COPEN 12

Program

Date: 8th Dec. 2022					
Time	Activity				Location
8:00 am - 9:00 am	Registration				Foyer of L4 – L5
9:00 am - 9:30 am	Inaugural				L16
9:30 am – 11 am	Keynotes				L16
11 am – 11:30 am	Tea				Old convocation grounds
11:30 am – 1:30 pm	Invited Talks I				L16
1:30 pm – 3 pm	Lunch				Outreach lawns
3 pm – 4 pm	Panel discussion on why it is so difficult for us to publish good research in good journals.				L16
4 pm – 4:30 pm	Tea				Old convocation grounds
4:30 pm – 6:30 pm	Technical Sessions				L8, L9, L14, L15
	Casting and Joining	Machines I	Surfaces I	Non-traditional I	
6:30 pm – 7:30 pm	COPEN NAC meeting				MedTech Meeting room
7:30 pm – 9:30 pm	Dinner				Outreach lawns

Date: 9th Dec. 2022					
Time	Activity				Location
8:30 am - 9:00 am	Registration				Foyer of L4 – L5
9 am – 11 am	Invited Talks II				L16
11 am – 11:30 am	Tea				Old convocation grounds
11:30 am – 1:30 pm	Technical Sessions				L8, L9, L14, L15
	Machines II and Surfaces II	Cutting I	Additive I	Non-traditional II	
1:30 pm – 3 pm	Lunch				Outreach lawns
3 pm – 4 pm	Industry presentations				L8
4 pm – 4:30 pm	Tea				Old convocation grounds
4:30 pm – 6:30 pm	Workshops			Poster session	L8, L9, and foyer of L8 – L9
	Underwater precision manufacturing	Metrology			
7:30 pm – 9:30 pm	Dinner				Outreach lawns

Date: 10th Dec. 2022					
Time	Activity				Location
9 am – 11 am	Invited Talks III				L16
11 am – 11:30 am	Tea				Old convocation grounds
11:30 am – 1:30 pm	Technical Sessions				L8, L9, L14, L15
	Materials and Sensors	Cutting II + Non-traditional III	Additive II	Non-traditional - IV	
1:30 pm – 3 pm	Valedictory + Lunch				Outreach lawns

Note:

1. All sessions are scheduled in the lecture hall complex within the academic area.
2. The old convocation grounds are opposite the lecture halls L8 and L9.
3. The outreach lawns are a 5 min walk from the lecture hall complex.
4. Campus map: https://www.iitk.ac.in/new/campus-maps

Keynotes. 8th Dec. 2022. 9:30 am – 11 am. L16 Session Chairs: Prof. B Bhattacharya and Prof. S Bukkapatnam
1. Shri Sham H. Arjunwadkar, Foundry Geometrix and Mentor, NCTS – IIF
2. Dr. Vishwas Puttige, AMACE Solutions Pvt. Ltd.
3. Mr. Sunil Taneja, AXIS Microtools, IND-SPHINX Precision ltd.

Invited Talks I. 8th Dec. 2022. 11:30 am – 1:30 pm. L16 Session Chairs: Prof. Doloi and Prof. Palani		
Paper ID	Paper Title	Speakers
D27	Smart Hybrid Manufacturing and progress towards in-situ qualification	Dr. Satish Bukkapatnam, Texas A&M
D17	Towards metal additive manufacturing with unconventional powders	Dr. Koushik Viswanathan, IISc
D19	Predicting 3-D surface characteristics in pulsed laser surface processing using a computational model	Dr. Deepak Marla, IITB
D20	Electric discharge assisted surface post-treatment of additive manufactured metallic components	Dr. Afzaal Ahmed, IIT Pkd
D15	Laser Polishing of Additively Manufactured Metallic Components	Dr. Madhu Vadali, IIT Gn

Invited Talks II. 9th Dec. 2022. 9 am – 11 am. L16 Session Chairs: Prof. Prof. M S Shunmugam and Prof. Subbu		
Paper ID	Paper Title	Speakers
B66	Effect of Ultrasonic Vibration on Microstructural Evolution in case of Laser Cladding of Inconel and TiC/Inconel MMC	Dr. Suvradip Mullick, IIT Bbs
D4	Studies on temperature profile and defects during microwave-assisted compression-molding and conventionally compression-molding process	Dr. Sunny Zafar, IIT Mandi
D10	Goal-oriented active learning with Gaussian Process surrogates for manufacturing	Dr. Jaydeep Karandikar, ORNL
D7	Electrochemical additive manufacturing of high entropy alloys	Dr. Murali Sundaram, Univ. Cincinati
B110	Use of ResNet modelling for TIG weld Feature Digitization and Correlation – A Technique for AI based Welding system	Dr. Ramesh Kuppuswamy, Univ. of Cape Town

Invited Talks III. 10th Dec. 2022. 9 am – 11 am. L16 Session Chairs: Prof. Samuel and Prof. Mathew		
Paper ID	Paper Title	Speakers
D1	Cold spray and tribology of Ti-based metal matrix composites: Role of metal powder characteristics and ceramic content	Dr. V.N.V. Munagala, IIT Kgp
D3	TSP Solver-based Toolpath for Additive Manufacturing of Density-based Functionally Graded Materials	Dr. Sajan Kapil, IIT Guwahati
D22	Convection induced bridging	Dr. Virkeshwar Kumar, IITK
D9	Microstructure evolution in steel/copper graded deposition prepared using wire arc additive manufacturing	Dr. Shiva Shekhar, IIT Jammu

Day 1: 8th Dec. 2022: 4:30 pm- 6:30 pm								
Session	**Paper ID**							
Casting and Joining	B24	B29	B30	B31	D14	D18	B32	-
Machines I	B112	B3	B4	B5	B6	B8	B90	B99
Surfaces I	B28	B68	B43	D6	D8	B1	B95	-
Non-Traditional I	B2	B39	B54	B57	B92	B109	B97	B36

Day 2: 9th Dec. 2022: 11:30 am - 1:30 pm								
Session	**Paper ID**							
Machines II and Surfaces II	B64	B67	D12	D24	D26	B77	B75	B114
Non-Traditional II	B38	B51	B53	B61	B98	-	-	-
Cutting I	B87	B21	B19	B18	B16	B15	B12	B10
Additive I	B20	B17	B11	B93	B82	B13	-	-

Day 3: 10th Dec. 2022: 11:30 am - 1:30 pm								
Session	**Paper ID**							
Non-Traditional IV	B105	B35	B44	B45	B47	B104	B89	B46
Cutting II + Non-Traditional III	B113	B79	B58	B40	B48	B49	-	-
Additive II	D2	B25	B26	B102	-	-	-	-
Materials and Sensors	B74	D13	D16	D23	B23	B7	D11	D5

Industry presentations. 9th Dec. 2022. 3 pm – 4 pm. L8 Session Chairs: Dr. J Karandikar and Dr. Manjesh Singh	
Time	**Company**
3 pm	KISTLER
3:15 pm	LohiaCorp
3:30 pm	INTERFACE
3:45 pm	Mitutoyo

Panel discussion. 8th Dec. 2022. 3 pm – 4 pm. L16 Panelists: Prof. S Bukkapatnam, Prof. Sundaram and Dr. J Karandikar Moderator: Dr. Mohit Law

8th Dec. 2022: 4:30 pm - 6:30 pm

Session Title: **Casting and Joining**

Venue: **L8**

Session Chair: **Prof. Pandey**

Session Co-chair: **Dr. Virkeshwar Kumar**

Paper ID	Paper title, Authors, Affiliation
B24	**Effect of tool offset on weld characteristics during dissimilar micro-friction stir welding of AA 6061-T6 and ALCLAD 2024-T3** Mayank Verma, Probir Saha *Indian Institute of Technology Patna, Bihta, Patna 801106, Bihar, India*
B29	**Influence of activating fluxes on weld bead geometry, microstructures and mechanical properties of IRSM 41 A-TIG weldments** P. Sivateja and R. S. Vidyarthy *BITS-Pilani, Hyderabad Campus, Telangana 500078, India*
B30	**Effect of Plate Placement on Nugget Shape in Joining Dissimilar Thickness Automotive Steel Thin Sheets Using Resistance Spot Welding** Angita Kar, Sarfaraz Hussain, Ashad Seikh, Aatish Kumar, Bipul Dasa *National Institute of Technology Silchar, Silchar – 788010, Assam, India*
B31	**Effect of external heat assistance on the weld quality of AA2024 aluminium alloy during friction stir welding** Pilli Jaya Teja, Rahul Jain *Indian Institute of Technology, Bhilai, Raipur, India, 492015*
D14	**Improvement in the microstructural and mechanical properties of dissimilar titanium (CP-Ti/Ti-6Al-4V) alloys welded using pulse-gas tungsten arc welding** A. Kumar, M. K. Mahto, M. Vashista, M. Z. K. Yusufzai *Department of Mechanical Engineering Indian Institute of Technology (BHU)*
D18	**Tool offset variation and its evaluation for effective cladding of copper to steel in friction stir welding** Mithlesh Kumar Mahto, Adarsh Kumar, Meghanshu Vashista, Mohd Zaheer Khan Yusufzai *Department of Mechanical Engineering, Indian Institute of Technology (BHU)*
B32	**Processing Characteristics for Self-Pouring Temperature of Al2O3 – LM6 Cast Composite** Devendra Pratap Singh[1,2], Vijay Kumar Dwivedi[1], Mayank Agarwal[3] *[1]GLA University, Mechanical Engineering Department, Mathura, India, 281406* *[2]Dr. A.P.J. Abdul Kalam Technical University, Mechanical Engineering Department, Lucknow, India, 226031 c Dr. Ram Manohar Lohia Avadh University, Mechanical Engineering Department, Ayodhya, India, 224001*

8th Dec. 2022: 4:30 pm – 6:30 pm

Session Title: **Machines-I**

Venue: **L9**

Session Chair: **Dr. Jaydeep Karandikar**

Session Co-chair: **Dr. Anshu Jayal**

Paper Id	Paper title, Authors, Affiliation
B112	**Thermal error modeling of machine tool spindle through an ensemble approach** Anirban Tudu, Rupavath Manikanta, D. S. Srinivasu *Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai*
B3	**Learning Machining Stability using a Bayesian Model** Advait Pujari, Harsh Singh Rajput, Mohit Law, Manjesh Singh *DME, Indian Institute of Technology Kanpur, Kanpur 208016, India*
B4	**Recovering Cutting Tool Modal Parameters from Randomly Sampled Signals Using Compressed Sensing** Harsh Singh Rajput, Mohit Law *DME, Indian Institute of Technology Kanpur, Kanpur 208016, India*
B5	**Machine Tool Multibody Dynamic Model Updating Using Vision-Based Modal Analysis** Vishal Singh, Mohit Law *DME, Indian Institute of Technology Kanpur, Kanpur 208016, India*
B6	**Learning Machining Stability Diagrams from Data Using Neural Networks** Namras Amakkattil Shanavasa, Mohit Law, Manjesh K. Singh *DME, Indian Institute of Technology Kanpur, Kanpur 208016, India*
B8	**Sound Intensity Analysis of Straight Bevel Gears Finished by Using AFF Process** Vivek Rana, Anand Petare, Neelesh Kumar Jain *Indian Institute of Technology Indore, Indore, India, 453552*
B90	**Development of CNC machine code and user interface for a 3-axis Pneumatically Configurable Polishing machine** Onkar Chawla, Tarun Verma, Sunil Jha *Indian Institute of Technology, New Delhi*
B99	**Effect of applied pneumatic pressure on the polishing spot size and the total normal force in Pneumatically Configurable Polishing** Tarun Verma, Onkar Chawla, Sunil Jha *Indian Institute of Technology, Delhi*

8th Dec. 2022: 4:30 pm – 6:30 pm

Session Title: **Surfaces-I**

Venue: **L14**

Session Chair: **Dr. K Desai**

Session Co-chair: **Dr. Manjesh Singh**

Paper ID	Paper title, Authors, Affiliation
B28	**Heat Treatment of Plasma Sprayed Tricalcium Phosphate Coatings Deposited on Ti-6Al-4V** Shahid Hussain [1], Anup Kumar Keshri [2], Kazi Sabiruddin [1], *[1]Indian Institute of Technology Indore, Indore, India* *[2]Indian Institute of Technology Patna, Patna, India*
B68	**Development and Characterization of Ni-B Coatings with Reinforcement of Solid Lubricant hBN** Vaibhav Nemane, Avinandan Khaira, Prateek Kumar, Potnuru Niranjan, Satyajit Chatterjee *Department of Mechanical Engineering, Indian Institute of Technology Indore, Simrol, Indore 453552, India*
B43	**Surface modification using micro-nano sized powder metallurgical green compact electrode** Bhargab Madhab Barua, Maneswar Rahang *National Institute of Technology, Mechanical Engineering, Shillong, India, 793003*
D6	**Laser re-melting of atmospheric plasma sprayed high entropy alloy coatings** Dr. Sunny Himanshu Kumar [1], Gaurav A Bhaduri [2], S.G.K. Manikandan [3], M. Kamaraj [4], S. Shiva [1] *[1]Labortaory for advanced manufacturing and processing, Indian Institute of Technology Jammu* *[2]Process Intensification and Nanoscale Advanced Materials Laboratory, Department of Chemical Engineering, Indian Institute of Technology Jammu* *[3]Indian Space Research Organization Propulsion Complex, Mahendragiri* *[4]Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras*
D8	**Improving the surface finishing process by modification of the flexible abrasive tool structure** M. Kumar, V. Racherla *Department of Mechanical Engineering, Indian Institute of Technology, Kharagpur*
B1	**Mechanism of material removal on stainless steel through diamond abrasion – a molecular dynamics simulation study** Prabhat Ranjan [1,2] Anuj Sharma [3], Tribeni Roy [4,5] *[1]Bhabha Atomic Research Centre Mumbai, India, 400085* *[2]Homi Bhabha National Institute Mumbai, India, 400094* *[3]School of Engineering, Cardiff University, Cardiff, UK, CF24 3AA* *[4]Department of Mechanical Engineering, BITS Pilani, India, 333031* *[5]School of Engineering, London South Bank University, 103 Borough Road, London SE1 0AA, UK*
B95	**Effects of temperature on the oxidation behavior of Ag-doped CrAlN coating** S. S. Rajputa, S. Gangopadhyaya, F. Fernandesb [1] *Department of Mechanical Engineering, Indian Institute of Technology Bhilai, Raipur- 492015, Chhattisgarh, India. a b ISEP - School of Engineering, Polytechnic of Porto, Rua Dr. António Bernardino de Almeida 431, 4200-072 Porto, Portugal*

8th Dec. 2022: 4:30 pm – 6:30 pm

Session Title: **Non-Traditional-I**

Venue: **L15**

Session Chair: **Dr. Murali Sundaram**

Session Co-chair: **Dr. Sunny Zafar**

Paper Id	Paper title, Authors, Affiliation
B2	**Investigation into Energy Interaction Behavior of Nitinol SMA during WECM** Naresh Besekar, B. Bhattacharyya *Jadavpur University, Production Engineering Department, Kolkata, India, 700032*
B39	**On the Performance Analysis of Micro-Hole Drilling using Magnetic Field-Assisted Electrochemical Spark Machining** Roopa Singh, DK Singh, Jeeoot Singh *Madan Mohan Malaviya University of Technology, Gorakhpur, Uttar Pradesh, India*
B54	**Effect of Step Pulse Waveform in Electrochemical Micromachining for Dimension Control** Himadri Sekhar Panda, B. Bhattacharyya *Jadavpur University, Production Engineering, Kolkata, India*
B57	**On Electrochemical Discharge Milling of Glass with Horizontal Tool and Vertically Upward Feeding Technique** Sudip Santra, Biplab Ranjan Sarkar, Biswanath Doloi, Bijoy Bhattacharyya *Jadavpur University, Production Engineering Department, Kolkata*
B92	**Jet Pressure Influence on Micro-Abrasive Waterjet Trepanned Hole in CFRP Composite Material** Rajesh Ranjan Ravi, D.S. Srinivasu *Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai*
B109	**Hybrid Strategy for Enhancing the Dimensional Accuracy and Surface finish of Abrasive Waterjet Milled Pockets** Chinmoyee Datta, D.S. Srinivasu *Indian Institute of Technology Madras, Chennai*
B97	**Understanding and predicting material removal rate in abrasive waterjet milling of kerfs** T. N. Deepu Kumar, D. S. Srinivasu *Indian Institute of Technology, Department of Mechanical Engineering, Chennai*
B36	**Characterization of Microwave-drilled Holes in Kenaf-reinforced Epoxy Composites** Rampal, Sunny Zafar *Indian Institute of Technology Mandi, Mandi-175075, India*

9th Dec. 2022: 11:30 am - 1:30 pm

Session Title: **Machines II and Surfaces II**

Venue: **L8**

Session Chair: **Dr. S K Panigrahi**

Session Co-chair: **Dr. Keval Ramani**

Paper ID	Paper title, Authors, Affiliation
B64	**Approach for Determining the Availability of Machine Tools Based on Skill Level of Operator and Service Personnel** Shashi Bhushan Gunjan, D. S. Srinivasu, N. Ramesh Babu *Indian Institute of Technology Madras, Chennai*
B67	**Experimental Investigations on Ultrasonic Assisted Turning of Inconel 718** Tejasv Jotwani, Pranesh Dutta, Gaurav Bartarya *Indian Institute of Technology, Bhubaneswar*
D12	**Magnetorheological finishing of hard WC-Co coating using composite magnetic abrasives** Gourhari Ghosh[1], Ajay Sidpara[2], P. P. Bandyopadhyay[2] *[1]Mechanical Engineering Department, Indian Institute of Technology Jodhpur* *[2]Mechanical Engineering Department, Indian Institute of Technology Kharagpur*
D24	**Enhancing Prediction Abilities of Vision-based Automated Surface Defect Detection Framework Through Transfer Learning** Swarit Anand Singh, KA Desai *Department of Mechanical Engineering, Indian Institute of Technology Jodhpur*
D26	**Surface Mechanical Attrition Treatment of Wire Arc Additive Manufactured Pure Copper** Poonam S. Deshmukh, Bhavesh Jain, Krishna Tomar, I.A. Palani, G. Dan Sathiaraj *Department of Mechanical Engineering, IIT Indore*
B77	**Design and development of high-speed rotating impeller though Topology Optimization** Prabhat Ranjan, Ashok K. Wankhede *Bhabha Atomic Research Centre, Mumbai* *Homi Bhabha National Institute, Mumbai*
B75	**Power Prediction Model for End Milling using Machine Learning** Pramod A, Deepak Lawrence K, Jose Mathew *National Institute of Technology Calicut, Department of Mechanical Engineering, Kozhikode, India, 673601*
B114	**Intelligent Prediction of Machine Tool Performance in Micro Turning Using Textured Inserts** GL Samuel *IIT Madras*

9th Dec. 2022: 11:30 am - 1:30 pm

Session Title: **Cutting-I**

Venue: **L9**

Session Chair: **Dr. Koushik Vishwanath**

Session Co-chair: **Dr. Sarvesh Mishra**

Paper ID	Paper title, Authors, Affiliation
B87	**Experimental Analysis of Brazed Diamond Dresser Using Single Grit Scratch on Zirconia Ceramic** Hardik A. Patel, S. Ghosh, Sunil Jha *Indian Institute of Technology, Delhi*
B21	**Precision Milling of Nickel-Based Single-Crystal Superalloy by TiAlN Coated Small Diameter Solid Carbide End Mill** Srinivasa Rao Nandam [1,2], A Venugopal Rao [2], Deepak Marla [1], Amol A Gokhale [1], Suhas S Joshi [1,3] *[1]Indian Institute of Technology Bombay, Mumbai, India* *[2]Defence Metallurgical Research Laboratory, DRDO, Hyderabad, India* *[3]Institute of Technology Indore, Indore, India*
B19	**Modelling of Micro-Machining of Ti-6Al-4V: Strain Gradient Interpretation** Rahul Yadav, Gautam Kumar, Nilanjan Das Chakladar, Soumitra Paul *Indian Institute of Technology Kharagpur, India, 721302*
B18	**Crack Analysis of Micro-Textured Cutting Tool** Arata Pradhan, Kashfull Orra *Indian Institute of Information Technology Design and Manufacturing Kancheepuram, Chennai-600127, India*
B16	**Influence of Process Damping on the Regenerative Instability of Guided Metal Circular Sawing** Sunny Singhania, Mohit Law *Indian Institute of Technology Kanpur, Kanpur 208016, India*
B15	**Vibration Suppression of a Slender Boring Bar by an Impact Damper** Arjun Patel, Mohit Law, Pankaj Wahi *Indian Institute of Technology Kanpur, Kanpur 208016, India*
B12	**Cryogenic micromachining of soft and stretchable polymer for wearable sensing devices** Partha Sarathi Mallick, Akshay Saxena, Karali Patra *Indian Institute of Technology Patna 801106*
B10	**Study on Atomization Characteristics of Droplet of Biodegradable Oil for End-milling of Incoloy 925** Shravan Kumar Yadav, Sudarsan Ghosh, Sivanandam Aravindan *Indian Institute of Technology Delhi, New Delhi, India, 110016*

9th Dec. 2022: 11:30 am - 1:30 pm

Session Title: **Additive-I**

Venue: **L14**

Session Chair: **Dr. Deepak Marla**

Session Co-chair: **Dr. Madhu Vadali**

Paper ID	Paper title, Authors, Affiliation
B20	**Influence of process variables on the surface roughness of 316L stainless steel parts processed through selective laser melting** Meena Pant [1], Leeladhar Nagdeve [1], Girija Moona [2], Harish Kumar [1], J Ramkumar [3] *[1]National Institute of Technology Delhi, India* *[2]CSIR–National Physical Laboratory, New Delhi, India* *[3]Institute of Technology Kanpur, Kanpur, India*
B17	**Study of Build Rate in Laser Directed Energy Deposition** K. Maurya [1], A. Kumar [1], S. K. Saini [2], C. P. Paul [3]
B11	**Effect of TiC Particle Size on Clad Morphology and Microstructural Changes for TiC/Inconel MMC Deposition by Pre-placed Laser Cladding** Shrey Bhatnagar, Suvradip Mullick *Indian Institute of Technology Bhubaneswar, Odisha 752050*
B93	**Numerical and Experimental Study of Micro Convex Dimple Developed by Laser Additive Manufacturing for Surface Applications** Vijay Mandal, Vikas Tiwari, Moloy Sarkar, Sudhanshu S. Singh, J. Ramkumar *Indian Institute of Technology, Kanpur*
B82	**A Coupled Finite Element Model for Prediction of the Thermo- Mechanical effects of in-situ Rolling in Directed Laser Deposition** Ravi Raj [1,2], Louis Chiu [2], Aijun Huang [2], Deepak Marla [1] *[1]Department of Mechanical Engineering Indian Institute of Technology, Mumbai* *[2]Monash Centre for Additive Manufacturing, Monash University, Melbourne, Australia*
B13	**Experimental Investigation of Additive Manufacturing of SS 316L using Laser Direct Metal Deposition** Satyanarayana Rao Gogineni [1], Sanasam Sunderlal Singh [1], Samuel G.L. [1] [1] *Indian Institute of Technology Madras, Department of Mechanical Engineering, Chennai, India, 600036*

9th Dec. 2022: 11:30 am - 1:30 pm

Session Title: **Non-Traditional-II**

Venue: **L15**

Session Chair: **Dr. Afzaal Ahmad**

Session Co-chair: **Dr. Suvradip Mullick**

Paper ID	Paper title, Authors, Affiliation
B38	**Operational Feasibility of Maglev EDM using Powder Mixed Dielectric for Machining Ti-grade 5 Alloy** Rajesh Sahoo, Vivek Bajpai, Nirmal Kumar Singh *Indian Institute of Technology (ISM), Dhanbad, Jharkhand, India*
B51	**FEM Modeling for Predicting Temperature Profile of Heat Affected Zone in Single Spark EDM Process** S.C.Sonthalia, G.Bartarya, S.Mullick *Indian Institute of Technology Bhubaneswar, Bhubaneswar, India*
B53	**Electrochemical Discharge-assisted Roughening to improve the adhesion of Electroless Nickel with Glass Substrate** Karan Pawar, Harsh Pandey, Pradeep Dixit *Indian Institute of Technology Bombay, Mumbai, India*
B61	**Experimental investigation on the stability of ECDM** Dilbahar, Akshay Dvivedi, Pradeep Kumar *Indian Institute of Technology, Roorkee*
B98	**Micro Channel Fabrication on AA6063-SiC Composites using Micro ED Milling** Shanmuga Priyan V.G., Kanmani Subbu S. *Indian Institute of Technology, Palakkad*

10th Dec. 2022: 11:30 am - 1:30 pm

Session Title: **Material and Sensors**

Venue: **L8**

Session Chair: **Dr. V.N.V. Munagala**

Session Co-chair: **Dr. S Shiva**

Paper ID	Paper title, Authors, Affiliation
B74	**Laser Transformation Hardening of Metal Sheets under Air and Water Environment** Pallav Raj, Yogesh Kumar Karn, Suvradip Mullick, Gaurav Bartarya *School of Mechanical Sciences, Indian Institute of Technology, Bhubaneswar*
D13	**Establishing manufacturing map and structural integrity of a newly developed engineered Mg matrix in-situ composite** S. K. Sahoo, S. K. Panigrahi *Department of Mechanical Engineering Indian Institute of Technology Madras*
D16	**Annealing of tetrahedral and strut-reinforced tetrahedral microlattices for improved energy absorption capacity** A. Namdeo, H. Acharya, P. Khanikar *Department of Mechanical Engineering, Indian Institute of Technology Guwahati*
D23	**MoS_2 Decorated SiNWs for Photosensing Applications** Sharmila B, Priyanka Dwivedi *Indian Institute of Information Technology (IIIT) Sri City, Chittoor*
B23	**Design and analysis of micro thermal mass flow sensor using thin- film-based thermocouples** TCS Nagarajesh, Megha Agrawal *Central Manufacturing Technology Institute, C-SVTC, Bengaluru, India, 560022*
B7	**Obtaining subpixel level cutting tool displacements from video using a CNN architecture** Varun Raizada, Mohit Law *DME, Indian Institute of Technology Kanpur, Kanpur 208016, India*
D11	**Investigations on the influence of Laser annealing of Kapton polyimide towards improving the actuation characteristics of SMA bimorph for micromirrors** Kaushal Gangwar, Dhruv Gupta, Palani I.A. *Mechatronics and Instrumentation Lab, Department of Mechanical Engineering, Indian Institute of Technology Indore*
D5	**Curve-guided multi-pass 5-axis CNC flank milling of free-form surfaces using conical tools** K. Rajain [1], M. Bizzarri [3], M. Bartoň [1,2] *[1]BCAM – Basque Center for Applied Mathematics, Alameda de Mazarredo 14, 48009 Bilbao, Basque Country, Spain* *[2]Ikerbasque – Basque foundation of Sciences, Maria Diaz de Haro 3, 48013 Bilbao, Basque Country, Spain* *[3]Department of Mathematics, Faculty of Applied Sciences, University of West Bohemia, Univerzitní*

10th Dec. 2022: 11:30 am - 1:30 pm

Session Title: **Cutting-II + Non-Traditional-III**

Venue: **L9**

Session Chair: **Dr. Vashista**

Session Co-chair: **Dr. Keval Ramani**

Paper ID	Paper title, Authors, Affiliation
B113	**Performance Evaluation of a Grinding Wheel using: Aggressiveness Number** Abu Sharique Shamshad Khan, Rakesh Kandulna, Binayak Sen, Prithviraj Mukhopadhyay, P.V. Rao *Indian Institute of Technology, Delhi*
B79	**Numerical and Experimental Analysis of Ultrasonic Micromachining to Create Through-Holes in Semiconductor Substrates** Harsh Pandey, Pradeep Dixit *Department of Mechanical Engineering. Indian Institute of Technology Bombay, Mumbai*
B58	**A Novel approach to create narrow openings in PERC solar cell using nanosecond green laser** Pinal Rana, Anil Kottantharayil, Deepak Marla *Indian Institute of Technology Bombay, Mumbai*
B40	**Extrusion Pressure-Based Magnetorheological Finishing Setup for the Improved Finishing of the Non-Ferromagnetic Surfaces** Prabhat Kumar, Saurabh Singh Rathore, Dilshad Ahmad Khan, Prince Oliver Horo *National Institute of Technology Hamirpur, Himachal Pradesh, 177005, India*
B48	**Experimental Investigation into micro-ultrasonic machining (µ-USM) of zirconia using multiple tips micro-tool** Santosh Kumar, B. Doloi, B. Bhattacharyya *Jadavpur University, Kolkata, India*
B49	**Design, Development, and Experimental Investigation of Induction-aided Hot Embossing Process** Swarup S. Deshmukh, Tuhin Kar, Shubhronil Mondal, Arjyajyoti Goswami *National Institute of Technology Durgapur, Durgapur, India*

10th Dec. 2022: 11:30 am - 1:30 pm

Session Title: **Additive-II**

Venue- **L14**

Session Chair: **Dr. Sajan Kapil**

Session Co-chair: **Dr. Niraj Sinha**

Paper ID	Paper title, Authors, Affiliation
D2	**Laser Induced Forward Transfer Based Micro-3D Printing for Multi-layer Three-Dimensional Structure** Anshu Sahu [1], Ashwin Wagh [1], Vipul Singh [2], I A Palani [1], Suhas S. Joshi [1] *[1]Mechatronics and Instrumentation Lab, Discipline of Mechanical Engineering, Indian Institute of Technology Indore* *[2]Molecular and Nanoelectronics Research Group, Discipline of Electrical Engineering, Indian Institute of Technology Indore*
B25	**Experimental investigation of Novel Powder Bed Friction Stir Process for AZ31B Mg alloy** Prabhakar Kr Singh, Akash Mukhopadhyay, Probir Saha *Indian Institute of Technology Patna, Bihta, Bihar, India*
B26	**Thermo-Mechanical Modelling for Prediction of Residual Stresses in Laser Powder Bed Fusion Fabricated Ti6Al4V Components** Akshay Kiran G C, Ramesh Babu N *Indian Institute of Technology Madras, Chennai, India, 600036*
B102	**Design and Material Selection of Hexagon Inspired Dielectric Resonator Based Microwave Metamaterial Absorber** Jyoti Yadav [1], Mondeep Saikia [2], Kumar Vaibhav Srivastava [2], J. Ramkumar [3] *[1] IIT Kanpur, Material Science Program, Kanpur, India, 208016* *[2] IIT Kanpur, Department of Electrical Engineering, Kanpur, India, 208016* *[3] IIT Kanpur, Department of Mechanical Engineering, Kanpur, India, 208016*

10th Dec. 2022: 11:30 am - 1:30 pm

Session Title: **Non-Traditional-IV**

Venue: **L15**

Session Chair: **Dr. Ajay Sidpara**

Session Co-chair: **Dr. Sivasrinivasu Devadula**

Paper ID	Paper title, Authors, Affiliation
B105	**An Experimental Investigation on Electrochemical Discharge Peripheral Surface Grinding Process** Nandani Singh, Vinod Yadava *Motilal Nehru National Institute of Technology, Allahabad*
B35	**Investigation into the Effect of Ultra-Short Pulse Laser Parameters on Machined Surface Integrity during Laser Milling** Upasana Sarma, Niketh Saseendran, G.L. Samuel *Indian Institute of Technology Madras, Chennai, India, 600036*
B44	**An experimental study on drilling of micro-holes on stainless steel using a quasi-continuous wave fiber laser** Arvind Kumar Gupta, Ramesh Singh, Deepak Marla *Indian Institute of Technology Bombay, Mumbai, India, 400076*
B45	**Analytical Modeling for Prediction of Temperature Field and Micro-Crack Depth during Laser Treatment of Alumina for LAM** Jyotiranjan Barik, Gaurav Bartarya, Suvradip Mullick *Indian Institute of Technology Bhubaneswar, Bhubaneswar, India*
B47	**Experimental Investigation into Fiber Laser Marking on Titanium Alloy (Ti-6Al-4V)** M.Pandey, B.Doloi *Jadavpur University, Kolkata, India*
B104	**Experimental Investigation into Portable Near Dry EDM** Rahul Kumar[1], Ankush Katheria[1], leeladhar Nagdeve[1,*], Harish Kumar[1], Krishnakant Dhakar[2] *[1]National Institute of technology Delhi, Mechanical Engineering Department, New Delhi, 110036,* *[2]Shri Govindram Seksaria Institute of technology and Science, Industrial and Production Engineering Department, Indore, India, 452001*
B89	**Microtexturing D2 steel surface to induce superhydrophobicity on it using EDM process** Bibeka Nanda Padhi[1], Sounak Kumar Choudhury[2], Janakarajan Ramkumar[2] *[1,2]Indian Institute of Technology Kanpur, Department of Mechanical Engineering, Kanpur, India, 208016*
B46	**Effect of repetition rate and peak fluence on ablation depth with ultrashort pulse laser irradiation in silicon** Shalini Singh[1], Niketh S[1], G L Samuel[1] *[1]Indian Institute of Technology Madras, Department of Mechanical Engineering, Chennai, India, 600036*