



**International Conference on Advances in Minerals,
Metals, Materials, Manufacturing and Modelling (ICAM⁵)**

22-23 September 2023

Department of Metallurgical and Materials Engineering

National Institute of Technology Warangal

Warangal-506004, Telangana State (India)

| Time/ Date | Day 1: 22-Sep-2023 (Friday) | | |
|-------------|---|-------------------------------|----------------------------------|
| 08:30-09:30 | Registration (Seminar Halls Complex, Opp. Institute Auditorium) | | |
| 09:30-11:00 | Inauguration (Venue: Bose Hall) | | |
| 11:00-11:20 | High Tea | | |
| | Plenary Session (Venue: Bose Hall) | | |
| 11:20-12:00 | Plenary Talk: Dr. S.K. Jha, Chairman and Managing Director, MIDHANI, Hyderabad | | |
| 12:00-12:40 | Plenary Talk: Dr. G. Madhusudhan Reddy, Adjunct Professor, Department of Metallurgical and Materials Engineering, NIT Warangal; Former Director, DMRL | | |
| 12:40-13:10 | Keynote Talk: Dr. Arup Dasgupta, Scientific Officer & Professor (HBNI), Head, Physical Metallurgy Division, Metallurgy and Materials Group, IGCAR, Kalpakkam | | |
| 13:10-14:20 | Lunch (Beside Seminar Halls Complex) | | |
| 14:20-15:10 | Keynote Talk: Dr. Laura Silvestroni, Structural and Functional Ceramics, CNR - ISSMC Institute of Science, Faenza (RA) – Italy. Virtual Venue: Bose Hall | | |
| | Parallel Sessions | | |
| | Bose Hall (B-1) | Homi Bhabha Hall (H-1) | Ramanujan Hall (R-1) |
| 15:15-15:30 | Advanced Materials (4) | Advances in Steels (4) | Nanomaterials and Composites (4) |
| 15:30-15:45 | | | |
| 15:45-16:00 | | | |
| 16:00-16:15 | | | |
| 16:15-16:30 | Tea Break | | |
| 16:30-16:45 | Advanced Materials (7) | Advances in Steels (5) | Nanomaterials and Composites (4) |
| 16:45-17:00 | | | |
| 17:00-17:15 | | | |
| 17:15-17:30 | | | |
| 17:30-17:45 | | | |
| 17:45-18:00 | | | |
| 18:00-18:15 | | | |
| 19:30-21:00 | Dinner (Kalam Guest House) | | |

**International Conference on Advances in Minerals,
Metals, Materials, Manufacturing and Modelling (ICAM⁵)
22-23 September 2023**

| Time/ Date | Day 2: 23-Sep-2023 (Saturday) | | |
|-------------|---|-------------------------------|-------------------------------|
| 08:30-09:00 | Registration (Seminar Halls Complex, Opp. Institute Auditorium) | | |
| | Keynote Session (Venue: Bose Hall) | | |
| 09:00-09:35 | Keynote Talk: Dr. Anirbhan Bhattacharya, Associate Professor, School of Mechanical Sciences, IIT Bhubaneswar | | |
| 09:35-10:10 | Keynote Talk: Sri M. Venu Madhava Rao, Dy. General Manager (R&D), Visakhapatnam Steel Plant | | |
| 10:10-10:45 | Keynote Talk: Dr. Venugopal Rao, Scientist H, Associate Director, DMRL | | |
| 10:45-11:00 | Tea Break | | |
| | Parallel Sessions | | |
| | Bose Hall (B-2) | Homi Bhabha Hall (H-2) | Ramanujan Hall (R-2) |
| 11:00-11:15 | Computational Materials (7) | Mechanical Properties (6) | Advances in Manufacturing (5) |
| 11:15-11:30 | | | |
| 11:30-11:45 | | | |
| 11:45-12:00 | | | |
| 12:00-12:15 | | | |
| 12:15-12:30 | | | |
| 12:30-12:45 | | | |
| 12:45-13:00 | | | |
| 13:00-14:00 | Lunch (Beside Seminar Halls Complex) | | |
| 14:00-14:35 | Keynote Talk: Dr. Prakash Srirangam, Associate Professor, University of Warwick – WMG, England, United Kingdom. Virtual Venue: Bose Hall | | |
| | Parallel Sessions | | |
| | Bose Hall (B-3) | Homi Bhabha Hall (H-3) | Ramanujan Hall (R-3) |
| 14:35-14:50 | Online Session (4) | Mechanical Properties (4) | Advances in Manufacturing (4) |
| 14:50-15:05 | | | |
| 15:05-15:20 | | | |
| 15:20-15:35 | | | |
| 15:35-15:50 | Tea Break | | |
| 15:50-16:05 | Online Session (4) | Mechanical Properties (2) | |
| 16:05-16:20 | | | |
| 16:20-16:35 | | | |
| 16:35-16:50 | | | |
| 17:00-18:00 | Valedictory Function/Awards Function (Venue: Bose Hall) | | |

Detailed Schedule

Day 1: September 22, 2023 (Friday)

| Sl. No | 15:15 PM - 18:15 PM | | Parallel Session B-1: Advanced Materials (11 talks) Venue: Bose Hall |
|--------|---------------------|-------|--|
| 1 | 15:15 | 15:30 | 185237: Oxidation behavior of ZrB ₂ -SiC-AlN ultra-high temperature ceramics (Invited) Dr. Pratik Ray IIT Ropar |
| 2 | 15:30 | 15:45 | 189406: A study on coating of complex concentrated alloys Shanmugasundaram Thangaraju Defence Institute of Advanced Technology |
| 3 | 15:45 | 16:00 | 185996: Inter-dendritic Segregation, Inter-granular Oxidation and Craze Cracking in Cat 'B' Nozzle Guide Vanes (NGVs) of an Aeroengine Mrityunjoy Hazra Structure and Failure Analysis Group (SFAG), DMRL, Hyderabad |
| 4 | 16:00 | 16:15 | 187482: Effect of Moisture on the Shape-Shifting Performance of Shape Memory Polymers Ramendra Pal Birla Institute of Technology and Science - Pilani, Hyderabad Campus |
| | 16:15 | 16:30 | Tea Break |
| 5 | 16:30 | 16:45 | 188688: Effect of Multi-angular twist channel extrusion on Microstructure, texture and mechanical properties of Magnesium-Gadolinium alloy Dr. U. Mohammed Iqbal SRM Institute of Science and Technology, Kattankulathur |
| 6 | 16:45 | 17:00 | 186045: Hydroxyapatite-clay composite for bone tissue engineering: Effective utilization of prawn exoskeleton biowaste Perabathula Satish National Institute of technology Karnataka, Surathkal |
| 7 | 17:00 | 17:15 | 182528: Design, synthesis, and microstructural evolution of novel light-weight AlTiMVF ₂ Cr based high entropy alloy Ayush Sourav Defence Institute of Advanced Technology |
| 8 | 17:15 | 17:30 | 187250: Tribological Analysis of Tungsten Carbide, Fe - Bulk Metallic Glass, and Chrome Coatings: Understanding Wear Mechanisms Sandeep Kumar Yadav Defence Institute of Advanced Technology Pune |
| 9 | 17:30 | 17:45 | 182105: Development and characterization of Zn-1.6Mn biodegradable alloy Uday Kumar V NIT Warangal |
| 10 | 17:45 | 18:00 | 188531: Current Progress and Development of Dielectric properties of SrTiO ₃ Ceramic processed via Cold Sintering MUDAVATH PRAVEEN KUMAR NIT Warangal |
| 11 | 18:00 | 18:15 | 184574: Microstructure and magnetic properties of grain boundary diffusion processed Nd-Fe-B magnet with Tb ₄ O ₇ powder Akhil PS NIT Warangal |
| | 19:30 | 21:00 | Dinner (Kalam Guest House) |

Day 1: September 22, 2023 (Friday)

| Sl No | 15:15 PM - 17:45 PM | | Parallel Session H-1: Advances in Steels (9 talks) Venue: Homi Bhabha Hall |
|-------|---------------------|-------|--|
| 1 | 15:15 | 15:30 | Optimization of Calcium Treatment in Low Carbon Aluminium Killed Steels Smita Toppo Steel Authority of India Limited |
| 2 | 15:30 | 15:45 | 189580: Strategies and Enabler for High PCI Rate in Blast Furnace No. 4 at JSW Steel limited Suresh Voonna JSW Steel Limited |
| 3 | 15:45 | 16:00 | 182727: Effect of hot band microstructure on magnetic properties and final texture in 1 wt% Si CRNO electrical steels Raviteja Ummadi JSW Steel Limited |
| 4 | 16:00 | 16:15 | 186981: Corrosion Resistance Behavior of Various Hot-Dip Coated Steels in Acidic Environments S Lavanya JSW Steel Limited |
| | 16:15 | 16:30 | Tea Break |
| 5 | 16:30 | 16:45 | 181702: Development of Cold Rolled Complex Phase Steels sheet with 590Mpa Tensile strength for Automotive Seat components Anjireddy Chandragiri JSW Steels Pvt Ltd, Vijayanagar |
| 6 | 16:45 | 17:00 | 182434: Study of BDF and Development of T-family curves for Iron ore (BMQ) of Karnataka, India Kavitha Ravikumar Post Graduate Centre Nandihalli |
| 7 | 17:00 | 17:15 | 183518: An approach for improving the productivity of rolling mill in steel plant using Lean manufacturing TPM and SMED methods Sardar Singh Rathi OP Jindal University, Raigarh (C.G.) |
| 8 | 17:15 | 17:30 | 181861: A comparative study of thermomechanical treatment on microstructure, tensile and creep rupture properties of RAFM steel Anil Kumar P National Institute of Technology, Warangal |
| 9 | 17:30 | 17:45 | 186524: Investigating the feasibility of SLM 280 Metal additive manufacturing for producing microfeatures of SS316L to manufacture microtools for micromachining purposes. Anurag Varma COEP Technological University Pune |

Day 1: September 22, 2023 (Friday)

| Sl No | 15:15 AM – 17:30 PM | | Parallel Session R-1: Nanomaterials and Composites (8 talks) Venue: Ramanujan Hall |
|-------|---------------------|-------|---|
| 1 | 15:15 | 15:30 | 184356: An Experimental Study on The Thermal Characteristics of a Composite Material Comprising Silicon Carbide, Kenaf, and Polymer M Karthick Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology |
| 2 | 15:30 | 15:45 | 188397: Development and Investigation of Mechanical properties of MULTI WALLED CARBON NANOTUBES/GFRP Composites Rajeswari Chintamaneni VNR VJIET |
| 3 | 15:45 | 16:00 | 184464: Characterization Hybrid Polymer Nano Composite of Bamboo Fiber-Reinforced Saw-dust Particulates Karthick M Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology |
| 4 | 16:00 | 16:15 | 185516: Magnetron Sputtered Self-Assembled TiN Nanostructure Array Sayan Atta VIT Vellore |
| | 16:15 | 16:30 | Tea Break |
| 5 | 16:30 | 16:45 | 184193: Characterization of Aluminum Born Carbide Metal Matrix composite Fabricated by Powder Metallurgy Technique Sridevi Chagantipati Chaithanya deemed university |
| 6 | 16:45 | 17:00 | 183774: Graphene Nanoplatelets reinforced Polyvinylidene fluoride-hexa-fluoro propylene for potential Electromagnetic Shielding applications Gayathri Thanasekaran B.S.Abdur Rahman Crescent Institute of Science and technology, |
| 7 | 17:00 | 17:15 | 182333: Optimization and tribological behaviors of Al 2124 reinforced graphene oxide metal matrix composite fabricated by friction stir processing. Ahmed Aafaq B.S. Abdur Rahman Crescent Institute of Science and Technology |
| 8 | 17:15 | 17:30 | 188678: Fabrication and mechanical characterization of az91e hybrid composite reinforced with silicon carbide and fly ash Srinivasa Kishore Pasupuleti Bapatla Engineering College |

Day 2: September 23, 2023 (Saturday)

| Sl No | 11:00 AM - 12:45 PM | | Parallel Session B-2: Computational Materials (7 talks) Venue: Bose Hall |
|-------|---------------------|-------|--|
| 1 | 11:00 | 11:15 | 183000: Fuel rate optimization at JSW COREX Furnace Karan Khariyal JSW Steel Ltd. |
| 2 | 11:15 | 11:30 | 189662: Materials informatics for physically informed design of multi-principal element alloys Dishant Beniwal IIT Ropar |
| 3 | 11:30 | 11:45 | 182847: Grain growth kinetics and phase stability of Al _x CoCrNi medium entropy alloys processed by high pressure torsion Rishitha Mudunuri Indian Institute of Technology Hyderabad |
| 4 | 11:45 | 12:00 | 186341: Numerical Investigation of Silicon Segregation in Al-Si Eutectic Alloy Solidification Using a Four-Phase Eulerian Model Anuruddha Majumder Academy of Scientific and Innovative Research |
| 5 | 12:00 | 12:15 | 182713: A comparative UV absorption study of crustacean exoskeletons: correlation with structural, microstructural, and morphological analysis Mahin Saif Nowl National Institute of Technology, Karnataka |
| 6 | 12:15 | 12:30 | 189445: Optimization of Ce addition in Al alloy enhance the room temperature and elevated temperature properties Nellutla Sahithyu National institute of technology, Warangal |
| 7 | 12:30 | 12:45 | 189992: Numerical Investigation of Heat Transfer Enhancement in a Copper Sphere-Based Decay Heat Exchanger with Paraffin Wax Using CFD Simulations Mohan S B JNTUA CEA-Anantapuramu-515002 |
| | 12:45 | 14:00 | Lunch (Beside Seminar Halls Complex) |

Day 2: September 23, 2023 (Saturday)

| 14:35 PM – 16:35 PM | | Parallel Session B-3: Online Sessions (8 talks) Venue: Bose Hall | |
|------------------------|-------|---|---|
| 1 | 14:35 | 14:50 | 181628: Fabrication of Graphene reinforced Al-Cu alloy using Stir Casting method (ONLINE) Sreekumar E N Sree Buddha College of Engineering, Pattoor, Alappuzha, Kerala- 690529 |
| 2 | 14:50 | 15:05 | 182402: Synthesis and Characterization of Cu reinforced Al alloy fabricated using friction stir alloying process (ONLINE) Vidya V Sree Buddha College of Engineering |
| 3 | 15:05 | 15:20 | 182296: Design, Development, Simulation, and Physical Model Assembly of 6 DOF Robotic Arm for FDM Technology 3D Printing in the Construction Industry (ONLINE) Tejaswini Sapkal COEP Technological University Pune |
| 4 | 15:20 | 15:35 | 188113: Microstructural Development During Dissimilar Friction Stir Welding of 6061 and 7075 Al-Alloy (ONLINE) Bhukya Hari Chandra National Institute of Advanced Manufacturing Technology (NIAMT) |
| | 15:35 | 15:50 | Tea Break |
| 5 | 15:50 | 16:05 | 182935: Simulation and Analysis of Bi-Layer Material deposition using FEM based software (ONLINE) Ayandeep Sarkar Asansol Engineering College |
| 6 | 16:05 | 16:20 | 185451: Investigation of wall geometry and cooling curves of multilayer material deposition by wire-arc additive manufacturing (ONLINE) Swattik Das Asansol Engineering College |
| 7 | 16:20 | 16:35 | 188023: Development of a Real-Time Data Acquisition System for Monitoring Welding Process. (ONLINE) Someshwar Kale COEP, Technological University Pune |
| 8 | 16:35 | 16:50 | 184237: Effect of Anionic Concentration on the Structural, Morphological and Optical Properties of ZnS Nanoparticles (ONLINE) Sony Jose Christ University (Deemed to be University) |

Day 2: September 23, 2023 (Saturday)

| | | | |
|---|---------------------|-------|---|
| SI No | 11:00 AM - 12:30 PM | | Parallel Session H-2: Mechanical Properties (6 talks) Venue: Homi Bhabha Hall |
| 1 | 11:00 | 11:15 | 189990: Fretting fatigue design curve Jayaprakash Murugesan IIT Indore |
| 2 | 11:15 | 11:30 | 187236: Creep Behavior of Conventionally Forged and Heat- treated IMI685 Near Alpha Titanium alloy Jayanthi A Foundry and Forge Division, Hindustan Aeronautics Limited |
| 3 | 11:30 | 11:45 | 181169: Effect of Ageing on Mechanical Properties of Alloy 625M Cast Nickel Base Superalloy for High Temperature Power Plant Applications M Swamy Corporate R&D BHEL |
| 4 | 11:45 | 12:00 | 185640: Effect of ageing on microstructure and impact toughness of Nimonic 105 forging material Antony Harison M.C BHEL |
| 5 | 12:00 | 12:15 | 186494: Dry sliding wear and friction studies of copper hybrid composites using Taguchi and grey relational analysis Gowthami Gollapinni GITAM University |
| 6 | 12:15 | 12:30 | 187399: Exploring the Impact of Additives on Mechanical Properties and Machinability of Glass Fiber-Reinforced Polymer Composites: A Comprehensive Review Mihiretu Gezahagn Ganta Wolaita Sodo University |
| Lunch (Beside Seminar Halls Complex) | | | |
| | 14:35 PM – 16:20 PM | | Parallel Session H-3: Mechanical Properties (6 talks) Venue: Homi Bhabha Hall |
| 1 | 14:35 | 14:50 | 183895: Experimental Study on Sintering Behaviour of Mechanically Alloyed TNM Composition Powder Mixture Dhanasekaran M SRM Institute of Science and Technology |
| 2 | 14:50 | 15:05 | 185837: Numerical investigation on deformation behavior of anisotropic Al6061 pipe under ring hoop tensile test Manav Pawar St Vincent Pallotti College of Engineering and Technology, Nagpur |
| 3 | 15:05 | 15:20 | 182717: Effect of processing parameters on the structure and properties of Cu-Fe alloys synthesized by spark plasma sintering Santhi Battu National Institute of Technology, Warangal |
| 4 | 15:20 | 15:35 | 187199: Effect of high-temperature exposure on the low cycle fatigue behaviour of Haynes 282 alloy Damodhar Naidu Guntreddy National Institute of technology Warangal |
| | 15:35 | 15:50 | Tea Break |
| 5 | 15:50 | 16:05 | 182559: Effect of Heat treatment on Structure and Properties of medium alloyed Ni-based super alloy DMR SN-742 Forged Components Mahesh Pandiripalli Nit Warangal |
| 6 | 16:05 | 16:20 | 187526: Fatigue properties of metal 3D printed parts-A review Madhan SP KPRIET |

Day 2: September 23, 2023 (Saturday)

| | | | |
|---|---------------------|-------|--|
| Sl No | 11:30 AM - 15:15 PM | | Parallel Session R-2: Advances in Manufacturing (5 talks) Venue: Ramanujan Hall |
| 1 | 11:00 | 11:15 | 188124: Grain growth suppression in alumina ceramics using a modified two stage sintering (TSS) Process SG Savio Defence Metallurgical Research Laboratory |
| 2 | 11:15 | 11:30 | 182683: Internet of Things in Magnetically Impelled Arc Butt welding systems for process parametric evaluation Abhinav Karan Dayananda Sagar University |
| 3 | 11:30 | 11:45 | 187515: Interdisciplinary studies on polymer joining using ultrasonic welding Process Sharanabasavaraj Radder School of Engineering, Dayananda Sagar University |
| 4 | 11:45 | 12:00 | 183405: Hard Machining of Metal Alloys: Considering Cooling Methods and Cutting Tools H Rama Murthy Naik G. B. Pant Dseu Okhla-Iii Campus |
| 5 | 12:00 | 12:15 | 187460: To Study the Effect of Induction Sintering and Hot Forging on Phase Transformation, Thermal behavior and Microhardness in Mechanically Alloyed Al and Mg Powders Debabrata Das Malaviya National Institute of Technology, Jaipur |
| Lunch (Beside Seminar Halls Complex) | | | |
| | 14:35 PM – 15:35 PM | | Parallel Session R-3: Advances in Manufacturing (4 talks) Venue: Ramanujan Hall |
| 1 | 14:35 | 14:50 | 186994: Influence of a novel in-situ post weld laser treatment on the microstructure and mechanical properties of the laser welded DP steel weldment Gopi Krishna C National Institute of Technology, Warangal |
| 2 | 14:50 | 15:05 | 189848: Development of novel C modified filler for gas tungsten arc welding of C.P-titanium Md Jawed Quamar National Institute of Technology, Warangal |
| 3 | 15:05 | 15:20 | 181583: Processing of AA6082 Magnetic Composites with Nickel Additions using Friction Stir Processing Ajay Vaddepally NIT Warangal |
| 4 | 15:20 | 15:35 | 185019: Friction Stir welding of aluminum AA5XX series-A review Sivaganesh K KPRIET |

Route Map of the Conference Venue, Seminar Halls Complex, NIT Warangal

