

35th Annual Students' Symposium - 2022

Department of Materials Engineering
Indian Institute of Science, Bangalore

12-13 April 2022

Note: We are pleased to return to "in-person" mode for this year's Symposium. All the lectures and presentations will be held in the Lecture Theatre of Department of Materials Engineering.

DAY 1: Tuesday, 12 April 2022	
9:45 - 10:00	Welcome Address
Invited Talk-1 (10:00-10:45)	
10:00-10:45	Towards Large-scale Quantum Accuracy Materials Simulations Vikram Gavini <i>Department of Mechanical Engineering, Department of Materials Science and Engineering, University of Michigan, Ann Arbor, USA</i>
High Tea (10:45-11:00)	
Platform Presentation Session 1 (11:00-13:00)	
11:00-11:20	Rapid Blood Clotting with Silica/Silk Fibroin-Composite Based Bilayered Foam Sushma Indrakumar ^a , Santanu Ghosh ^a , Tapan Dash ^b , Vivek Mishra ^b , Bharat Tandon ^b , Kaushik Chatterjee ^a ^a <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i> ^b <i>Fibroheal Woundcare Pvt. Ltd., Bangalore, India</i>
11:20-11:40	Exploration of NaSICON frameworks as calcium-ion battery cathodes Dereje Bekele Tekliye, Sai Gautam Gopalakrishnan <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
11:40-12:00	4D Printing of Multifunctional Biocompatible Magnetic Composites Saswat Choudhary, Kaushik Chatterjee <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
12:00-12:20	Investigation of thin-film delafossite materials for energy efficient memory devices Suryakanta Mondal, Bhagwati Prasad <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
12:20-12:40	Effect of Exchange-Correlation Functionals on the Estimation of Migration Barriers in Battery Materials Reshma Devi, Baltej Singh, Pieremanuele Canepa, Gopalakrishnan Sai Gautam <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
12:40-13:00	Injectable and Self-Healing Polysaccharide-based Hydrogels for Sustained and Localized Delivery Pritiranjana Mondal, Kaushik Chatterjee <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
Lunch Break (13:00-14:00)	

Platform Presentation Session 2 (12:00-16:00)	
14:00-14:20	Micro-Texture Regions in Rolled Ti-6Al-4V Under Polarized Light Faizan Hijazi ^a , Dheepa Srinivasan ^b , Barna Roy ^a , Praveen Kumar ^a and Vikram Jayaram ^a ^a <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i> ^b Pratt & Whitney, Research and Development Center, Bangalore – 560012 (India)
14:20-14:40	Gelatin-Sericin-Laminin Cryogels for Tissue Regeneration in Diabetic Wounds Suhela. T, ^a Parvaiz A. Shiekh, ^a V. Verma ^{d,e} , and A. Kumar. ^{a,c} ^a <i>Department of Biological Science and Bioengineering, Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India.</i> ^b <i>Centre for Environmental Sciences and Engineering,</i> ^c <i>Centre for Nanosciences, Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India</i> ^d <i>Centre for Environmental Sciences and Engineering,^d</i> ^e <i>Materials Science and Engineering, Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India.</i>
14:40-15:00	Plasticity development and crack nucleation analysis under dwell fatigue loading of Ti 6242 by using ECCI Tirthesh Ingale, Dipankar Banerjee <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
15:00-15:20	Ballistic impact failure characteristics of Al 2024-T351 Sazid Khan, S. Karthikeyan <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
15:20-15:40	An investigation of multiphase flows through a packed bed with implications to iron-making blast furnaces Ferdin Sagai Don Bosco, Govind S. Gupta <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
15:40-16:00	Design of a polymer encapsulating film to prevent lead leakage from lead perovskite solar cells Jinu Joji, Praveen C Ramamurthy <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
High Tea (16:00-16:15)	
Invited Talk-2 (16:15-17:00)	
16:15-17:00	Innovation in Indian Science: Lessons from Covid-19 Vijay Chandru <i>Centre for BioSystems Science and Engineering, Indian Institute of Science, Bangalore, India</i>

DAY 2: Wednesday, 13 April 2022	
Invited Talk-3 (10:00-10:45)	
10:00-10:45	Insights into unconventional ferroelectricity in hafnia-based systems through operando STEM and XRD Pavan Nakula <i>Center for Nanoscience and Engineering, Indian Institute of Science, Bangalore, India</i>
High Tea (10:45-11:00)	
Platform Presentation Session 3 (11:00-13:00)	
11:00-11:20	A phase transformation in steel during hot deformation: unique features revealed through crystallographic texture B. Aashranth ^{a,b} , Dipti Samantaray ^b , Satyam Suwas ^a ^a <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i> ^b <i>Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam</i>
11:20-11:40	Directed energy deposition of a low modulus TNZT alloy for biomedical applications Saurabh Kumar Gupta ^a , Kaushik Chatterjee ^a , Satyam Suwas ^a ^a <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
11:40-12:00	Role of characterisation techniques in understanding the microstructure of metal additive manufacturing Deepak Kumar ^a , Soumita Mondal ^a , KG Prashanth ^{b,c,d} , Satyam Suwas ^a ^a <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i> ^b <i>Department of Mechanical and Industrial Engineering, Tallinn University of Technology, Ehitajate Tee 5, 19086, Tallinn, Estonia</i> ^c <i>Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Jahnstraße 12, A-8700 Leoben, Austria</i> ^d <i>CBCMT, School of Mechanical Engineering, Vellore Institute of Technology, Vellore 632 014, Tamil Nadu, India</i>
12:00-12:20	Understanding creep deformation behavior of extruded Mg-Ce alloys Hemant Kumar, Surendra Kumar Makineni <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
12:20-12:40	Controlled electron channeling contrast imaging of defects in engineering alloys Akshat Godha, Surendra Kumar Makineni <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
12:40-13:00	Engineered nanotopography on 3D-printed polymer scaffolds to impart mechanobactericidal property Deepak Patil, Kaushik Chatterjee <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
13:00-13:20	3D Bioprinting of Photo-crosslinkable Kappa-Carrageenan to Fabricate Cell-loaded Tissue Scaffolds Sushma Kumari, P. Mondal, and K. Chatterjee <i>Department of Materials Engineering, Indian Institute of Science, Bangalore, India</i>
Lunch Break (13:20-14:30)	

Poster Presentation (14:30-15:45)	
High Tea (15:45-16:00)	
Invited Talk-4 (16:00-16:45)	
16:00-16:45	Natural Materials - A Tale of Two Explorations Vilupanur A. Ravi <i>Department of Chemical and Materials Engineering, California State Polytechnic University, Pomona (Cal Poly Pomona), USA</i>
16:45-17:00	Valediction
Dinner at the Department from 19:00 onwards	