyderabad, India Title: Nonlocal modeling of quasi brittle materials under quasi static and dynamic loading
	17:00-17:30	Closing Session, Distribution of Certificates

Chief Guest:



Shri Kishore Nath Nayani

Scientist-G and Project Director at ASL, DRDO

Speakers:

SI No.	Name	Designation	Institute/Organization
1	Prof. J N Reddy	Oscar S.Wyatt Jr. Chair	Texas A&M, USA
2	Prof. Paul Steinmann	Professor	University of Erlangen, Germany
3	Prof. Erdogan Madenci	Professor	University of Arizona, USA
4	Prof. Arun Srinivasa	Professor	Texas A&M, USA
5	Prof. Sivakumar M. Srinivasan	Professor	IIT Madras
6	Dr. Pablo D Seleson	Research Scientist	Oak Ridge National Laboratory, USA
7	Prof. Liqun Tang	Professor	South China University of Technology, China
8	Prof. S. Gopalakrishnan	Professor	IISc Bangalore, India
9	Prof. Debashish Roy	Professor	IISc Bangalore, India
10	Dr. Raghu Piska	Assistant Professor	BITS Hyderabad, India
11	Prof. Amirtham Rajagopal	Professor	IIT Hyderabad, India
12	Dr. Ali Javili	Assistant Professor	Bilkent University, Turkey
13	Prof. Saswata Bhattacharya	Professor	IIT Hyderabad, India
14	Prof. Ashok Kumar PAndey	Professor	IIT Hyderabad, India

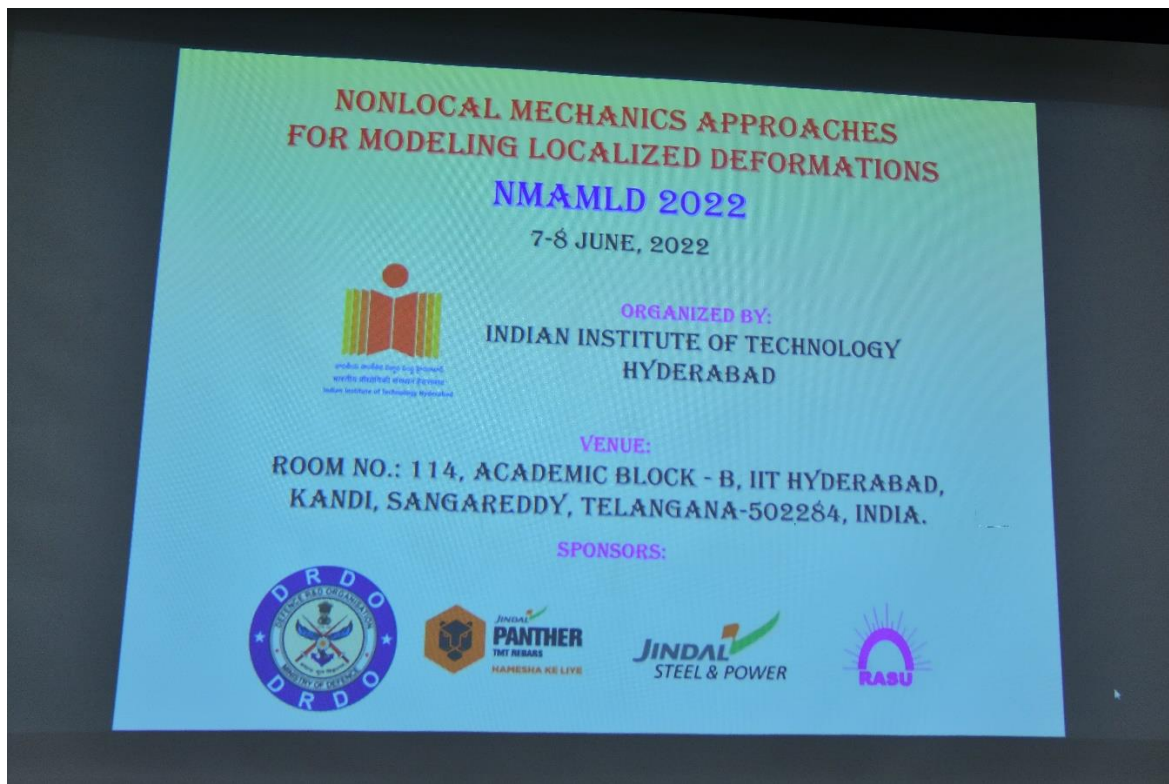
15	Prof. Prakash Thamburaja	Professor	National University of Malaysia (UKM)
16	Prof. Noel Challamel	Professor	University of South Brittany (UBS), France
17	Prof. A. Alankar	Professor	IIT Bombay, India.
18	Prof. Srikanth Vedantam	Professor	IIT Madras, India.
19	Dr. Ratna Kumar Annabattula	Associate Professor	IIT Madras, India.
20	Dr. Saikat Sarkar	Assistant Professor	IIT Indore, India.
21	Dr. Mahendra Kumar Pal	Assistant Professor	IIT BHU Varanasi, India.
22	Dr. Sai Sidhardh	Assistant Professor	IIT Hyderabad, India.
23	Dr. N M Anoop Krishnan	Assistant Professor	IIT Delhi, India.
24	Dhaladuli Pranavi	Research Scholar	IIT Hyderabad, India.

Participants

Sr. No.	Full Name	Designation	Institute/Organization Name
1	Siva Prasad AVS	Assistant Professor	IIITDM
2	JAGADEESH BOMMISETTY	Assistant Professor	CVR COLLEGE OF ENGINEERING
3	ARTHESH BASAK	Assistant Professor	GITAM DEEMED TO BE UNIVERSITY
4	RIMEN JAMATIA	ASSISTANT PROFESSOR	IIT JAMMU
5	Chanchal Sonkar	Scientist	CSIR-Central Building Research Institute
6	Ravinder	PhD Student	Indian Institute of Technology Delhi
7	Pavan Pranjivan Mehta	Student	Brown University
8	Dr. Saikat Sarkar	Assistant Professor	IIT Indore
9	Rakesh kumar	Scientist D	ASL, DRDO
10	Anna Mariya Shajan	Research Scholar	BITS Pilani- Hyderabad Campus
11	Sajid Mannan	PhD Scholar	Indian Institute of Technology Delhi
12	KRISHNENDU SIVADAS	RESEARCH SCHOLAR	BITS PILANI HYDERABAD CAMPUS
13	Balasubramani Gandhimani	Senior Instructor	TTC, ICF
14	Yadwinder Singh Joshan	Research Scholar	IIT DELHI
15	Aquib Ahmad Siddiqui	Ph.D.	IIT Delhi
16	Devansh Gupta	Ph.D.	IIT Delhi
17	AKHIL S L	Student	IIST, Thiruvananthapuram, Kerala
18	S P Krishna Phanindra	Student	IIT Madras
19	HEMA T RAJU GOTTUMUKKALA	ASSISTANT PROFESSOR	S.R.K.R.ENGINEERING COLLEGE
20	AMAR SHRIVASTAVA	Ph.D. Research Scholar	Indian Institute of Technology, Delhi

21	Pushkar Anirudha Pandit	Senior Research Fellow	Indian Institute of Technology Hyderabad
22	KODALI MAHALAXMI	DESIGN MANGER	RASU TOOLS LTD
23	POONDLA VIGNESH	TECHINAL TRAINEE	RASU TOOLS LTD
24	P SUDHIR REDDY	DIRECTOR	RASU TOOLS LTD
25	Venkataramudu Bodepati	Scientist D	DMRL, Hyderabad
26	Milind	PhD Scholar	IIT Palakkad
27	PRANAY NARINDER KUMAR	Scientist C	ASL, DRDO
28	K Sidhanshu Pradip	Scientist B	ASL, DRDO
29	Sidhant Raj	Scientist D	ASL, DRDO
30	SAURAV PANDEY	SCIENTIST B	ASL, DRDO
31	Dr. K. V. Mohankumar	Assistant Professor	Vellore Institute of Technology
32	Kalyan Boyina	Research Associate	BITS Pilani Hyderabad campus
33	Chandu Parimi	Associate Professor	BITS Pilani Hyderabad campus
34	Dr Balakrishnan B	Principal Scientist	CSIR - NAL
35	Ashwin U	Principal Scientist	CSIR - NAL
36	Mahesh M	Technical Officer	CSIR - NAL
37	Prangyadeepta Choudhury	SCIENTIST-'F'	ASL, DRDO
38	ASHISH KUMAR	SCIENTIST 'F'	ASL, DRDO
39	A NAGENDRANATH	Scientist F	ASL, DRDO
40	Harshavardhan Kalathur	Assistant Professor	Mahindra University
41	Ramaswamy kodali	scientist-G	ASL, DRDO
42	Bikash Routh	ASSISTANT PROFESSOR	VELLORE INSTITUTE OF TECHNOLOGY, VELLORE
43	RAJESH KUMAR BURMAN	SCIENTIST F	ASL,DRDO
44	Deepak George	Student	Swansea University
45	Debojyoti Pandit	Assistant Professor Gr-II	IEST, Shibpur
46	BHUKYA VENKATESH	Research Scholar	IIT MADRAS
47	Bhakti N Patel	Assistant Professor	Parul University
48	Tezeswi Tadeipalli	Assistant Professor	National Institute of Technology Warangal
49	Arun C O	Associate Professor	Indian Institute of Technology Palakkad
50	Alekhyia Mani Mayakoti	Sales & Marketing	Jindal Steel & Power Limited

Photos:



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Organized by:

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We thank our sponsors:



Venue:

**Room No.: 114, Academic Block - B,
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