# TUESDAY JUNE 24, 2025

| **09:00-10:15 Regency H** | **Technical Session I: Advances in Manufacturing and Processing of Polymers and Composites 1**<br>*Session Chair: Erina Joyee* | |
|---|---|---|
| MSEC-154422 | Su Yu, Jonathan Colton | Applying Hybrid Deep Neural Networks With Manually Derived Layers To Model Compression Strength Of Angled Cfrp In Aerospace Industry |
| MSEC-155176 | Riley Rohauer, Kory Schimmelpfennig, Vincent Mei, Perrin Woods, Christopher L. Lewis, Md Ahasan Habib | Characterization and Prediction of Properties of Polymeric Materials for Extrusion-Based Bioprinting Process |
| MSEC-155261 | Dr. Tabrej Khan, Tamer A. Sebaey | Characterization of the Quasi-Static Axial Crushing of Multi-Tubular Frp Composite Structures Using Commercially Available Frp Tubes and Pu Foam Filling. |

| **09:00-10:15 Magnolia** | **Technical Session I: Advances in Surface Engineering: Process, Metrology, and Property/Performance 1**<br>*Session Chair: Yiliang (Leon) Lia* | |
|---|---|---|
| MSEC-155315 | X. David Zhang, Xinchao Liu, Yifeng Wang, Chuck Zhang | A Study Of Effects Of Geometric Form Variations To Diametric Differential Of Threads |
| MSEC-155704 | Shayan Bayki, Pushpendra Kumar, Soham Mujumdar | Enhancing Micro-Hardness of Mild Steel by Dbd Plasma Jet Enhanced Chemical Vapor Deposition of Tio2 |
| MSEC-155736 | Anurag Virendra Srivastava, Bhanupratap Gaur, Soham Mujumdar | Deposition of Titanium on Aluminum Using Electrical Discharge Coating Process With Additively Manufactured Tool |

| **09:00-10:15 Gardenia** | **Technical Session I: Explainable AI for Knowledge Discovery in Manufacturing Systems 1**<br>*Session Chair: Grace Guo* | |
|---|---|---|
| MSEC-153006 | Miles Bimrose, James Shin, Christopher Conway, Sameh Tawfick, William King | Fused Deposition Modeling Source Identification From Smartphone Photographs And Deep Learning |
| MSEC-155351 | Chengyang Huang, Joseph Cohen, Xun Huan | Data-Driven Prediction and Uncertainty Quantification on Chemical Concentration in Electroless Plating Process |
| MSEC-155404 | Joseph Cohen, Xun Huan | An Industrial Framework for Explainable Anomaly Detection: A Case Study for Pick-and-Place Machines |

# TUESDAY JUNE 24, 2025

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|---|---|---|
| **09:00-10:15 Regency G** | **Technical Session I: Smart Additive Manufacturing 1** *Session Chair: Azadeh Haghighi* | |
| MSEC-152596 | Longfei Zhou, Rojan Dahal, Xiaoxu Ji | Automatic Powder Bed Leveling For Direct Metal Laser Sintering Based On Machine Learning |
| MSEC-155872 | Meysam Faegh, Reihane Arabpoor, Azadeh Haghighi | Leveraging Physics-Informed Neural Networks for Temperature Field Transfer From Single-Track to Multi-Track Multi-Head Additive Manufacturing |
| MSEC-155542 | Haozhe Zheng, Yuxin Tong, Nathaniel Wood, Uduak Inyang-Udoh | Multi-Input Iterative Learning Control for Laser Powder Bed Fusion |
| **09:00-10:15 NOMA B&C** | **Technical Session I: Student Manufacturing Design Competition I** *Session Chairs: Johnson Samuel and Jaydeep Karandikar* | |
| | The University of Texas at Dallas | Hydrogel Polymer Aliquoting for Lyophilization |
| | The University of Arizona, Tucson | An Integrated Framework for Aerospace Component Repair Using Hybrid Laser Wire Additive Manufacturing |
| | The University of Texas at Austin | Additive Manufacturing with Robotics to Enable Swarm Applications |
| **10:30-11:45 Regency H** | **Technical Session II: Advances in Manufacturing and Processing of Polymers and Composites 2** *Session Chair: Felicia Stan* | |
| MSEC-155352 | Yizhen Zhu, Shah Md Ashiquzzaman Nipu, Parimal Prabhudesai, Sheefali Ajay Balapure, Cindy Xiangjia Li | Linear Volumetric 3D Printing: Dual-Wavelength Initiation and Inhibition for Light-Induced Direct Growth |
| MSEC-155590 | Felicia Stan, Catalin Fetecau, Ionut-Laurentiu Sandu, Adriana-Madalina Constantinescu (Turcanu) | Fused Granulate Fabrication of Polypropylene Carbon Nanotube Composites: A Preliminary Study |
| MSEC-155762 | Andrew Lefors, Parsa Akbari, Shahrzad Rahmani, Roland Chen | A Scalable Fabrication Method for High Drug-Loading Capacity Hollow Microneedles |

# TUESDAY JUNE 24, 2025

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|---|---|---|
| **10:30-11:45 Magnolia** | **Technical Session II: Advances in Surface Engineering: Process, Metrology, and Property/Performance 2**<br>*Session Chairs: Beiwen Li and Avik Samanta* | |
| MSEC-155905 | Akhter Zia, Syed Comail Abbas, Bashir Khoda | Engineering Mof-Enhanced 3D-Printed Monoliths for Scalable and Sustainable Water Filtration Solutions: Tackling Contaminant Leaching and Adsorption |
| JMSE-24-1484 | Mikhail Khrenov, William Frieden Templeton, Sneha Prabha Narra | [J] ADDOPT: An Additive Manufacturing Optimal Control Framework Demonstrated in Minimizing Layer-Level Thermal Variance in Electron Beam Powder Bed Fusion |
| JMSE-25-1079 | Chin-Cheng Shih, Bruce L. Tai | [J] Dynamic Cutting Force Estimation via Fourier Neural Operator (FNO) with Inferred 1 Machine Tool Dynamics: A Proof of Concept |
| **10:30-11:45 Gardenia** | **Technical Session II: Explainable AI for Knowledge Discovery in Manufacturing Systems 2**<br>*Session Chair: Yossi Cohen* | |
| MSEC-155588 | Sida Zhang, Richard Povinelli, Joseph Domblesky | Ensembling Deep Learning Models for Medal Surface Defect Classification |
| MSEC-155749 | Rong Lei, Yuebin Guo, Weihong Guo | Fedscope-Kd: Knowledge Distillation-Enhanced Federated Learning via Shared Composition and Personalized Exploration for Heat Emission Prediction in Additive Manufacturing |
| MSEC-155761 | Hankang Lee, Hui Yang | Multi-Agent Artificial Intelligence to Self-Organize Machine Networks for Resilient Manufacturing |
| **10:30-11:45 Regency G** | **Technical Session II: Smart Additive Manufacturing 2**<br>*Session Chair: Prahalada Rao* | |
| MSEC-155844 | Ali Bahrami, Christopher Watson, Dawn Tilbury, Kira Barton | Optimal Feed-Forward and Iterative Learning Control Framework for Enhanced Precision in Extrusion-Based Additive Manufacturing |
| MSEC-154527 | Hyewon Shin, Seung Woo Paek, Nang Shwe Htike, Sang Won Lee | Development of an Artificial Intelligence Model for Height Prediction Using Multi-Sensor Melt-Pool Data in Directed Energy Deposition Process |
| MSEC-155726 | Jeremy Cleeman, Adrian Jackson, Shane Esola, Chenhui Shao, Hongyi Xu, Rajiv Malhotra | Rapid Real-Time Defect Mitigation for Hardening In-Field Additive Manufacturing to Unknown Extraneous Disturbances |
| **10:30-11:45 NOMA B&C** | **Technical Session II: Student Manufacturing Design Competition II**<br>*Session Chairs: Johnson Samuel and Jaydeep Karandikar* | |
| | University of Missouri | Smart Manufacturing: Guided Mixed Reality Control for Multiple CNC and 3D Printing Machines |
| | Auburn University | Machine Learning-Assisted Ultrasonic Testing And Its Application In Metal Additive Manufacturing |
| | Brigham Young University | Ultra High-Speed Friction Stir Lap Welding |

# TUESDAY JUNE 24, 2025

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| **13:45-15:00 Magnolia** | **Technical Session III: Advances in Clean Energy and E-Mobility Manufacturing 1**<br>*Session Chairs: Alessandro Ascari and Lei Chen* | |
| MSEC-155456 | Chiara Gianassi, Erica Liverani, Alessandro Ascari, Andrea Tonoli, Andrea Cavagnino, Alessandro Fortunato | Characterization of fesi2.9 and Ss 316l Produced by Directed Energy Deposition for Bimetallic High-Speed Rotors |
| MSEC-155578 | Chun Cao, Tianyu Wang, Mian Li, Yunlong Huang, Junjie Jiang, Songhua Zhang | An Efficient Segment Anything Model Adaptation Method for Electrode Overhang Analysis in Lithium-Ion Battery Manufacturing |
| MSEC-155294 | Xinxin Yao, Karnpiwat Tantratian, Yaohong Xiao, Jinrong Su, Lei Chen | [B] Optimization of External Pressure in Pouch Cell Manufacturing Through Large-Scale Phase-Field Simulation |
| **13:45-15:00 Regency H** | **Technical Session III: Advances in Manufacturing and Processing of Polymers and Composites 3**<br>*Session Chair: Kenan Song* | |
| MSEC-155662 | Anasheh Khecho, Erina Baynojir Joyee | Material Behavior of Magneto-Responsive Polymer Composites in Extrusion-Based Direct Writing |
| MSEC-155691 | Ziyi Xu, Shuaiyin He, Koukou Luo, Siqi Chen, Molong Duan | Additive Manufacturing With Continuous Fiber: A Comparison Between Prepreg and In-Situ Impregnated Fiber on Printing Accuracy, Bonding, and Mechanical Performance |
| MSEC-155740 | Hanyu Zhu, Andrew Chang, Nina Valle, Wei Li | Modeling of Phase Separation and Growth in Immiscible Polymer Blends for Fabrication of High-Strength Medical Implants |
| **13:45-15:00 Gardenia** | **Technical Session III: Explainable AI for Knowledge Discovery in Manufacturing Systems 3**<br>*Session Chair: Xi Gu* | |
| MSEC-155771 | Samar Saleh, Yuebin Guo, Weihong Guo | Enhanced Counterfactual Explanations for Optimizing 3D Printing Parameters Using Shap and Nearest Neighbor Constraints With Physics-Based Validation |
| MSEC-155799 | Lige Gan, Guangzhi Qu, Xiao Yue | Securing the Smart Factory: Interpretable Machine Learning for Intrusion Detection in Manufacturing |
| MSEC-155833 | Behzad Esmaeilian, Willie Cade, Sara Behdad | Artificial Intelligence-Based Product Durability Assessment |

# TUESDAY JUNE 24, 2025

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| **13:45-15:00** | **Technical Session III: Smart Additive Manufacturing 3** | |
| **Regency G** | *Session Chair: Molong Duan* | |
| MSEC-155609 | Yuexin Yang, Yi Zhou, Molong Duan | Contact-Force-Based Closed-Loop Control of Multi-Axis Additive Manufacturing With Continuous-Fiber-Reinforced Polymer |
| MSEC-155759 | Angelo Hawa, Yangming Kou, Leonardo Gonzalez, Fred Hicken, Kira Barton | Online Model-Based Input Shaping for Precision Application Processes |
| MSEC-155431 | Artyom Boyarov, Alexander Martinez-Marchese, Chinedum Okwudire | [B] Fragility Aware Grasping With Application for Handling Green Parts 3D Printed Using Binder Jetting |

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| **13:45-15:00** | **Technical Session III: Student Manufacturing Design Competition III** | |
| **NOMA B&C** | *Session Chairs: Johnson Samuel and Jaydeep Karandikar* | |
| | Brigham Young University | Automated Acrylic Award Sanding Station |
| | IIT Bombay - India | A Novel Tri-Axial Scissor-based Motion System for Advanced Manufacturing |

# WEDNESDAY JUNE 25, 2025

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| **09:00-10:15 Magnolia** | **Technical Session V: Advances in Clean Energy and E-Mobility Manufacturing 2**<br>*Session Chairs: Yjianlin Li and Erica Liverani* | |
| MSEC-155706 | Alejandro Franco, Francisco Fernandez, Diego Galvez Aranda, Rashen Lou Omongos, Utkarsh Vijay | A Multi-Technique Machine Learning Workflow for Optimizing the Manufacturing Process of Functional Layers in Electrochemical Energy Devices |
| MSEC-155757 | Luohaoran Wang, Jacob Harris, Bhavana Komaraju, Mihaela Banu | Data-Informed Designing of Pultruded Composite Battery Module Separators for Electric Vehicles |
| **09:00-10:15 Regency H** | **Technical Session V: Advances in Manufacturing and Processing of Polymers and Composites 4**<br>*Session Chair: Zipen Guo* | |
| MSEC-155631 | Kristofer Laser Jr., Natalie Barkley, Ihab Ragai, Alexander Schlarp, Haden Peters, Jocelyn Mcnany | Investigation of Friction Stir Welding of Polymeric Materials |
| MSEC-155765 | Geun Young Kim, Shreyes Melkote, Jonathan Colton | Application of Chemistry-Informed Neural Networks in Modeling Cure Kinetics of Prepreg Materials |
| JMSE-24-1557 | Chuan He, Nathaniel Wood, Nevzat Bircan Bugdayci, Chinedum Okwudire | [J] Generalized SmartScan: An Intelligent LPBF Scan Sequence Optimization Approach for Reduced Residual Stress and Distortion in Three-Dimensional Part Geometries |
| **09:00-10:15 Gardenia** | **Technical Session V: Explainable AI for Knowledge Discovery in Manufacturing Systems 4**<br>*Session Chair: Devesh Upadhyay* | |
| MSEC-155920 | Gunnika Kapoor, Komal Chawla, Tirthankar Ghosal, Kris Villez, Dan Coughlin, Tyden Rucker, Vincent Paquit, Soydan Ozcan, Seokpum Kim | Intelligent Manufacturing Support: Specialized LIms for Composite Material Processing and Equipment Operation |
| JMSE-23-1591 | Changheon Han, Heebum Chun, Jiho Lee, Fengfeng Zhou, Huitaek Yun, ChaBum Lee, Martin B.G. Jun | [J] Hybrid Semiconductor Wafer Inspection Framework via Autonomous Data Annotation |
| JMSE-23-1611 | Fengfeng Zhou, Xingyu Fu, Siying Chen, Changheon Han, Martin B. G. Jun | [J] Three-Dimensional Profile Reconstruction and Internal Defect Detection of Silicon Wafers Using Cascaded Fiber Optic Fabry–Pérot Interferometer and Leaky Field Detection Technologies |

# WEDNESDAY JUNE 25, 2025

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| **09:00-10:15 Dogwood** | **Technical Session V: Siemens Digital - Sponsored Session** *Session Chair: Vinita Jansari* | |
| | Ryan Theeck | Battery Advanced Machine Automation |

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| **09:00-10:15 Regency G** | **Technical Session V: Smart Additive Manufacturing 4** *Session Chair: Uduak Inyang-Udoh* | |
| MSEC-155822 | Abdalmageed Almotari, Majed Ali, Gabriel Awuku Dzukey, Ala Qattawi | Predicting Tensile Strength in Laser Powder Bed Fusion (Lpbf) of In718 Using Neural Networks: The Influence of Heat Treatments and Process Parameters |
| MSEC-155493 | Vivek V. Bhandarkar, Rahul Soni, Puneet Tandon | Comparative Performance Analysis of Cnn Models for Cracking Defect Detection in 3D-Printed Polymer Parts |
| JMSE-23-1528 | Ritin Mathews, Arif Malik, Jaydeep Karandikar, Christopher Tyler, Scott Smith | [J] Iterative Stress Reconstruction Algorithm to Estimate Three-Dimensional Residual Stress Fields in Manufactured Components |

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| **10:30-11:45 Regency H** | **Technical Session VI: Advances in Manufacturing and Processing of Polymers and Composites 5** *Session Chair: Kenan Song* | |
| MSEC-156064 | Vivian H Chung, Zinal Patel, Dharneedar Ravichandran, Grace X. Gu | Processing Collagen – Hydroxyapatite Composite for Bone Tissue Engineering: A 3D Printing Perspective |
| MSEC-155871 | Md Zahirul Islam, Prashant Lakhemaru, Luke Gibbon, Eric Hall, Chad Ulven | [B] Laminated Object Manufacturing of Thermoset Composites and Their Mechanical Characterization |
| MSEC-155869 | Christian Narváez Muñoz, Fran Alexis, Nayeli Gomez, Jamil Segura, Cesar Portero, Joseph Guaman, Luis Segura | [B] Nanofibers and Artificial Intelligence: A Synergistic Approach for Next-Generation Sensors |

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| **10:30-11:45 Gardenia** | **Technical Session VI: Human Integration to Smart Manufacturing Systems 1** *Session Chair: Vinita Gangaram Jansari* | |
| MSEC-154225 | Hassan Hijry, Richard Olawoyin | Human-Centered Stress Monitoring in Smart Assembly Lines Using Explainable Ai With Shap |
| MSEC-155476 | Medhavi Kamran, Snehesh Shrestha, Vinh Nguyen | Cognitive Workload Analysis in Collaborative Robotic Programming of Manufacturing Assemblies Using Teach Pendants |
| JMSE-24-1569 | Arriana Nwodu, Zhengqian Jiang, Weihong “Grace” Guo, Hui Wang | [J] Repurposing Supply Chains and Process Planning Across Products Using a Similarity Model Based on Supernetworks |

# WEDNESDAY JUNE 25, 2025

| **10:30-11:45 Magnolia** | **Technical Session VI: Innovative Welding and Joining Processes of Advanced Materials and Structures 1**<br>*Session Chairs: Xi Gu and Yongbing Li* | |
|---|---|---|
| MSEC-155398 | Avinash Ravi Raja, Sudesh Singh, Puneet Tandon, Meghanshu Vashista, Mohd Zaheer Khan Yusufzai | [B] Analysis of Friction Stir Welding Defects and Failure: A Preliminary Study |
| JMSE-23-1768 | Erica Liverani, Caterina Angelon, Alessandro Ascari, Alessandro Fortunato | [J] Environmental Impact, Mechanical Properties, and Productivity: Considerations on Filler Wire and Scanning Strategy in Laser Welding |
| JMSE-24-1396 | Matthew Ebert, Ronnie F. P. Stone, John Koithan, Wenchao Zhou, Matt Pharr, Yuri Estrin, Ergun Akleman, Zhenghui Sha, Vinayak Krishnamurthy | [J] NoodlePrint: Cooperative Multi-Robot Additive Manufacturing With Helically Interlocked Tiles |

| **10:30-11:45 Regency G** | **Technical Session VI: Smart Additive Manufacturing 5**<br>*Session Chair: Tuhin Mukherjee* | |
|---|---|---|
| MSEC-155537 | Dolor Enarevba, Ahmad Elhabashy, Karl Haapala, Zhaoyan (Andy) Fan | [B] Investigating the Possibility of Product Reconstruction in Manufacturing Using Side Channels – a Systematic Literature Review |
| MSEC-151300 | George Bourgikos, Amit Hegde, Salvador Orozco Martinez, Sannmit Shinde, Ellen Wagman, Carl Herriot, Michael Stender, Christie Crandall | [P] Impact of Baseplate Clamping Location and Type on Residual Stress and Distortion in a Thermal Mechanical Model of Metal Additive Manufacturing |
| JMSE-23-1529 | Kijoon Lee, Milad Ghayoor, V. Vinay K. Doddapaneni, Kenta Noma, Somayeh Pasebani, Chih-Hung Chang, Brian Fronk, Brian K. Paul | [J] A Microchannel Heat Exchanger Produced From a Metal Matrix Composite by Hybrid Laser Powder Bed Fusion and Inkjet Printing |

| **13:45-15:00 Magnolia** | **Technical Session VII: Advanced Machining and Deformation Processes 1**<br>*Session Chair: Dinakar Sagapuram* | |
|---|---|---|
| MSEC-Invited Talk | Authors N/A | How to Write Succint Review Papers with Tangible Outcomes: A Case Study on Hard Turning White Layer |
| MSEC-151374 | Ravi Srivatsa Bindiganavile Narasimhan, Harshit Chawla, Dinakar Sagapuram | Thermal Modeling of Stick-Slip Frictional Contact in High-Speed Machining |

# WEDNESDAY JUNE 25, 2025

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| **13:45-15:00 Gardenia** | **Technical Session VII: Innovations in Equipment Design, Control and Automation 1**<br>*Session Chair: Huitaek Yun* | |
| MSEC-155144 | Nazanin Mahjourian, Vinh Nguyen | Multimodal Object Detection Using Depth and Image Data for Manufacturing Parts |
| MSEC-155169 | Joseph Domblesky, Richard Povinelli, Ross Crowley, Phil Voglewede | Sensor Based Ann System for Monitoring Die Fill in Forging |
| JMSE-24-1480 | Rafid Hussein, Shuting Lei | [J] On the Effects of Substrate Temperature on Glass Internal Modification Using Femtosecond Laser Pulses |
| **13:45-15:00 Regency H** | **Technical Session VII: Laser-based Advanced Manufacturing and Material Processing 1**<br>*Session Chair: Wenda Tan* | |
| MSEC-155483 | Rafid Hussein, Shuting Lei | Welding of Preheated Glass Substrates Using Picosecond Laser Pulses |
| MSEC-155497 | Shuhei Kodama, Kosuke Oike, Riku Kosugi, Keiichi Nakamoto | Fabrication of Micro/nano Multiscale Structures on Aluminum Alloy With Control of Laser-Induced Periodic Surface Structure |
| JMSE-24-1631 | Mahtab Heydari, Bruce L. Tai | [J] A Machine Learning Approach for Rapid Solution of Three-Dimensional Moving Source Problems in Manufacturing |
| **13:45-15:00 Regency G** | **Technical Session VII: Multi-Material Processing in Additive Manufacturing 1**<br>*Session Chairs: Monique McClain and Jay Park* | |
| MSEC-155373 | Max Matura, Jianfeng Ma, Chao Ma | A Numerical Investigation of Alumina Powder Deformation Behaviors During Press Compaction Assisted Binder Jetting |
| MSEC-155697 | Houda Houban, Sukayna Fakher, Jorge Sanchez Medina, Charles Snyers, Dieter De Baere, Zoé Jardon, Michaël Hinderdael | Crack Mitigation in Fe-Cu Hybrid Materials for Additive Manufacturing: A Study of Build Plate Preheating in Ded-Lb |
| MSEC-155475 | Mychal Taylor, Georgia Kaufman, Hayden Fowler, Michael Gallegos, Emily Huntley, Samuel Leguizamon, David Boese, Guhaprasanna Manogharan, Bryan Kaehr | Powercell Packaging Using a Structural Electronics Approach |

# WEDNESDAY JUNE 25, 2025

| 15:15-16:30 Magnolia | **Technical Session VIII: Advanced Machining and Deformation Processes 2**<br>*Session Chair: Dinakar Sagapuram* | |
|---|---|---|
| MSEC-155328 | Shiqi Fang, Sebastian Schorr, Dirk Bähre | Efficient Machine Learning-Based Forecasting of Key Control Parameters for Analyzing Honing Stone Cutting Performance |
| MSEC-155439 | Ravinder Kumar, Ravi Kumar Digavalli | Simulation of Hydroforming of a Two-Wheeler Fuel Tank With Large Depth for Lightweighting |
| MSEC-155533 | Kateland Hutt, Spencer Schmidt, Jaime Van Der Veken, Hitomi Yamaguchi | Abrasive Delivery During Magnetic Field-Assisted Internal Finishing of Complex Additively-Manufactured Channels |

| 15:15-16:30 Gardenia | **Technical Session VIII: Innovations in Equipment Design, Control and Automation 2**<br>*Session Chair: Kyle Saleeby* | |
|---|---|---|
| MSEC-155464 | James Femi-Oyetoro', Md Mashiur Rahman Shoummo, Bruce Jo | 6-DOF (Degrees-of-Freedom) Robotic Arm-Assisted Modal Testing To Identify System Parameters |
| MSEC-155613 | Yuseop Sim, Eunseob Kim, Jiho Lee, Hojun Lee, Dongjun Yun, No Bin Myeong, Yunjae Hwang, Hyung Wook Park, Martin Byung-Guk Jun | Sound Data Augmentation Using Frequency Response Superposition for Machine Tool State Recognition |
| MSEC-155563 | Shih-Hsuan Chien, Burak Sencer | [B] A Neural Network-Based Friction Compensation Method for Machine Tool Feed Drives |

| 15:15-16:30 Regency H | **Technical Session VIII: Laser-based Advanced Manufacturing and Material Processing 2**<br>*Session Chairs: Qiong (Eric) Nian and Xin Zhao* | |
|---|---|---|
| MSEC-155596 | Satyaki Sinha, Yang Du, Tuhin Mukherjee | Variations in Fusion Zone Geometry, Cooling Rates, and Solidification Parameters During Adjustable Mode Beam Laser Powder Bed Fusion |
| MSEC-155020 | Richard Steinbrecht | [P] Optical Coherence Tomography (Oct) in Combination With Various Welding Tasks |
| MSEC-155744 | Haoran Shi, Fangzhou Li, Wenda Tan | [B] Dynamic Keyhole Behavior and Fluid Flow in Multi-Laser Welding Process |

# WEDNESDAY JUNE 25, 2025

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| **15:15-16:30 Regency G** | **Technical Session VIII: Multi-Material Processing in Additive Manufacturing 2**<br>*Session Chairs: Mostafa Yourdkhani and Elham Mirkoohi* | |
| MSEC-155857 | Payton Baggott, Irtija Nazim, Manasi Shah, Rodrigo Martinez-Duarte | Characterization of Triangular Tungsten Carbide Lattices Material Properties and Structural Changes in Manufacturing With Sustainable Materials |
| MSEC-155934 | Nazanin Tabatabaei, Xuan Song | Characterization of Interfaces Between Layers of Differently Sized Particles in Pressure-Assisted Binder Jetting |
| JMSE-24-1045 | Hongtao Song, Nicholas A. Rodriguez, James S. Oakdale, Eric B. Duoss, Carolyn C. Seepersad, Richard H. Crawford | [J] Additive Manufacturing of Tough Silicone Via Large-Scale, High-Viscosity Vat Photopolymerization |
| **16:45-18:00 Magnolia** | **Technical Session IX: Advanced Machining and Deformation Processes 3**<br>*Session Chair: Bruce Tai* | |
| MSEC-155600 | Ruotong Wang, Xin Li, Kaiyan Zhang, Xueping Zhang | Grinding Temperature Prediction Modeling Framework Based on Single-to-Multi Grain Interaction Mechanism |
| MSEC-155601 | Kaiyan Zhang, Xi Li, Ruotong Wang, Xueping Zhang | Ultrasonic Vibration Machining of Copper Graphite Electrode Sheet |
| MSEC-155585 | Tyler Grimm, Ankit Agarwal, Laine Mears | [B] Brief Paper: Electric Pusle Assisted Milling |
| **16:45-18:00 Regency G** | **Technical Session IX: Advances in Metal Additive Manufacturing Processes 1**<br>*Session Chair: Hector Siller* | |
| MSEC-151292 | Jackson Motley, Mohammad Arjomandi, Tuhin Mukherjee | Effects of Longitudinal Arc Oscillation on Track Integrity During Collaborative Robot-Assisted Wire Arc Deposition |
| MSEC-155436 | Lutfun Nipa, Hector R. Siller, Reza Mirshams | Nanoindentation-Driven Analysis of Mechanical Properties in Lpbf Ti6al4v |
| MSEC-154993 | Jorge Neira, Ho Yeung | Laser Powder Bed Fusion Process Feedback Control Based on In-Situ Powder Layer Thickness |

# WEDNESDAY JUNE 25, 2025

| 16:45-18:00 Gardenia | **Technical Session IX: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 1**<br>*Session Chair: Muyue (Margret) Han* | |
|---|---|---|
| MSEC-155526 | Xiaohan Wu, Venkat Roy, Neha Shakelly, John W. Sutherland, Fu Zhao | Bioleaching Gallium From E-Waste: Comparative Techno-Economic Assessment |
| MSEC-155605 | Digvijaysinh Barad, Bryan Rasmussen | [B] Study on Continuous Compressed Air Flow Estimation: Pressure Decay Method vs Duty Cycle Approach |
| JMSE-24-1599 | Jesús R. Pérez-Cardona, Nehika Mathur, Sidi Deng, Miha Zakotnik, Catalina Oana Tudor, John W. Sutherland | [J] Environmental and Economic Benefits of Harvesting Machine for Magnet-to-Magnet Recycling |

| 16:45-18:00 Regency H | **Technical Session IX: Smart, Innovative, and Low-cost Tooling Systems for Advanced Materials Manufacturing 1**<br>*Session Chair: Curtis Krick* | |
|---|---|---|
| MSEC-155349 | Luke Shannon, Xiaoyi Liu, Mahdi Pirani, Hongpeng Yang, Yan Tong, Saeed Farahani | Modernizing Tooling Systems Through the Development of Hybrid Soft Sensors |
| MSEC-155441 | Perrin Woods, Kenneth Houston, Nazmus Sakib, Christopher L. Lewis, Ahasan Habib | From Gantry Systems to Robotic Arms: A Versatile Hybrid 3D Bioprinting Nozzle With Real-Time Uv Curing |
| MSEC-151342 | Hamed Dardaei Joghan, Marlon Hahn, Farin Weinert, Yannis P. Korkolis, A. Erman Tekkaya | [B] Effect of Ball Burnishing and Laser Polishing on the Surface Characteristics of Deposited Layers in Hybrid Additive Laminated Tooling |

# THURSDAY JUNE 26, 2025

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|---|---|---|
| **09:00-10:15 Magnolia** | **Technical Session X: Advanced Machining and Deformation Processes 4**<br>*Session Chair: David Yan* | |
| MSEC-155627 | Aditya Yalamanchili, Dinakar Sagapuram, Prabhakar Pagilla | Real-Time Strip Thickness Control in Metal Peeling |
| MSEC-155658 | Shilun Du, Yingda Hu, Yong Lei | Experimental Analyses on the Damage Effects of the Ultrasonically Activated Surgical Devices |
| MSEC-151281 | Laymin Hoe, Yunfa Guo, Yanjin Lee, Kevin Lizarraga, David P. Yan | Ultraprecision Machining of Additively Manufactured Ti-5553 Alloy for Biomedical Applications |
| **09:00-10:15 Regency G** | **Technical Session X: Advances in Metal Additive Manufacturing Processes 2**<br>*Session Chair: Dong Lin* | |
| MSEC-155594 | Richard Baumer, Elvin Vuong, Dmytro Zagrebelnyy, Ezequiel Pessoa | Impact of Interpass Temperature on Properties of Aluminum Er2319 Produced by Wire Arc Additive Manufacturing With a Weave Path |
| MSEC-155721 | Nismath Valiyakath Vadakkan Habeeb, Kevin Chou | Size Effects on Process-Induced Porosity in Laser Powder-Bed Fusion Additive Manufacturing |
| MSEC-155750 | Emmanuel Bamido, Michael Cullinan | Multiphysics Modeling of the Influence of Scanning Parameters on Melt Pool Geometry in Directed Energy Deposition |
| **09:00-10:15 Gardenia** | **Technical Session X: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 2**<br>*Session Chair: Jing (Julia) Zhao* | |
| MSEC-155206 | Matthew Triebe, Nehika Mathur, Ashley Hartwell, Kc Morris | Reference Model for Electric Vehicle Battery Recovery in a Circular Economy |
| MSEC-155344 | Hadear Hassan, Amira Bushagour, Abheek Chatterjee, Astrid Layton | Quantitatively Supporting System-Level Sustainability and Resilience in Manufacturing |
| MSEC-155425 | Lakshmi Srinivasan, Fu Zhao | Quantifying Carbon Footprint in Industrial Heat Treatment Processes Through Life Cycle Assessment |
| **09:00-10:15 NOMA B** | **Technical Session X: Doctoral Symposium 1**<br>*Session Chair: Ping Guo* | |
| MSEC-166148 | Vinayak Khade, Saeed Farahani | [P] Context-Aware Multi-Agent Framework for Smart Manufacturing |
| MSEC-166341 | Dolor Enarevba | [P] A Cloud-Enabled Framework for Stakeholder Engagement in the Sustainability Assessment of Biobased Products |
| MSEC-169302 | Xiangyu Jiang, Saeed Farahani | [P] A Federated Digital Twin Platform for Sustainable Composites Manufacturing |
| MSEC-170267 | Sohan Nagaraj | [P] Investigation of Data-Driven Tool Condition Monitoring Systems for Subtractive Manufacturing Processes |

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| **09:00-10:15 Regency H** | **Technical Session X: Smart, Innovative, and Low-cost Tooling Systems for Advanced Materials Manufacturing 2**<br>*Session Chairs: Saeed Farhani and Hamed Joghan* | |
| MSEC-155839 | Mahdi Pirani, David Kirk, Saeed Farahani | A Novel Low-Cost Tooling via a Hybrid Manufacturing Technology |
| MSEC-155889 | Mason Hynds, Ojas Acharya, Atharva Shastri, Diego Terrazas, Mahdi Pirani, Saeed Farahani | Leveraging Standard Inserts in Fabrication of Low-Cost Tooling for High-Performance Applications |
| JMSE-24-1389 | Mengfei Chen, Wenbo Sun, Weihong "Grace" Guo | [J] Adaptive Online Continual Learning for In-Situ Quality Prediction in Manufacturing Processes |
| **10:30-11:45 Magnolia** | **Technical Session XI: Advanced Machining and Deformation Processes 5**<br>*Session Chair: David Yan and Bruce Tai* | |
| MSEC-155694 | Hui Liu, Markus Meurer, Thomas Bergs | Investigation of Tool Temperature During End Milling: Experimental and Numerical Approaches |
| MSEC-151574 | Markus Diegel, Markus Meurer, Thomas Bergs | Performance of Different Diamond Coatings and Substrate Materials in Cutting of Tungsten Carbide With Laser-Treated Tools |
| MSEC-154821 | Kilian Brans, Markus Meurer, Thomas Bergs | Influence of the Material Production Route on the Chip Formation Mechanisms of the Lead-Free Copper-Zinc-Alloy Cuzn42 (Cw510l) |
| **10:30-11:45 Regency G** | **Technical Session XI: Advances in Metal Additive Manufacturing Processes 3**<br>*Session Chair: Ala Qattawi* | |
| MSEC-155767 | Hamed Dardaei Joghan, Philipp Heideck, Farin Weinert, A. Erman Tekkaya, Yannis P. Korkolis | Hybrid Additive Manufacturing of Double-Walled Tubes With Subsequent Forming Processes |
| MSEC-155899 | Aishwarya Sarker, Santosh Thapa, Yang-Tse Cheng, Madhav Baral | [B] Mechanical Characterization of an Additively Manufactured Metallic Super Alloy Using Micro Tensile and Instrumented Indentation Testing |
| MSEC-155924 | Sutonu Oraon, Rajesh Gorai, Shashank Shukla, Soham Mujumdar, Ramesh Singh | Experimental Characterization and Defect Mapping of Coaxial Wire Laser Directed Energy Deposition of Aisi 304 |
| **10:30-11:45 Gardenia** | **Technical Session XI: Bio-Manufacturing of Engineered Living Materials 1**<br>*Session Chairs: Congrui Jin and Qiming Wang* | |
| MSEC-155173 | Rokeya Sarah, Riley Rohauer, Kory Schimmelpfennig, Shah Limon, Christopher Lewis, Md Ahasan Habib | Development of a Predictive Model to Optimize Bioink Formulations Tailored for Extrusion-Based Bioprinting |
| MSEC-155442 | Yihao Xu, Rokeya Sarah, Yongmin Liu, Bashir Khoda, MD Ahsan Habib | Ai-Guided Bayesian Optimization for Predicting Bioink Viscosity in 3D Bioprinting |
| MSEC-154895 | Nisha Rokaya, Erin Carr, Richard Wilson, Congrui Jin | Design of Engineered Living Materials for Martian Construction |

# THURSDAY JUNE 26, 2025

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| **10:30-11:45 NOMA B** | **Technical Session XI: Doctoral Symposium 2** *Session Chair: Ping Guo* | |
| MSEC-164653 | Prateek Gupta, Satish Kumar | [P] Coating of Multiple Layers and Non-Newtonian Liquids on Rotating Discrete Objects |
| MSEC-165165 | Felicia Fashanu | [P] Optimization of Abrasive Machining of Additively Manufactured Veterinary Orthopedic Implants Considering Human-in-the-Loop |
| MSEC-167464 | Putong Kang | [P] Process Innovations in Incremental Sheet Forming (Isf) |
| MSEC-170318 | Aditya Yalamanchili | [P] Modeling and Control of Roll-to-Roll Manufacturing Systems for Metal Peeling |
| **10:30-11:45 Regency H** | **Technical Session XI: Semiconductor Manufacturing: Metrology, Inspection, Equipment, and Processes 1** *Session Chairs: Chabum Lee and Jiyong Park* | |
| MSEC-155632 | Gugyeong Sung, Hyunjae Lee, Heebum Chun, Chabum Lee | [B] 3D Imaging Approach to TSV/TGV Critical Dimension Metrology and Inspection |
| JMSE-24-1388 | Xiangtao Gong, Zhongjia Gao, Kai Jen Wu, Jinzhao Fu, Yan Wang, Heng Pan | [J] Powder Compaction Characteristics and Modeling of Calendering Process for Powder-Based Solvent-Free Manufacturing of Electrodes for Lithium-Ion Batteries |
| **13:45-15:00 Magnolia** | **Technical Session XII: Advanced Machining and Deformation Processes 6** *Session Chairs: Dinakar Sagapuram and Yang Guo* | |
| MSEC-155808 | Desmond Mensah, Sha Ouyang, Qi Zhang, Brad Kinsey, Jinjin Ha | Leveraging Cyclic Bending Under Tension Data and an Artificial Neural Network to Predict Extrapolated Strain Hardening Behavior of Dual Phase Steels |
| JMSE-23-1745 | Kaveh Rahimzadeh Berenji, Faraz Tehranizadeh, Erhan Budak | [J] Chatter Stability of Orthogonal Turn-Milling Process in Frequency and Discrete-Time Domains |
| JMSE-24-1104 | Alessandro Fortunato, Erica Liverani, Lorenzo Cestone, Flavia Lerra, Alessandro Ascari, Hambal Iqbal, Adrian H.A. Lutey | [J] Dry Grinding: A More Sustainable Manufacturing Process for the Production of Automotive Gears |
| MSEC-155693 | Felicia Fashanu, Brandon Gee, Barbara Linke | [B] Belt Grinding Simulation to Optimize Manual Grinding Process Parameters |

# THURSDAY JUNE 26, 2025

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| **13:45-15:00 Gardenia** | **Technical Session XII: Bio-Manufacturing of Engineered Living Materials 2** *Session Chairs: Weinan Xu and Honyu Zhou* | |
| MSEC-155671 | Lily Raymond, Liam Bond, John Samuel Thella, Christina Thella, Pengbo Chu, Yifei Jin | Digital Light Processing of Microfluidic Chips for Cell Separation |
| MSEC-155912 | Ayman Alghamdi, Chuanshen Zhou, Ali Shams, John-Thomas Robinson, Renjing Wang, Taylor Rawlinson, Hitomi Yamaguchi, Yong Huang | Self-Supported Printing of Gelatin Composite-Based Engineered Living Materials |
| MSEC-152987 | Miles Adams | [P] Engineering Biochar Enhanced Mycelium Composites for Sustainable Digital Fabrication and Energy Storage: A Novel Bio-Manufacturing Workflow |
| **13:45-15:00 NOMA B** | **Technical Session XII: Doctoral Symposium 3** *Session Chair: Ping Guo* | |
| MSEC-164596 | Shenliang Yang | [P] Modelling of Residual Stresses in Combined Additive Manufacturing and Machining Processes |
| MSEC-168549 | Mitchell Donoughue | [P] Measuring the Effect of Print Parameters and Material Choice on Adhesion in Dissimilar Material Printing |
| MSEC-170059 | Weijun Zhang | [P] A Comprehensive Directed Energy Deposition (Ded) Control System for Geometric Accuracy, Productivity, and Energy Management |
| MSEC-170201 | Ravi Srivatsa Bindiganavile Narasimhan | [P] Direct Production of Sheet and Wire From Copper Contaminated Steel Scrap by Metal Peeling |
| **13:45-15:00 Regency G** | **Technical Session XII: In Situ Monitoring, Non-Destructive Evaluation, and Qualification for Additive Manufacturing 1** *Session Chairs: Arvind Shankar Raman and Andelle Kudzal* | |
| MSEC-155129 | Brian Johnstone, Nicole Van Handel, Patrick Merighe, Christopher Saldana, Kyle Saleeby | In-Situ Measurement of Slitted Thin Walls in Laser Powder Bed Fusion |
| MSEC-155444 | Harshin Sanam, Zhenghui Sha | Enhancing In-Situ Monitoring of Cooperative 3D Printing via Edge Detection and Image Augmentation |
| MSEC-155544 | Khawlah Alharbi, Wei William Li, Hantang Qin | Partially Observable Markov Decision Processes (Pomdp) Framework for Decision-Making Under Uncertainty in Ehd Printing Using Image Based Monitoring System |

# THURSDAY JUNE 26, 2025

| **13:45-15:00 Regency H** | **Technical Session XII: Advances in Manufacturing of Thin Films and Coatings**<br>*Session Chairs: Semih Akin and James Nowak* | |
|---|---|---|
| MSEC-155548 | Melanie Howe, Luis Mantilla, Abishek Indupally, Rodrigo Martinez-Duarte | Optimization of Surface Roughness in the Electrodeposition Process |
| MSEC-155660 | Nan Wang, Ruixiang Zheng, Runze Cai, Xueke Zheng, Mian Li | Modeling Periodic Defects Under Zigzag Scanning In Roll-To-Roll Manufacturing |
| MSEC-155708 | Gobinda Chandra Behera, Nitin Vilas Desai, Sankha Deb | Implementation of Soft Computing-Based Metaheuristic Algorithms in Multi-Objective Environmentally-Conscious Machining Operation Sequence Optimization With Carbon Emission Reduction |

| **15:15-16:30 Gardenia** | **Technical Session XIII: Advanced Manufacturing of Functional Devices and Bioinspired Structures 1**<br>*Session Chair: Cindy (Xiangjia) Li* | |
|---|---|---|
| MSEC-155442 | Yihao Xu, Rokeya Sarah, Yongmin Liu, Bashir Khoda, MD Ahsan Habib | AI-Guided Bayesian Optimization for Predicting Bioink Viscosity in 3D Bioprinting |
| MSEC-155150 | Shuai Chen, Qingqing He, Yang Yang, Han Xu | Development and Optimization of a Top-Down 3D Printing System for Single-Tank Multi-Material Fabrication Using Hydrogel-Rochelle Salt Composites |
| MSEC-155202 | Leila Daly, Ibrahim Gusau, Riley Rohauer, Perrin Woods, Md Ahasan Habib, Christopher Lewis, Krittika Goyal | Development and Characterization of a 3D-Printable Pdms Composite With Batio3 for Enhanced Force Sensing in Soft Robotics |

| **15:15-16:30 Regency H** | **Technical Session XIII: Advances in Meso, Micro, and Nano Subtractive and Formative Manufacturing 1**<br>*Session Chair: Soham Mujmudar* | |
|---|---|---|
| MSEC-155570 | Nikita Shubin, Muhammad Jahan | Machining High-Aspect-Ratio Microelectrodes Using Micro-Edm-Based Self-Drilled Holes Technique |
| MSEC-155926 | Prathamesh Nachankar, Aswani Kumar Singh, Anurag Virendra Srivastava, Soham Mujumdar | Performance Evaluation of Powder Mixed Electric Discharge Drilling for High Aspect Ratio Holes in Aluminium Alloy (Al7075) |
| MSEC-155640 | Dilan Ratnayake, Douglas Jackson, Daniel Sills, Andriy Sherehiy, Dan Popa, Kevin Walsh | [B] Characterization of Aerosol Printing Conductive Traces and Custom Strain Gauges on Pcb |

# THURSDAY JUNE 26, 2025

| **15:15-16:30 Magnolia** | **Technical Session XIII: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 3**<br>*Session Chairs: Jing (Julia) Zhao and Muyue (Margret) Han* | |
|---|---|---|
| MSEC-155909 | Prawin Sankar Balasubramaniam Ramesh Chandar, Barbara S Linke | A Deeper Look Into Fdm Printing: An Energy and Surface Topography Study |
| JMSE-24-1366 | Masaki Michihata, Souki Fujimura, Shuzo Masui, Satoru Takahashi | [J] Concept of Error Compensation for Nonorthogonality in Two-Axis Displacement Measurement System Utilizing Single Grating Scale and Littrow Configuration |
| MSEC-155785 | Nobel Karmakar, C. S. Kumar, Poonam Sundriyal | Fabrication of Alsi10mg Lattice Structure as Battery Electrodes via Laser Powder Bed Fusion Process |

| **15:15-16:30 NOMA B** | **Technical Session XIII: Doctoral Symposium 3**<br>*Session Chair: Ping Guo* | |
|---|---|---|
| MSEC-166325 | Tengteng Tang, Tengteng Tang | [P] Electrically Assisted Vat Photopolymerization of Bio-Inspired Functional Materials |
| MSEC-165774 | Yunxia Chen | [P] Fabrication of Sensor-Embedded Heterogeneous Brain Simulant for the Evaluation of Impact-Induced Mild Traumatic Brain Injury |
| MSEC-169530 | Zhangke Yang | [P] Deciphering and Translating Bioinspired Structures for Engineering Materials Design via Computational Modeling |
| MSEC-166983 | Erin Carr, Congrui Jin, Nisha Rokaya, Richard Wilson | [P] Bioinspired 3D Printing: From Smart Surfaces to Adaptive Structures |

| **15:15-16:30 Regency G** | **Technical Session XIII: In Situ Monitoring, Non-Destructive Evaluation, and Qualification for Additive Manufacturing 2**<br>*Session Chair: Samantha Webster* | |
|---|---|---|
| MSEC-155551 | Zifeng Wang, Samuel Boese, Aidan Sevinsky, Mrudul Satbhai, Ahmad Nourian, Sagar Kamarthi, Sinan Muftu, Xiaoning Jin | Part Authentication Through Encrypted Geometric-Magnetic Fingerprint Fusion in Cold Spray Additive Manufacturing |
| MSEC-155670 | Gadde Deepak, Alaa Elwany, Yang Du | Additive Manufacturing In-Situ Process Monitoring and Stability Analysis |
| MSEC-155758 | Sukayna Fakher, Houda Houban, Dieter De Baere, Jorge Sanchez Medina, Charles Snyers, Sanjeev Sheshadri, Zoe Jardon, Michaël Hinderdael | Effects of Thermal Gradient Control on Residual Stress and Distortion in L-Ded Fabricated Parts |

# THURSDAY JUNE 26, 2025

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| **16:45-18:00 Magnolia** | **Technical Session XIV: Advanced Machining and Deformation Processes 7**<br>*Session Chair: Xialiang Jin* | |
| MSEC-151844 | Tobias Kelliger, Markus Meurer, Thomas Bergs | Tailored Cutting Fluid Supply in Additively Manufactured Milling Tools for Aerospace Applications |
| MSEC-155739 | Madhav Baral, Saroj Majakoti, Santosh Thapa, Yang-Tse Cheng | [B] Understanding Deformation Processes of a Rolled Aluminum Sheet Using Instrumented Indentation |
| MSEC-156059 | Matthew Youssef, Sepideh Abolghasem, Satchit Ramnath, Mahmoud Dinar | [B] Voxel-Based Generative Modeling for Dynamic Process Planning in Subtractive Manufacturing |
| **16:45-18:00 Gardenia** | **Technical Session XIV: Advanced Manufacturing of Functional Devices and Bioinspired Structures 2**<br>*Session Chair: Yang Yang* | |
| MSEC-155503 | Shahid Hussain, Xiaoqing Tian, Dingyfei Ma, Tianlong Chang, Zaiyu Wang, Lian Xia, Jiang Han | Additive Fabrication of Hybrid Carbon Nanotube Composite for Piezoresistive Pressure Sensor and Its Properties |
| MSEC-155836 | Rui Dong, Karla Magdalena Becerra Rosas, Wenda Tan | [B] Fabrication of Hierarchical Porous Copper Structures Using Binder Jetting and Space-Holders |
| MSEC-155471 | Shah M Limon, Rokeya Sarah, Md Ahasan Habib | A Classification-Based Machine Learning Approach to Understand and Infer the Ultimate Successful Bioprinting Process |
| **16:45-18:00 Regency H** | **Technical Session XIV: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 4**<br>*Session Chair: Jing (Julia) Zhao* | |
| MSEC-155848 | Ryan Elsasser, Hongliang Li, Ilya Kovalenko | A Digital Twin Framework for Computer Hardware Design and Assembly: A Risk-Prioritized Approach |
| MSEC-155851 | Licheng Liang, Aditya Chivate, Zipeng Guo, Jason Armstrong, Chi Zhou | Roll-to-Roll Manufacturing of Biomass Material for Sustainable Thermal Insulation Application |
| MSEC-155873 | Digvijaysinh Barad, Jordan Buechler, Bryan Rasmussen | [B] Optimizing Compressed Air System Efficiency in Manufacturing: A Study on Air Leak Repairs and Economical Impact |

# THURSDAY JUNE 26, 2025

| **16:45-18:00 Regency G** | **Technical Session XIV: In Situ Monitoring, Non-Destructive Evaluation, and Qualification for Additive Manufacturing 3**<br>*Session Chairs: Andy Fan and Sarah Wolff* | |
|---|---|---|
| MSEC-155846 | Natalya Kublik, David Deisenroth, Bruno Azeredo | Computer-Aided Analysis of In-Situ Optical Imaging for Melt Pool Visualization and Accurate Laser Position Tracking |
| MSEC-155840 | Laura Duenas Gonzalez, Natalya Kublik, Bruno Azeredo | [B] Modified Archimedes Method for Density Measurements of Samples Presenting Open Porosity |
| JMSE-24-1162 | Aishwarya Deshpande, Christian Baumann, Patrick Faue, Michael Mayer, Gerald Ressel, Friedrich Bleicher, Frank E. Pfefferkorn | [J] Fully Consolidated Deposits From Oxide Dispersion Strengthened and Silicon Steel Powders Via Friction Surfacing |

# FRIDAY JUNE 27, 2025

| 09:00-10:15 Regency G | **Technical Session XV: Advances in System-level Modeling and Analysis in Manufacturing Towards Sustainability 5**<br>*Session Chair: Muyue (Margret) Han* | |
|---|---|---|
| MSEC-155639 | Muyue Han, Lingxiang Yun, Yiran Yang, Jing Zhao, Anika Akther | Shared Additive Manufacturing Network for Metal Remanufacturing: Cost-Aware Hub Distribution and Order Allocation |
| MSEC-155743 | Jingwen Wang, Martina Convertino, Lin Li | Sizing and Operation of Hybrid Photovoltaic-Thermal (Pvt) System in Manufacturing Facility Considering Integrated Demand Response |
| MSEC-155760 | Hankang Lee, Hui Yang | Cognitive Digital Twin for Multi-Objective Production Scheduling in Sustainable Manufacturing |

| 09:00-10:15 Gardenia | **Technical Session XV: Advanced Manufacturing of Functional Devices and Bioinspired Structures 3**<br>*Session Chairs: Kethi Lichade and Zipeng Guo* | |
|---|---|---|
| MSEC-155649 | Pablo Andres Zuniga, Christian Zuniga-Navarrete, Stalin Jamil Segura, Zipeng Guo, Sabur Baidya, Christian Narvaez-Munoz, Jessica Koehne, Luis Javier Segura | Experimental Assessment and Data-Driven Modeling of 3D Printed Conductive Patterns on Electrospun Substrates |
| MSEC-155868 | Sai Hamsitha Reddy Guvvala, Mohammed Gayasuddin Shaik, Ketki Lichade | Single-Layer Photopolymerization Process for the Rapid Fabrication of Nature-Inspired Multifunctional Films |

| 09:00-10:15 Regency H | **Technical Session XV: Innovations in Equipment Design, Control and Automation 3**<br>*Session Chairs: Chandra Nath and Kyle Saleeby* | |
|---|---|---|
| MSEC-155879 | Mohammed Gayasuddin Shaik, Sai Hamsitha Reddy Guvvala, Uma Bhattacharjee, Ketki Lichade | Rapid Fabrication of Mesoscale Structures Using Digital Light Projection-Based Nozzle-Assisted Continuous Printing |
| MSEC-155781 | Sudhansu Sekhar Nath, Poonam Sundriyal | Optimization of 3d Printed Supercapacitors via Machine Learning |
| MSEC-155673 | Hojun Lee, Young Woon Choi, Evin Lugo, Jiho Lee, Sang Won Lee, Martin Byung-Guk Jun | [B] Gmgp: Generalized Model for Grasp Planning of Vacuum and Parallel Jaw Grippers |