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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024

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STUDENT PRESENTATION COMPETITION
ROUND 01 EVALUATION

28TH OCT 2024 (MON)
LOCATION TBA

28TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

TBA STUDENT Fatigue Performance of WAAM ER70S-6 and ER80S-Ni1
Hannah Kessler1; Shirin Raschid Farrokhi1; Ryan Sherman1; ’Georgia Institute of Technology

TBA STUDENT Online Chatter Detection using MTConnect and Inbuilt Sensors
Shohom Bose-Bandyopadhyay1; Helen Hu1; Melissa Foley1; Thomas Kurfess1; Kyle Saleeby1; ’Georgia Institute of Technology

TBA STUDENT Processing Additively Manufactured Titanium Alloy Fatigue Data for Deployment in Analytical Databases and Potential Limitations
Ian Wietecha-Reiman1; Jayme Keist1; Xiaoliang Zhao2; Todd Palmer1; 1Pennsylvania State University; 2BlueHalo

TBA STUDENT Conformal Toolpath Design for Slab-on-Grade 3DPC by Integrating Vision-Based Scanning Systems for Pre-Process Monitoring
Paniz Farrokhsir1; Özgüç Bertru2 Çağançaman1; Sven Bilén1; Jose Duarte1; Benay Gursoy1; 1Pennsylvania State University

TBA STUDENT Accelerated Creep Testing and Modeling of Alloy GRX-810
Jacob Pellicotte1; Calvin Stewart1; ’Ohio State University

TBA STUDENT Ultrasound Field-Assisted 3D Printing of Multi-Functional Mechanical Metamaterials
Runsheng Hou1; Bart Raeymaekers1; ’Virginia Tech

TBA STUDENT A Digital Twin for Minimizing Distortion in Machining Metal Additive Manufactured Parts
Shaim Mahamud1; Jose Outeiro1; ’University of North Carolina at Charlotte

TBA STUDENT Iron and Cobalt Reactive Inks for Printed Transition Metals with Variable Atomic Structure
Collin Miller1; Owen Hildreth1; ’Colorado School of Mines

TBA STUDENT Improving the Prediction of Geometric Deviations in Additively Manufactured Parts with Varying L-PBF Process Parameters using Conditional Generative Adversarial Networks
Subigayamani Bhandari1; Sangjin Jung1; ’Southern Illinois University Carbondale

TBA STUDENT Real-Time In Situ Monitoring in Fused Filament Fabrication using Current-Based Sensor
Alexander Isiani1; Kelly Crittenden1; ’Louisiana Tech University

TBA STUDENT Integrated Topology and Lattice Optimization Approach for the Additively Manufactured Heat Exchangers
Joseph Nonso Okeke1; Ali Bonakdar2; Oseuzua Ibhadode3; Ehsan Toyserkani1; ’University of Waterloo; 2University of North Carolina in Charlotte; 3University of Alberta

TBA STUDENT Metallurgical and Mechanical Properties of Laser Metal Deposited NbTaTiV Refractory High Entropy Alloy
Eric Barth1; Anis Hor2; ’Institut Clément Ader (ICA, CNRS UMR 5312); 2Institut Supérieur de l’Aéronautique et de l’Espace (ISAE-SUPAERO)

TBA STUDENT Laser Powder Bed Fusion Melt Pool Instability Caused by Plume-Entrained Particles Blocking the Laser
Jamie Bell1; ’Imperial College London

TBA STUDENT Merging Additive Manufacturing and Nanotechnology toward Functionalization of Novel Ti6Al4V Biomaterial
Nthabiseng Nhlapo1; Thrywil Dzogbeu1; Olga de Smidt1; ’Central University of Technology, Free State

TBA STUDENT Prediction of Factors Affecting Young's Modulus of Ti-6Al4V Printed by Powder Bed Fusion with Adaptive Neuro Fuzzy Inference System
Yanting Liu1; Cherg Chua2; ’National University of Singapore (NUS); 2Singapore University of Technology and Design (SUTD)

TBA STUDENT Enhancing the Interfacial Properties of Low Carbon Steel and SS316L Bi-Metallic Interface via Mesoscale Groove Engineering in Hybrid Wire-Arc Directed Energy Deposition
Akshar Kota1; Nikith Manish Shanghavi1; Ji Ho Jeon1; Shreyes Melkote1; ’Georgia Institute of Technology

TBA STUDENT A Novel Analytical Technique to Detect Fatigue Crack Initiation in Additively Manufactured Materials
Ritam Pal1; Amrita Basak1; ’Pennsylvania State University

Note: This agenda features a list of the accepted presentations for ICAM 2024 and their tentative allocated timeslots. The program arrangement can still be subjected to changes as a result of other program considerations. Do contact us at icam@astm.org if you need more information.
Barış Kavas1; Markus Bambach1; Michael Tucker1; 1ETH Zürich |
|-------------|-------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------|
| TBA STUDENT | Topology Optimization Based Additive Construction Process for Compression-Only Structures: Additive Construction Processes Jenna Migliorino1; Islam Mantawy1; Aly Ahmed1; Anthony Mackin1; Zaid Hanoun1; 1Rowan University | TBA STUDENT | A Multi-Sensor Instrumentation for Laser-Powder Directed Energy Deposition Process: Experimental Correlation between Process Physics and Part’s Properties
Lilou de Peindray d’Ambelle1; 1Institut Supérieur de l’Aéronautique et de l’Espace (ISAE-SUPAERO) |
| TBA STUDENT | Stress Concentration Strengthening of SS316L with IN718 through Multi-Metal Additive Manufacturing Britton DeGarmo1; Dwight Smith2; Hiroyuki Tauchi1; Greg Behm2; Karen Manley2; Calvin Stewart1; 1Ohio State University; 2Nedez Machine Tool | TBA STUDENT | Influence of Alternative Post-Processing Conditions on Mechanical Performance of Inconel 718 Manufactured by Powder Bed Fusion - Supporting Standardisation & High Calibre Datasets
Phoebe May1; Robert Lancaster1; Martin White2; Alberto Bordin2; Richard Huff2; 1Swansea University; 2ASTM International |
| TBA STUDENT | 3D Printing Engineered Composite Materials with Tailored Properties using Multi-Step Curing and Ultrasound-Assisted Vat Photopolymerization with a Rotating Build Platform
Duy Le1; Bart Raeymaekers1; 1Virginia Tech | TBA STUDENT | Effect of Layer Thickness on the Microstructure and Mechanical Properties of In-Situ Alloying of Ti-30Ta using Laser Powder Bed Fusion
Cheng Chua1; Yanting Liu2; Swee Leong Sing2; Chee Kai Chua1; 1Singapore University of Technology and Design (SUTD); 2National University of Singapore (NUS) |
| TBA STUDENT | Ceramic AM Flexure Geometric Feasibility Study
Anand Rathnam1; Stuart Smith1; 1University of North Carolina at Charlotte | TBA STUDENT | Topology Optimization of Continuous Fiber-Reinforced Composites Considering Manufacturing Constraints
Janet Wong1; David Rosen2; Emily Sanders1; 1Georgia Institute of Technology; 2A*STAR - IHPC / SIMTech |
| TBA STUDENT | The Effects of Heat Treatment on the Microstructure and Mechanical Properties of Cold-Sprayed Chromium-Carbide / Nickel-Chromium Coatings for Railroad Repairs
Sohayb Batwa1; Ahmad Nourian-Avvval1; Sinan Müftü1; 1Northeastern University | TBA STUDENT | Understanding Local vs. Global Deformation in Additively Fabricated Hastelloy X
Justin Lynch1; Ritam Pal2; Brandon Kemerling2; Daniel Ryan2; Sudhakar Bollapragada2; Amrita Basak1; 1Pennsylvania State University; 2Solar Turbines |
| TBA STUDENT | Investigating Hardening, Damage, and Defect Effects in Additively Manufactured Metal Matrix Composites using a Large-Strain Elasto-Viscoplastic FFT-Framework
Claire Ticknor1; Jamila Khanfr2; Alex Butler2; Josh Kacher2; Aaron Stebner2; Ashley Spear1; 1University of Utah; 2Georgia Institute of Technology | TBA STUDENT | Automated and In-Place 3D Concrete Printing (3DCP) of Mesh-Reinforced Slabs
Ali Baghi1; Jose Duarte1; 1Pennsylvania State University |
| TBA STUDENT | Composite Coatings for Magnesium-Based Implants with Enhanced Corrosion Resistance and Biocompatibility
Abdelrahman Amin1; Vipul Patil1; Devin Melton1; Bryce Williams2; Mostafa Elsaadany2; Hamdy Ibrahim1; 1University of Tennessee at Chattanooga; 2University of Arkansas | TBA STUDENT | Is Additive Construction Ready for Seismic Regions? - A New Seismic Protective System Enabled by Additive Construction
Anthony Mackin1; Islam Mantawy1; Jenna Migliorino1; Hamdy Fahroud1; 1Rowan University |
| TBA STUDENT | Automated Toolpath Generation for Bottom Facing Counterbores in FDM 3D Printing
Sherwin Salemi1; 1High Tech High North County | TBA STUDENT | Advancing Biomedical Applications through 4D Bioprinting: Fabrication of Shape Memory Chitosan Stents for Cardiovascular Interventions
Saman Faraji Gargari1; Murali Krishnan Ramachandran1; Manigandan Kannan1; Hossein Ravanbakhsh1; 1University of Akron |

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### TBA STUDENT

**Interface Behavior of 3D-Printed Concrete Structures**

Pedram Ghassemi\(^1\); 1Ohio State University

**In-Situ Monitoring of Laser Powder Bed Fusion Process with Acoustic Emission Sensors**

Mihir Darji\(^1\); Prahalad Rao\(^1\); Benjamin Blevans\(^1\); Alexander Rienzsche\(^1\); Antonio Carrington\(^1\); Yuri Piotnikov\(^2\); John Siens\(^2\); Kyle Snyder\(^2\); Derek Hass\(^2\); Virginia Tech; 2Commonwealth Center for Advanced Manufacturing (CCAM)

### TBA STUDENT

**From Tracks to Cubes: Systematic Investigation on Identifying Process Parameters to Minimize Defects of AA6061 in Laser Powder Bed Fusion Additive Manufacturing**

Sivaji Karna\(^1\); Tianyu Zhang\(^1\); Rimah Al-Aridi\(^1\); Timothy Krentz\(^2\); Dale Hitchcock\(^2\); Andrew Gross\(^3\); Lang Yuan\(^1\); University of South Carolina; 3Savannah River National Laboratory

**Automated and Robust Initial Alignment of Raw Laser-Scanned Data through Sequentially Constrained Rigid Motions**

Akash Anand\(^1\); Weizhi Lin\(^1\); Qiang Huang\(^2\); 1Massachusetts Institute of Technology; 2University of Southern California

**Fabrication of Interdigitated Capacitors using Aerosol Jet Printing**

Cam Eldridge\(^1\); Yvonne Fu\(^1\); Connor Smith\(^1\); Hatem ElBiwidelwy\(^1\); 1United States Naval Academy (USNA)

**Laser Powder Bed Fusion of Copper-Tungsten Composites for Use in Power Electronics**

Simon Rauh\(^1\); Lioba Fischer\(^1\); Shashank Prabhu\(^1\); Gerhard Wolf\(^1\); Nico Hempel\(^1\); Peter Mayr\(^1\); 1Fraunhofer Institute for Environmental, Safety and Energy Technology UMSICHT; 2Technical University of Munich

**Directed Energy Deposition (DED) Repair of Next Generation Nickel Based Superalloys for Blisk Applications**

Kieran Samuel\(^1\); Robert Lancaster\(^1\); Nick Barnard\(^1\); Martyn Jones\(^2\); Christopher Heason\(^2\); 1Swansea University; 2Rolls-Royce Development of Additive Manufacturing Processes for Al-Sc/SiC Metal Matrix Composites and their Microstructure Evolution and Mechanical Property Response

Yi Chao\(^1\); 1National Sun Yat-Sen University

### TBA STUDENT

**Topology Optimization of Continuous Fiber-Reinforced Polymer Composites with Spatially-Varying Fiber Volume Fraction and Bi-Modulus Material Properties**

Abdulmajeed Altassan\(^1\); David Rosen\(^2\); Emily Sanders\(^1\); 1Georgia Institute of Technology; 2A*STAR - IHPC / SIMTech

**Dispersion and Stability Testing for Direct Ink Writing of Ceramics**

Chloe Fellabaum\(^1\); Christopher Eadie\(^1\); Beecher Watson\(^1\); Mark Fanton\(^1\); Richard Meyer\(^1\); 1Pennsylvania State University

**Advanced Acoustic Architectural Design through Robotic 3D Printing of Fungal Biomaterials with Parameter Optimization**

Alaie Mohseni\(^1\); Özgüz Bertuğ Çapunaman\(^1\); Alireza Zamani\(^1\); Natalie Walter\(^1\); Benay Gürsoy\(^1\); 1Pennsylvania State University

**A Parameter Space for Molybdenum using Laser Powder Bed Fusion**

Ernest Porterfield\(^1\); 1Auburn University

**Unraveling the Effect of Part Thermal History on Microstructural Evolution and Mechanical Properties in Stainless Steel 316L Laser Powder Bed Fusion**

Kaustubh Deshmukh\(^1\); 1Savannah River National Laboratory

**Multi-Stimuli Integration in Alloy Design: Friction-Assisted Processing of Al-Mg Alloys for High-Performance Nano-Composite Materials**

Md Jasim Uddin\(^1\); Aniruddha Malakar\(^1\); Michael Lastovich\(^1\); Farhan Ishrak\(^1\); Caleb Schenck\(^1\); Bharat Gwalani\(^1\); 1North Carolina State University

**Improving Thermal Debinding of Ceramics using Mass Transport Networks**

Olorunfemi Esa\(^1\); Christopher Hansen\(^1\); Amy Peterson\(^1\); 1University of Massachusetts Lowell

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Taguchi Optimization of FFF Printed PEKK and Silicon Nitride Loaded PEKK for Cranioplasty Implant Applications
Tabitha Derr; Cemile Basgul; Paul DeSantis; Ryan Bock; Steven Kurtz; 1Drexel University; 2SINTX Technologies

Fabrication of Durable and Inextensible Silicon Rubber Molds Tailored for High-Pressure Embossing of IR Transparent Materials
Abolfazl Vahedi; Shima Jalali; Asad Asad; James Hogan; Patricia Donez; Dan Sameoto; 1University of Alberta

Empirical Model for Fatigue Life Prediction of Additively Manufactured AlSi10Mg
Lea Strauß; 1University of the Bundeswehr Munich

Characterisation of Transition Welds Manufactured using Laser Powder Bed Fusion (LPBF)
Kelsey Parker; Robert Lancaster; Thomas Jones; 1Swansea University; 2Rolls-Royce Submarines

Micromechanical Properties and Microstructure Evolution of Copper-Manganese-Tin Alloy using Selective Laser Melting
Bing Ru Hsieh; 1National Sun Yat-Sen University

Development of Molybdenum Alloys for Use with Powder Blown Laser Direct Energy Deposition Additive Manufacturing
Nathaniel Lies; Aaron Stebner; 1Georgia Institute of Technology

Computational Methods of Multi-Material Distribution in Additively Manufactured Concrete Domes
Amir Ghasemi; Nathan Brown; Jose Duarte; 1Pennsylvania State University

Additive Construction of Low Embodied Carbon Concrete: Geopolymer Concrete
Aly Ahmed; Islam Mantawy; 1Rowan University

Improving Recycled PLA Performance via Short Carbon Fiber Composite Addition for Sustainable 3D Printing
Murali Krishnan Ramachandran; Dale Chenoweth; Luke Phillips; Lukas Seggi; Manigandan Kannan; 1University of Akron

Evaluation of Fracture Properties of Additively Manufactured IN718 under Quasi-Static and Dynamic Loading
Alex Edwards; Hareesh Tippi; 1Auburn University

Understanding the Corrosion Behavior of LPBF Cu-30Ni in Simulated Seawater Environments
Timothy Montoya; 1University of Virginia

Coaxial Layered Fiber Spinning for Wind Turbine Blade Recycling
Varun Kumar Thippan; 1Arunachalam Ramanathan; Kenan Song; 1Arizona State University; 2University of Georgia

Modeling of Fretting Fatigue in Additively Manufactured Metals
Samira Ghada; Ali Fatemi; 1University of Memphis

In-Situ Metal Powder Quality Assessment through Frequency-Domain Thermal Property Evaluation
Sina Ghadi; Xiaobo Chen; Nicholas Tomasello; Srikantan Rangarajan; Guangwen Zhou; 1Scott Schiﬀres; 1Binghamton University

Hossein Mammadzadeh; Ramin Sedaghati; Marjan Molavi-Zarandi; 1Concordia University; 2University of North Carolina at Charlotte

Data-Driven Design Rules for Dimensional Accuracy of Green Parts Manufactured using Binder Jetting Additive Manufacturing
Edward Yang; Mihaela Vlasea; 1University of Waterloo

Direct Energy Deposition of Inconel 718-Copper Bimetallic Structures with Excellent Comprehensive Properties
Stefano Felicioni; Alberta Aversa; Federica Bondioli; Gildo Di Domenico; Flavio Lucibello; Andrea Zanin; 1Politecnico di Torino; 2Hypatia Research Consortium

Interpass Peening Impact on Residual Stress in Wire-Arc Additive Manufactured Ti-6Al-4V using Phased-Array Ultrasonic Testing
Joseph Walker; Brandon Mills; Yashar Javad; Yongle Sun; Pradeepa Taraphdar; Fiona Sillars; Charles MacLeod; Anthony Gachagan; Gareth Pierce; 1University of Strathclyde; 2Cranfield University

Micromechanical and Electrical Properties of Copper-Manganese Alloy using Selective Laser Melting
Chi-Chen Shih; 1National Sun Yat-Sen University

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<th>TBA STUDENT</th>
<th>Effects of Post-Processing Heat Treatments on Microstructure and Mechanical Properties of PBF-LB AlSi10Mg</th>
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<tr>
<td></td>
<td>Nancy Huang\textsuperscript{1}; Qixiang Luo\textsuperscript{1}; Dean Bartles\textsuperscript{2}; Timothy Simpson\textsuperscript{1}; Allison Beese\textsuperscript{1};</td>
</tr>
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<td>\textsuperscript{1}Pennsylvania State University; \textsuperscript{2}Manufacturing Technology Deployment Group Inc. (MTDG)</td>
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STUDENT POSTER COMPETITION

28TH OCT 2024 (MON)
LOCATION TBA

STUDENT POSTER COMPETITION

28TH OCTOBER 2024

SESSIOH CHAIR (AM SESSION):
TBA

SESSIOH CHAIR (PM SESSION):
TBA

STUDENT
Role of Manganese Composition on the Strain-Controlled Fatigue Life in Additively Manufactured 316L Austenitic Stainless Steel
Ian Witecha-Reiman1; Andrew Iams2; Stephen Sabo3; Todd Palmer1;
1Pennsylvania State University; 2NIST; 3Naval Nuclear Laboratory (NNL)

STUDENT
Flow Visualization and Mixing Enhancement in Y-Junction Microchannel with 3D Acoustic Streaming Flow Patterns Induced by Trapezoidal Triangular Structure using High-Viscous Liquids Ayalew Yimam Ali1; Eyob Messele Sefene1;
1National Taiwan University of Science and Technology (NTUST)

STUDENT
Mechanical Characterization of Additively Manufactured Polymer Implants Composed with Multiwalled Carbon Nanotubes Vivekanand Naikwadi1; Ismail Fidan1;
1Tennessee Technological University

STUDENT
The Impact of Carbon Nanotube Reinforcement on the Mechanical and Electrical Properties of Additively Manufactured Polymer Composites Shamil Gudavasov1; Ismail Fidan1;
1Tennessee Technological University

STUDENT
Machine Learning-Accelerated Property Prediction of Additively Manufactured Metamaterials: A Framework for Defining Repeated Periodic Lattice Cells in Polar and Cartesian Coordinates Jake Peloquin1; Ken Gall1; L. Catherine Brinson1; Juan Matias Di Martino1;
1Duke University

STUDENT
Multifunctional Glass Composites via 3D Printing Taylor Sobczak1; Kenan Song1; Arunachalam Ramanathan1; Sri Vaishnavi Thummalapalli1;
1University of Georgia

STUDENT
Advanced Reinforcements for Next-Generation Composite Manufacturing Arunachalam Ramanathan1; Kenan Song1;
1University of Georgia

STUDENT
A Novel Approach to Integrate Additive Manufacturing to Metal Casting: Lost-PLA Casting Mohammad Alshaikh Ali1; Ismail Fidan1; Fred Vondra1; Marshall Miller2; 1Tennessee Technological University; 23D Systems

STUDENT
Mechanical Benchmarking for the Components Produced with Low-Cost and High-Strength Nanoparticle-Infused Polymers Mushfig Mahmudov1; Ismail Fidan1;
1Tennessee Technological University

STUDENT
3D Printable Composites for Solid-State Batteries Sri Vaishnavi Thummalapalli1; Kenan Song1;
1University of Georgia

STUDENT
Machine Learning-Assisted 3D Printing of Conductive Polymer Composites for Energy Storage Devices Sri Vaishnavi Thummalapalli1; 1University of Georgia

STUDENT
Influence of Post-Build Heat Treatment on Microstructure and Stress Corrosion Cracking (SCC) Performance of Additively Manufactured Cu-30Ni Debasis Rath1; Markus Chmielus1; Zachary Harris1;
1University of Pittsburgh

STUDENT
Effect of Post-Processing Heat Treatment on the Stress Corrosion Cracking Behavior of Binder Jet Printed 17-4PH Stainless Steel Borna Rafiei1; Markus Chmielus1; Zachary Harris1;
1University of Pittsburgh

STUDENT
Multi-Scale Testing and Optimization of Additively Manufactured Aluminum Metal Matrix Composites on Powder Bed and Directed Energy Deposition Systems Jamila Khanifi1; Alex Butler1; Aaron Stebner1;
1Georgia Institute of Technology

STUDENT
Effect of Additive Manufacturing Methodologies and Biomaterials on the Mechanical Properties of Porous Architectures Niusha Daneshdoost1; Amanda Heimbrook1; Jake Peloquin1;
1Duke University

STUDENT
Investigation of Bone Cement Adhesion to Additively Manufactured Implant Surface Finishes and Porosities Caroline Atting1;
1Duke University

STUDENT
Evaluation of Melt Pool Characteristics in Inconel 718 Laser Powder Bed Fusion Additive Manufacturing under Consistent Volumetric Energy Density Ankita Sahu1; Marjan Molavi-Zarandi1; Harish Cherukuri1;
1University of North Carolina at Charlotte

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| TBA STUDENT | An Introduction to Advanced Manufacturing for Underrepresented Groups | Helen Hu\(^1\);  \(^1\)Georgia Institute of Technology |
| TBA STUDENT | Leveraging Additive Manufacturing to Better Understand Nondestructive Evaluation | Jacey Birkenmeyer\(^1\); Harshith Kumar Adepu\(^1\); Meher Mirza\(^1\); Luz Sotelo\(^1\);  \(^1\)Purdue University |
| TBA STUDENT | Characterization of 3D Printed Underwater Concrete with Different Environmental Conditions | Khalilullah Taj\(^1\); Yen-Fang Su\(^1\);  \(^1\)Louisiana State University |
| TBA STUDENT | Nondestructive Evaluation of Additively Manufactured Components with Internal Structures | Harshith Kumar Adepu\(^1\); Jacey Birkenmeyer\(^1\); Meher Mirza\(^1\); Luz Sotelo\(^1\);  \(^1\)Purdue University |
| TBA STUDENT | Nondestructive Quantification of the Effect of Varying Cooling Conditions on Additively Manufactured Polyactic Acid | Partha Pratim Pandit\(^1\); Anna Keim\(^1\); Meher Mirza\(^1\); Harshith Kumar Adepu\(^1\); Justin Yoosung Kim\(^1\); Monique McClain\(^1\); Luz Sotelo\(^1\);  \(^1\)Purdue University |
| TBA STUDENT | Gradient Segmentation of In-Situ Infrared Images in Electron Beam Powder Bed Fusion | Brian Johnstone\(^1\); Christopher Saldaña\(^1\);  \(^1\)Georgia Institute of Technology |
| TBA STUDENT | Impact of Additive Friction Stir Deposition Process on the Mechanical Properties and Corrosion Behavior of Al-Mg Alloy | Saeid Zavari\(^1\); Shengmin Guo\(^1\); Ehsan Bagheri\(^1\); Huan Ding\(^1\); Noushin Adibi\(^1\);  \(^1\)Louisiana State University |
| TBA STUDENT | Comparative Analysis of PEEK and Carbon-PEEK Materials in Fused Deposition Modeling | Vinay Gupta\(^1\); Dhanganjay M. Kulkarni\(^1\); N. Ininyan Thirusevam\(^1\); Vikas V. Chaudhari\(^1\); S. Suraj\(^2\);  \(^1\)BITS Pilani, K K Birla Goa Campus;  \(^2\)Vikram Sarabhai Space Centre |
| TBA STUDENT | Enhancing Sustainability in Additive Manufacturing: A Case Study on Recycling NiTi and NiTiHf Alloys | Mahyar Sojoodi\(^1\); Mohammad Pourshams\(^1\); Mohammad Elahinia\(^1\); Behrang Poorangij\(^1\);  \(^1\)University of Toledo |
| TBA STUDENT | Optimizing Set-On-Demand in 3D Concrete Printing through Active In-Situ Carbon Sequestration | Sean Gip Lim\(^1\),\(^2\);  \(^1\)Nanyang Technological University (NTU);  \(^2\)Singapore Centre for 3D Printing (SC3DP) |

| TBA STUDENT | Acoustics-Based Fault Detection in FDM 3D Printing with Microphone Array and LSTM Network | Muhammad Fasih Waheed\(^1\);  \(^1\)Florida A&M University - Florida State University (FAMU-FSU) College of Engineering |
| TBA STUDENT | The Design, Development, and Analysis of a Prototype System for the Remanufactured Filaments | Jake Officer\(^1\); Ismail Ismail\(^1\);  \(^1\)Tennessee Technological University |
| TBA STUDENT | Prediction of Melt Pool Characteristics in Laser Powder Bed Fusion (LPBF) using Machine Learning | Mehran Bagheri\(^1\); Marjan Molavi-Zarandi\(^1\); Ali Bonakdar\(^1\);  \(^1\)University of North Carolina at Charlotte |
| TBA STUDENT | Cellular Compressive Wing Architecture | Devon Shelton\(^1\);  \(^1\)Edmonds College |
| TBA STUDENT | Quantification of Carbide Pickup in Binder Jet Printed SS 316L using Computer Vision | Pooja Maurya\(^1\);  \(^1\)Carnegie Mellon University |
| TBA STUDENT | Enhanced Biomedical Scaffolds through 3D Bioprinting | Adrienne Glover\(^1\); Abdelrahman Amin\(^1\); Alyssandra Navarro\(^2\); Jacqueyln Horsey\(^2\); Hamdy Ibrahim\(^1\); Mostafa Elsadadany\(^1\);  \(^1\)University of Tennessee at Chattanooga;  \(^2\)University of Arkansas |
| TBA STUDENT | From Print to Performance: Examining CFR-PEKK Composite Properties for Improved Trauma Plate Design | Arjun Sharma\(^1\); Steven Kurtz\(^2\); Paul DeSantis\(^1\); Ryan Bock\(^2\);  \(^1\)Drexel University;  \(^2\)SINTX Technologies |
| TBA STUDENT | 3D Printing of Continuous Fiber Composites via In-Situ Layup | Kyle Blanset\(^1\);  \(^1\)University of California, Berkeley |
| TBA STUDENT | Printing Strategy Induced Layer Wise Graded Texture Evolution in Wire Arc Additive Manufactured Superalloy Inconel 625 | Yoshit Tiwari\(^1\); Manidipto Mukherjee\(^2\); Shenglu Lu\(^1\); Xiaobo Chen\(^1\); Ma Qian\(^1\);  \(^1\)Royal Melbourne Institute of Technology (RMIT University);  \(^2\)CSIRO - Central Mechanical Engineering Research Institute (CSIRO-CMERI) |
| TBA STUDENT | Understanding the Refinement of Grains and Elevated Temperature Mechanical Properties of Arc Surface Remelted Al-6Cu-0.5Mn-2Ni-0.4Zr-0.2Ti-0.25Sc Alloy | Diya Mukherjee\(^1\); Manidipto Mukherjee\(^2\); Dong Qiu\(^1\); Mark Easton\(^1\);  \(^1\)Royal Melbourne Institute of Technology (RMIT University);  \(^2\)CSIRO - Central Mechanical Engineering Research Institute (CSIRO-CMERI) |

Note: This agenda features a list of the accepted presentations for ICAM 2024 and their tentative allocated timeslots. The program arrangement can still be subjected to changes as a result of other program considerations. Do contact us at icam@astm.org if you need more information.
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<tr>
<th>TBA STUDENT</th>
<th>Thermal Effect of Skin &amp; Core Deposition Strategy on Microstructure and Mechanical Properties of HSLA Steel during CW-GMA Process</th>
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<tbody>
<tr>
<td></td>
<td>Paul Poulain¹; Jiawu Ding²; Stewart Williams¹; Salima Bouvier²; Jun Wang¹; ¹Cranfield University; ²University of Technology of Complègne; ³WAAAM3D</td>
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<tr>
<th>TBA STUDENT</th>
<th>Electro-Printing Nanocomposite of Bio-Inspired Layered Structures with Controlled Actuation and Sensing for Soft Robotics</th>
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<tr>
<td></td>
<td>Varun Kumar Thippanna¹; Taylor Sobczak²; Kenan Song³; ¹Arizona State University; ²University of Georgia</td>
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<tr>
<th>TBA STUDENT</th>
<th>Investigation on the Correlation between Powder Layer Behavior and Packing Densities of Plasma Atomized Powders</th>
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<tr>
<td></td>
<td>Seyed Masoud Ashrafizadeh¹; Stephen Yue³; Mahdi Habibnejad-Korayem²; ¹McGill University; ²GE Additive - AP&amp;C</td>
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<tr>
<th>TBA STUDENT</th>
<th>Geometric Design of Cold Spray Nozzles for Rapidly Manufacturing Coatings on Large Surface Areas</th>
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<tr>
<td></td>
<td>Zachary Velasquez¹; Ozan Özdemir²; Marius Ellingsen³; Bharat Jasthi¹; ¹Northeastern University; ²VRC Metal Systems; ³South Dakota School of Mines &amp; Technology</td>
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<tr>
<th>TBA STUDENT</th>
<th>Digital Light Processing (DLP) 3D Printing of High Particle Loading Polymer Composites for Sustainable Additive Manufacturing</th>
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<tr>
<td></td>
<td>Farzad Gholami¹; Vandita Gallacher²; Marcus Fratarcangeli¹; Mingzhe Li¹; H. Jerry Qi¹; ¹Georgia Institute of Technology</td>
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<tr>
<th>TBA STUDENT</th>
<th>Fast and Efficient Fabrication of Functional Electronics through Grayscale Digital Light Processing 3D Printing</th>
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<tbody>
<tr>
<td></td>
<td>Farzad Gholami¹; Liang Yue¹; Mingzhe Li¹; Marcus Fratarcangeli¹; H. Jerry Qi¹; ¹Georgia Institute of Technology</td>
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</tbody>
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<table>
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<tr>
<th>TBA STUDENT</th>
<th>Development and Characterization of Al/SiC Based Metal Matrix Composites through Cold Spray Deposition</th>
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<tbody>
<tr>
<td></td>
<td>Amir Mansouni¹; Ahmad Nourian-Avval¹; Evan Coronado¹; Sinan Müftü¹; ¹Northeastern University</td>
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<tr>
<th>TBA STUDENT</th>
<th>Investigating the Impact of Infill Print Direction on Mechanical and Dynamic Properties of Printed GTR-PLA Material</th>
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<tr>
<td></td>
<td>Ramanshu Jha¹; Leland Weiss²; Kelly Crittenden¹; ¹Louisiana Tech University</td>
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<tr>
<th>TBA STUDENT</th>
<th>Research on Microstructure and Mechanical Properties of Sc-Doped AA6061 Fabricated by Laser-Directed Energy Deposition</th>
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<tbody>
<tr>
<td></td>
<td>Faezeh Hosseini Mohammadabadí¹; Asad Asad¹; Mostafa Yakout¹; ¹University of Alberta</td>
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<tr>
<th>TBA STUDENT</th>
<th>The Impact of SLM and EBM 3D-Printers on Surface Adhered Titanium Particles on Acetabular Implants</th>
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<tbody>
<tr>
<td></td>
<td>Arya Nicum¹; Anna Di Laura²; Harry Hothi²; Klaus Schlüter-Brust²; Johann Henckel²; Alister Hart²; ¹University College London; ²Royal National Orthopaedic Hospital; ³St. Franziskus Hospital</td>
</tr>
</tbody>
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<tr>
<th>TBA STUDENT</th>
<th>Scan-Informed Statistical Process Control for Layerwise Monitoring</th>
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<tbody>
<tr>
<td></td>
<td>Nicole Van Handel¹; Brian Johnstone¹; Alexis Noel²; Maxwell Tannenbaum²; Thomas Kurfess²; Kyle Saleby²; ¹Georgia Institute of Technology; ²Georgia Tech Research Institute</td>
</tr>
</tbody>
</table>

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<tr>
<th>TBA STUDENT</th>
<th>Multi-Modal Nondestructive Evaluation of Hybrid Additively Manufactured Magnesium Alloys</th>
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<tbody>
<tr>
<td></td>
<td>Meher Mirza¹; Harshith Kumar Adepu¹; Rakesh Kumar Karunakaran¹; Michael Sealy¹; Luz Sotelo¹; ¹Purdue University</td>
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<tr>
<th>TBA STUDENT</th>
<th>Predictive Modeling of Additive Manufacturing of Nickel-Based Superalloys through Thermal Infrared Imaging</th>
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<tbody>
<tr>
<td></td>
<td>Venkata Surya Karthik Adapa¹; Christopher Saldaña¹; ¹Georgia Institute of Technology</td>
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</tbody>
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<tr>
<th>TBA STUDENT</th>
<th>Single Step Contact Printing of Reactive Silicon Ink to Develop Dense Silicon Oxide Thin Film</th>
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<tbody>
<tr>
<td></td>
<td>Mary Pat Nicodemus¹; Owen Hildreth¹; ¹Colorado School of Mines</td>
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<thead>
<tr>
<th>TBA STUDENT</th>
<th>An Experimental and Numerical Study on Crashworthiness of Hollow Tubes and Direct Energy Deposited Stiffened Tubes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adarsh Prakash¹; Sachin Kore¹; ¹Indian Institute of Technology Goa; ²Veermata Jijabai Technological Institute</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>TBA STUDENT</th>
<th>Machine Learning-Based Optimization of Pixel Intensities for Vat Photopolymerization 3D Printing</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Teerapong Poltue¹; H. Jerry Qi¹; Stuart Macrae Montgomery¹; Xiaohao Sun¹; ¹Georgia Institute of Technology</td>
</tr>
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</table>

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**ICAM 2024 TENTATIVE PROGRAM AGENDA**

**Updated as of 22nd July 2024**

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## INDUSTRIAL SECTOR

### AVIATION

**CO-ORGANIZERS:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization/Location</th>
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</thead>
<tbody>
<tr>
<td>Cindy Ashforth</td>
<td>Federal Aviation Administration (FAA), USA</td>
</tr>
<tr>
<td>Stephane Bianco</td>
<td>Airbus, France</td>
</tr>
<tr>
<td>Jim Dobbs</td>
<td>Boeing, USA</td>
</tr>
<tr>
<td>Ruaridh Mitchinson</td>
<td>The Manufacturing Technology Centre, United Kingdom</td>
</tr>
</tbody>
</table>

**28TH OCT 2024 (MON) – 29TH OCT 2024 (TUE)**

**LOCATION TBA**

### 28TH OCTOBER 2024

**SESSION CHAIR (AM SESSION):**

TBA

**SESSION CHAIR (PM SESSION):**

TBA

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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<tbody>
<tr>
<td>08:50 AM</td>
<td>Material Allowables for Aerospace - Example Test Programs</td>
<td>Doug Hall¹; Clay Reakes¹; Chloe Johnson²; Marii Stepanova³; Battelle Memorial Institute; Elementum 3D; Norsk Titanium</td>
</tr>
<tr>
<td>09:10 AM</td>
<td>Joint Metal Additive Database Definition (JMADD): Ti-6Al-4V Baseline Qualification and Expansion Activities</td>
<td>Neville Kuang Yu Tay¹; Wichita State University - National Institute for Aviation Research (WSU - NIAR)</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>Equivalence, Further Showing, and all that Jazz</td>
<td>Cindy Ashforth¹; Federal Aviation Administration (FAA)</td>
</tr>
<tr>
<td>10:00 AM</td>
<td><strong>BREAK</strong></td>
<td></td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Performance Based Qualification of AM Parts to Enable Next Generation Motion Control Products</td>
<td>Simon Jones¹; Domín</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Common Performance-Based Additive Qualification to Accelerate the Expansion of the AM Industrial Base</td>
<td>Mark Shaw¹; Wichita State University - National Institute for Aviation Research (WSU - NIAR)</td>
</tr>
<tr>
<td>11:20 AM</td>
<td>Data Analytics for Rapid Qualification and Certification of AM Components for Aerospace Applications</td>
<td>Narendran Raghavan¹; Taisia (Asya) Lou¹; Boeing</td>
</tr>
<tr>
<td>11:40 AM</td>
<td><strong>REGULAR</strong></td>
<td>Leveraging the &quot;Crawl, Walk, Run&quot; Approach in Additive Manufacturing for Advanced Air Mobility Morgan Mader¹; Joby Aviation</td>
</tr>
<tr>
<td>12:00 PM</td>
<td><strong>LUNCH</strong></td>
<td></td>
</tr>
<tr>
<td>13:30 PM</td>
<td>Moving up the Criticality Ladder for Aircraft Engine Components with Additive Fabrication Solutions</td>
<td>Christo Dordlofva¹; Johan Andersson¹; GKN Aerospace</td>
</tr>
<tr>
<td>14:00 PM</td>
<td><strong>INVITED</strong></td>
<td>2024 Revision of the AIA Additive Manufacturing Working Group’s Recommended Guidance for Certification of AM Component White Paper Morgan Mader¹; Joby Aviation</td>
</tr>
<tr>
<td>14:30 PM</td>
<td><strong>INVITED</strong></td>
<td>Introduction of Ti-6Al-4V AM Wire Direct Energy Technology in Airbus Commercial Aircraft Products Philippe Emile¹; Airbus Commercial Aircraft</td>
</tr>
<tr>
<td>15:00 PM</td>
<td><strong>BREAK</strong></td>
<td></td>
</tr>
<tr>
<td>15:30 PM</td>
<td>Laser Powder Bed Fusion Alloy 718 in Non-Rotating Turbine Engine Hot-End Applications</td>
<td>Nathan Bryant¹; Sushant Jha¹; Howard Sizek²; Jessica Orr¹; University of Dayton Research Institute; Air Force Life Cycle Management Center</td>
</tr>
<tr>
<td>15:50 PM</td>
<td>Laser Powder Bed Fusion and Electrical Insulation for Coil, Casing and Rotor Architectures in High Power Density Electric Machines</td>
<td>Chris Dalton¹; Henry Greenhalgh¹; Anirudha Sengupta¹; Dan Walton¹; Kieran Cmiewicz¹; John Bawn¹; Amanda Cruchley¹; The Manufacturing Technology Centre (MTC)</td>
</tr>
<tr>
<td>16:10 PM</td>
<td><strong>REGULAR</strong></td>
<td>Industrialisation of AM in Aviation: Current Challenges and Opportunities Desislava Bacheva¹; Airbus</td>
</tr>
<tr>
<td>16:30 PM</td>
<td><strong>END OF DAY</strong></td>
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### 29TH OCTOBER 2024

**SESSION CHAIR (AM SESSION):**

TBA

**SESSION CHAIR (PM SESSION):**

TBA

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<tr>
<th>Time</th>
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<th>Speaker(s)</th>
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<tbody>
<tr>
<td>08:50 AM</td>
<td>Nadcap Program Developments in Additive Manufacturing</td>
<td>Richard Freeman¹; Performance Review Institute</td>
</tr>
<tr>
<td>09:10 AM</td>
<td>Boeing Commercial Airplanes (BCA) Use of Polymer AM: Past, Present &amp; Future</td>
<td>Eric Moyer¹; Matthew Soja¹; Boeing</td>
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| 09:30 AM     | **Invited** Digital Direct Production (DDP) for Aircraft Cockpit Interior Components via Direct Light Processing  
Alexander Morgan¹; Allyson Cox¹; Timothy Osborn¹; ¹University of Dayton Research Institute |
| 10:00 AM     | **Break**                                                            |
| 11:00 AM     | **No Program**                                                      |
|              | Panel 03 (Defense / Aviation / Space) at Location TBA              |
| 12:00 PM     | **Lunch**                                                            |
| 13:30 PM     | **Invited** From Material Characterization to Anomaly Acceptability Limits: An Overview of GE Aerospace’s Approach for Fatigue and Flaw Tolerance  
Simone Romano¹; Andrew Perry²; Apostolos Karafillis²; Francesco Sausto¹; ¹Avio Aero; ²GE Aerospace |
| 14:00 PM     | **Invited** Component Fatigue Assessment: Uncertainties in NDE Detection, Their Prospective Impact, and Probabilistic Tools  
Stefano Beretta¹; Shuai Shao²; Nima Shamsaei²; ¹Politecnico di Milano; ²Auburn University - National Center for Additive Manufacturing Excellence (NCAME) |
| 14:30 PM     | **Invited** Capturing Key Features Affecting the Fatigue Performance of Additively Manufactured Parts with Untreated or Partially Treated Surfaces  
Erfan Maleki¹; Nabeel Ahmad¹; Shuai Shao¹; Nima Shamsaei¹; ¹Auburn University - National Center for Additive Manufacturing Excellence (NCAME) |
| 15:00 PM     | **Break**                                                            |
| 15:30 PM     | **Invited** Fatigue Strength of Aerospace Parts Repaired by Cold Spray  
Mauro Madia¹; Tiago Werner¹; Kai Hilgenberg¹; Thomas Klassen²; Frank Gärtnert²; Sören Nielsen²; Alexander List²; ¹Bundesanstalt für Materialforschung und -prüfung (BAM); ²Helmut Schmidt University / University of the Federal Armed Forces Hamburg |
| 16:00 PM     | **Regular** DED Aerospace Repair with Integrated 3D Scanning and Substrate Preheating  
Corey Wardrop¹; Lennart Tasche¹; ¹DMG MORI Additive Solutions |
| 16:20 PM     | **Regular** Printing and Repair of High Strength Steel via Additive Friction Stir Deposition  
Michael Eff¹; ¹EWI |
| 16:40 PM     | **End of Day**                                                      |
ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024
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INDUSTRIAL SECTOR

CONSTRUCTION ON EARTH AND BEYOND

CO-ORGANIZERS:
Michael Fiske
NASA - Jacobs Space Exploration Group (JSEG), USA
Ali Kazemian
Louisiana State University, USA
Eric Kreiger
U.S. Army Engineer Research and Development Center - Construction Engineering Research Laboratory, USA
Timothy Wangler
ETH Zürich, Switzerland

30TH OCT 2024 (WED) – 01ST NOV 2024 (FRI)
LOCATION TBA

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM
REGULAR
Additively Constructed and Functionally Graded Wall System
Islam Mantawy1; Anthony Mackin1; Zaid Hanoun2; Jenna Migliorino1; Aly Ahmed1; 1Rowan University

09:10 AM
REGULAR
Parametric Study of Pitched-Brick Vault Stability under Microgravity and Seismic Loading
Peter Manos1; Anjali Mehrotra2; Marina Konstantatou3, 4; 1Thornton Tomasetti; 2Arup; 3Foster + Partners; 4University of Cambridge

09:30 AM
INVITED
Towards an Integrated Design for Wire Arc Additive Manufacturing in Steel Structures
Trayana Tankova1; 1Delft University of Technology

10:00 AM
BREAK

10:30 AM
INVITED
Analysis on the Impact of Metal 3D Printing in Construction
Vittoria Laghi1; Alper Kanyilmaz2; Giada Gasparini3; 1University of Bologna; 2Politecnico di Milano

11:00 AM
INVITED
Opportunities for Workforce Development in 3D Concrete Printing
Zachary Mannheimer1; 1Alquist 3D

11:30 AM
INVITED
3D Printing in the Construction Industry, An Outlook from the MEA Region
Charles Malek1; 1Dar

12:00 PM
LUNCH

13:30 PM
INVITED
Project Olympus: Updates and Progress in Additive Manufacturing for Off World Construction
Katie Koubé1; Thao Nguyen1; Valerie Svaldi1; Melodie Yashar1; Eamon Carrig1; Evan Jensen1; 1ICON

14:00 PM
INVITED
Microwave Process for Lunar Construction
Holly Shulman1; 1HollyShulman

14:30 PM
INVITED
Advancement of Lunar Geopolymer Concrete via the Utilization of Microwaves
Aleksandra Radlinska1; Sven Bilen1; 1Pennsylvania State University

15:00 PM
BREAK

15:30 PM
INVITED
Modular Living Habitat - Build with Recycled and Circular Thermoplastic Materials through Robotic Large Scale Additive Manufacturing Process
Giovanni Avallone1; 1Caracol

16:00 PM
INVITED
Additive Concrete Construction for Residential Applications: Design Methods, Analysis Strategies and Large-Scale Experimental Validations
Petros Sideris1; Sumedh Sharma1; Mohammad Aghajani Delavar1; Hao Chen1; Mohamed Eltahawi1; 1Texas A&M University

16:30 PM
INVITED
Sustainable Construction 3D Printing: Leveraging Quarry By-Products and Particle Packing Concept
Ali Kazemian1; Aranya Paul1; Carol Friedland1; Charles Berryman1; 1Louisiana State University

17:00 PM
END OF DAY

31ST OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM
REGULAR
Interlaboratory Study on Durability Properties of 3D Printed Concrete - RILEM TC-ADC ILS-DURASHRINK
Timothy Wangler1; Kim Van Tittelboom2; Yi Zhang3; Lucas Nascimento de Lima1; 1ETH Zürich; 2Ghent University

09:10 AM
REGULAR
The Critical Role of Material Ageing in Controlling Macroporosity in 3D Printed Cementitious Structures
Yu (Richard) Jiang1; Abir Al Tabbaa1; Ronan Daly1; 1University of Cambridge
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<th>Speaker(s)</th>
<th>Affiliation(s)</th>
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<td>09:30 AM</td>
<td>Key Findings by the RILEM Interlaboratory Study on Mechanical Properties of 3D Printed Concrete</td>
<td>Viktor Mechtcherine; Shravan Muthukrishnan; Dresden University of Technology</td>
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<tr>
<td>10:00 AM</td>
<td>Break</td>
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<tr>
<td>10:30 AM</td>
<td>3D Printing Construction with Raw Earth: Achievements and Challenges</td>
<td>Giulio Buscaroli; WASP</td>
<td></td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Locally Sourced Material vs. Proprietary Dry Mix Mortar for Construction 3D Printing (Cost vs. Strength)</td>
<td>Babak Zareian; Beyond Engineering Group</td>
<td></td>
</tr>
<tr>
<td>11:30 AM</td>
<td>Printing with Commoditized Ready-Mix Concrete, Why 3D Construction Needs to Capitalize on this Omnipresent Opportunity</td>
<td>Matthew Carli; Robin Degen; Putzmeister</td>
<td></td>
</tr>
<tr>
<td>12:00 PM</td>
<td>Lunch</td>
<td></td>
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<tr>
<td>13:30 PM</td>
<td>From Digital Crafting to Digital Manufacturing: Automation and Production for Hybrid 3D Concrete Printing</td>
<td>Richard Buswell; Loughborough University</td>
<td></td>
</tr>
<tr>
<td>14:00 PM</td>
<td>Extrudability Window and Offline Test Methods to Predict Buildability of 3D Printing Concrete</td>
<td>Yucun Gu; Kamal Khayat; Missouri University of Science and Technology</td>
<td></td>
</tr>
<tr>
<td>14:30 PM</td>
<td>Neuramorphic Sensing and Computing Paradigm for Enabling In-Process Monitoring of Additive Manufacturing for Remote Operations</td>
<td>David Mascarenas; Los Alamos National Laboratory (LANL)</td>
<td></td>
</tr>
<tr>
<td>15:00 PM</td>
<td>Break</td>
<td></td>
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</tr>
<tr>
<td>15:30 PM</td>
<td>3D Printing a Tower: Experience in Material and Process Development</td>
<td>Timothy Wangler; ETH Zürich</td>
<td></td>
</tr>
<tr>
<td>16:00 PM</td>
<td>Quality Control of Inline Mixing for Digital Concrete Fabrication</td>
<td>Yaxin Tao; Timothy Wangler; Robert Flatt; ETH Zürich</td>
<td></td>
</tr>
<tr>
<td>16:30 PM</td>
<td>Future of Engineered Construction</td>
<td>Javeed Munshi; Bechtel</td>
<td></td>
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<tr>
<td>16:50 PM</td>
<td>End of Day</td>
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</tbody>
</table>

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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024

(Clicking on the ICAM logo on the right will link you back to the top of this document.)

INDUSTRIAL SECTOR

DEFENSE

CO-ORGANIZERS:

Adam Hicks
Air Force Research Laboratory (AFRL), USA

Travis Mayberry
Raytheon Missiles and Defense, USA

Cynthia Waters
Naval Surface Warfare Center (NSWC) - Carderock Division, USA

Prabhjot Singh
RTX, USA

29TH OCT 2024 (TUE) – 30TH OCT 2024 (WED)
LOCATION TBA

29TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM
REGULAR
Friction Forge - AFSD of 7000 Series Aluminum
Edward Peterson¹; Matt Eckhart¹; ¹Laser Welding Solutions

09:10 AM
REGULAR
Microstructure, Mechanical Properties, and Fatigue Performance of Wire Arc Additive Manufactured Nickel Aluminium Bronze
Meyyam Haghshenas¹; ¹University of Toledo

09:30 AM
INVITED
Failure Analysis and Process-Property-Quality Relationships in Polymer Material Extrusion Additive Manufacturing
Kate Thorn¹; Ana Hernandez¹; William King²; ¹Naval Air Systems Command (NAVAIR); ²University of Illinois Urbana-Champaign

10:00 AM
BREAK

11:00 AM
**No Program**
Panel 03 (Defense / Aviation / Space) at Location TBA

12:00 PM
LUNCH

13:30 PM
INVITED
Feedstock Development for Advanced Manufacturing at DEVCOM ARL
Brandon McWilliams¹; U.S. Army Combat Capabilities Development Command - Army Research Laboratory (ARL)

14:00 PM
REGULAR
Development of Copper Cold Spray for the US Navy
Anthony Naccarelli¹; Tim Eden¹; Jennifer Brennan²; Stephen Sabol²; ¹Pennsylvania State University; ²Naval Nuclear Laboratory (NNL)

14:20 PM
REGULAR
Design of an Additively Manufactured Heat Exchanger for Military Ground Vehicles
Daniel Cassar¹; ¹Siemens Energy

14:40 PM
REGULAR
Deployable Advanced Manufacturing Systems for Contested Environments in Defense
Jeremy Heerdink¹; ¹Snowbird Technologies

15:00 PM
BREAK

15:30 PM
INVITED
Synchronized Multiplexed Metrology for Next-Generation Manufacturing
Clare Murphy¹; ¹Layer Metrics

16:00 PM
REGULAR
Modernizing DLA’s Supplier Repository: Enhancing the Supplier Digital Thread and Enabling Additive Manufacturing using AI and LLM
Nathan Danneman¹; Senthil Arul²; ¹LMI; ²Defense Logistics Agency

16:20 PM
REGULAR
Improving Supply Chains for Mission-Critical Defense Applications with Additive Manufacturing
Matt Karesh¹; Dan Sorensen¹; ¹Velo3D

16:40 PM
REGULAR
Utilizing Directed Energy Deposition (DED) for Department of Defense (DoD) Spares + Repairs
Melanie Lang¹; ¹FormAlloy

17:00 PM
END OF DAY

30TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM
REGULAR
Exploring Advanced Manufacturing Methods for Defense Applications
Soumya Nag¹; Jesse Heineman¹; John Potter¹; Calen Kimmell¹; Andres Marquez Rossy¹; Jennifer Gaies²; Jennifer Semple²; Brian Gibson¹; Brian Post¹; Craig Blue¹; ¹Oak Ridge National Laboratory (ORNL); ²Naval Surface Warfare Center (NSWC) - Carderock Division

09:10 AM
REGULAR
Application of Additive Manufacturing to Armament Systems
David Alfano¹; ¹U.S. Army Combat Capabilities Development Command - Weapons And Software Engineering Center (WSEC) Benét Laboratories

09:30 AM
INVITED
Ultra Wideband Switched Beam Antenna with Passive Compact Lens
Henrik Ramberg¹; Philip Lambert¹; ¹Fortify

10:00 AM
BREAK

10:30 AM
INVITED
NAVAIR Propulsion & Power Metal Additive Applications
Christine Myers¹; ¹Naval Air Systems Command (NAVAIR)

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<table>
<thead>
<tr>
<th>Time</th>
<th>Panel/Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 AM</td>
<td>Invited: Additive Manufacturing the Next Wave, Navy's Efforts to Scale Up</td>
</tr>
<tr>
<td></td>
<td>Cynthia Waters¹; Naval Surface Warfare Center (NSWC) - Carderock Division</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>Invited: TBA</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>Lunch</td>
</tr>
<tr>
<td>13:30 PM</td>
<td>Invited: Enhancing International Collaboration using an AM-Framework for</td>
</tr>
<tr>
<td></td>
<td>Implementation of a Level System for Temporarily Self-Sufficient Systems</td>
</tr>
<tr>
<td></td>
<td>Sascha Hartig¹; German Navy</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>Regular: A Framework for Additively Manufactured Part Qualification and</td>
</tr>
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<td>Certification within the Defense Industry</td>
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<tr>
<td></td>
<td>Steven Kraft¹; Hector Sandoval¹; Lockheed Martin</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>Regular: The State of Current Metal AM Qualification Standards and Research</td>
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<tr>
<td></td>
<td>Needed to Improve Them</td>
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<tr>
<td></td>
<td>Evan Handler¹; Naval Surface Warfare Center (NSWC) - Carderock Division</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>Regular: Using Third Party Models and Data Pipelines to Enable Rapid</td>
</tr>
<tr>
<td></td>
<td>Qualification of AM Parts at the Frontline; Experience and Lessons Learnt</td>
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<tr>
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<td>Gareth Tear¹; Jose Videira¹; James Bird¹; Synbiosys</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>Invited: Alloy and Process Development for Nickel Superalloys in Additive</td>
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<td></td>
<td>Manufacturing Beyond PBF-LB</td>
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<td></td>
<td>Andrew Wessman¹; Jonah Klemm-Toole²; Mohammed Shafae¹; Mohamed Ibrahim¹;</td>
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<tr>
<td></td>
<td>Dennis Gilbert¹; University of Arizona; Colorado School of Mines</td>
</tr>
<tr>
<td>15:30 PM</td>
<td>End of Day</td>
</tr>
</tbody>
</table>

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**ICAM 2024 TENTATIVE PROGRAM AGENDA**

**Updated as of 22nd July 2024**

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**INDUSTRIAL SECTOR**

**ENERGY, MARITIME, AND OIL & GAS**

**CO-ORGANIZERS:**

| Ali Bonakdar | University of North Carolina at Charlotte, USA |
| Valeria Tirelli | AIDRO, Italy |
| Mostafa Yakout | University of Alberta, Canada |
| Carlo De Bernardi | ConocoPhillips, USA |
| Isabella van Rooyen | Pacific Northwest National Laboratory (PNNL), USA |

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**28TH OCT 2024 (MON) – 29TH OCT 2024 (TUE)**

**LOCATION TBA**

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**28TH OCTOBER 2024**

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**SESSION CHAIR (AM SESSION):**

TBA

**SESSION CHAIR (PM SESSION):**

TBA

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**08:00 AM**

**REGULAR**

Recent Advancements in Additive Manufacturing for Commercial Nuclear Power Systems

Edward DiLoreto; ¹Westinghouse Electric Company

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**09:10 AM**

**REGULAR**

Developing a Comprehensive AM Ecosystem to Support a Transformation from Small-Scale Production Towards Serial Manufacturing

Kevin Yap; ¹Bright Laser Technologies

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**09:30 AM**

**INVITED**

TBA

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**10:00 AM**

**BREAK**

---

**10:30 AM**

**INVITED**

Additive Manufacturing of Wear Resistant Materials

Dave Wald billig; Mazyar Ansari; ¹InnoTech Alberta

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**11:00 AM**

**INVITED**

Advanced Manufacturing for Harsh Environments at Idaho National Laboratory

Adrian Wagner; Jorgen Rufner; Andrea Jokisaari; Michael MCMurtry; Allen Roach; ¹Idaho National Laboratory

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**11:30 AM**

**INVITED**

Convergent Manufacturing of Large-Scale Components for Nuclear Applications

Soumya Nag; Fred List; Jason Mayeur; Mithulan Paramanathan; Thomas Feldhausen; Luke Meyer; Andrzej Nycz; Brian Jordan; James Haley; Ryan dehoff; ¹Oak Ridge National Laboratory (ORNL)

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**12:00 PM**

**LUNCH**

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**13:30 PM**

**INVITED**

Impact of Additive Manufacturing Technologies on Critical Mineral Usage and Waste for Nuclear Structural Materials

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**14:00 PM**

**REGULAR**

Deployable Advanced Manufacturing Systems for Oil and Gas Operations in Austere Environments

Jeremy Heerdink; ¹Snowbird Technologies

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**14:20 PM**

**REGULAR**

Repair of the Bearing Areas of a Wind Power Main Shaft using Laser Directed Energy Deposition

Igor Ortiz; Piera Alvarez; Diego Montoya-Zapata; Francisco Cordovilla; Jose Luis Ocaña Moreno; Diego Navamuel; ¹INZU Group - Ikergune; ²Technical University of Madrid (UPM); ³IZADI

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**14:40 PM**

**REGULAR**

Structural Optimization of Support Structures in LPBF using a Hybrid Lattice-Density Method

Enrique Escobar; Timo Heitmann; Cynthia Wirth; Matthias Vollmer; Alexandre Matei; Jiri Drozda; Alexis Faure; Christopher Robinson; ¹Ansys; ²Siemens Energy

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**15:00 PM**

**BREAK**

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**15:30 PM**

**INVITED**

Joint Industry Project to Realize the Benefits of Decentralized Manufacturing of Highly Regulated Parts in Energy Industry

Faisal Iqbal; Sridharan Hariharan; Artem Korotyggin; Abdurhman Issa; ¹Baker Hughes; ²Qton; ³3D Systems; ⁴NAMI

---

**16:00 PM**

**REGULAR**

Rapid Qualification of Additive Manufacturing Parts using Physics Simulation Model

Dongchun Qiao; ¹American Bureau of Shipping (ABS)

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**16:20 PM**

**END OF DAY**

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**29TH OCTOBER 2024**

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**SESSION CHAIR (AM SESSION):**

TBA

**SESSION CHAIR (PM SESSION):**

TBA

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**08:50 AM**

**REGULAR**

Spatio& Repairs with Metal & Polymer Additive Manufacturing

Ryan Hayford; ¹Hayford Consulting

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**09:10 AM**

**REGULAR**

How to Re-Invent the Bearing Housing for Offshore Vertical Pump using Additive Manufacturing

Artem Korotyggin; Friedhelm Kretz; ³3D Systems; ⁴Eureka Pumps

---

**09:30 AM**

**INVITED**

Assessment of Residual Stress Distribution in Additively Manufactured Components using the Modified Inherent Distribution in Additively Manufactured Components

Isabella van Rooyen; Ankit Roy; Steven Livers; Thomas Hartman; Praveen Thallapally; Chinthaka Silva; Subhashish Meher; Jorge dos Santos; Carolyne Burns; Benjamin Lund; ¹Pacific Northwest National Laboratory (PNNL)

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Strain Method and X-Ray Diffraction
Marjan Molavi-Zarandi\textsuperscript{1}; Ali Bonakdar\textsuperscript{1};
Hossein Mohammadshahi\textsuperscript{2}; Ramin Sedaghati\textsuperscript{2}; \textsuperscript{1}University of North Carolina at Charlotte; \textsuperscript{2}Concordia University

16:00 PM BREAK

10:30 AM INVITED Microstructure and Properties of Solid Phase Additive Manufactured Cu-HEA Builds
Jorge dos Santos\textsuperscript{1}; \textsuperscript{1}Pacific Northwest National Laboratory (PNNL)

11:00 AM INVITED Failure Phenomena of Additively Manufactured Ni-Base Superalloys at Various Temperatures under Static and Cyclic Loadings
Shuai Shao\textsuperscript{1}; Nima Shamsaei\textsuperscript{1}; \textsuperscript{1}Auburn University

11:30 AM INVITED Application of Additive Manufacturing for Supply Chain Resilience and Sustainability in Energy, Marine, and Offshore & Gas
Pin Lu\textsuperscript{1}; Alex Michelson\textsuperscript{1}; Richard Eberheim\textsuperscript{1}; \textsuperscript{1}Solvus Global

12:00 PM LUNCH

13:30 PM INVITED Additive Manufacturing of High-Temperature Materials for the Nuclear and Energy Industries: Opportunities, Limitations, and Challenges
Asad Asad\textsuperscript{1}; Mostafa Yakout\textsuperscript{1}; \textsuperscript{1}University of Alberta

14:00 PM REGULAR Design, Development and Validation of Additively Manufactured Internally Cooled Industrial Gas Turbine Tip Shoe Component
Sudhakar Bollapragada\textsuperscript{1}; Xiaqiang Zeng\textsuperscript{1}; Daniel Ryan\textsuperscript{1}; Thomas Corbett\textsuperscript{2}; Karen Thole\textsuperscript{2}; \textsuperscript{1}Solar Turbines; \textsuperscript{2}Pennsylvania State University

14:20 PM REGULAR Development of New Valve Solutions with Additive Manufacturing
Steve Freitas\textsuperscript{1}; \textsuperscript{1}IMI CCI

14:40 PM REGULAR New Developments in Wire Arc DED of Copper Nickel
Morris Satin\textsuperscript{1}; Ben Schaeffer\textsuperscript{1}; \textsuperscript{1}Lincoln Electric

15:00 PM BREAK

15:30 PM REGULAR Strategies for Qualified High Deposition WAAM for Large Energy Parts
Filippo Gilardi\textsuperscript{1}; \textsuperscript{1}MX3D

15:50 PM REGULAR Leveraging Natural Material Relationships for Material-Agnostic LPBF Processing
Holden Hyer\textsuperscript{1}; Sebastien Dreyer\textsuperscript{1}; Josh Kendall\textsuperscript{1}; Amir Ziabari\textsuperscript{1}; Caleb Massey\textsuperscript{1}; \textsuperscript{1}Oak Ridge National Laboratory (ORNL)

Is AM Nice or Niche? The Concerning Gap between Value Proposals of Additive Manufacturing of Spare Parts and Prospective Customers’ Perceived Benefits
Trond Halvorsen\textsuperscript{1}; \textsuperscript{1}SINTEF Digital

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ICAM 2024 TENTATIVE PROGRAM AGENDA
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INDUSTRIAL SECTOR

GROUND TRANSPORTATION AND HEAVY MACHINERY

CO-ORGANIZERS:
Ante Lausic  
Simon Pun
General Motors, USA  
Divergent, USA

28TH OCT 2024 (MON)
LOCATION TBA

28TH OCTOBER 2024

SESSION CHAIR (AM SESSION): TBA
SESSION CHAIR (PM SESSION): TBA

08:50 AM  
Serial Part Production in Automotive - Industrialization Requirements
Simon Höges¹; ¹GKN Additive

09:10 AM  
Qualification of Additively Manufactured 17-4PH Stainless Steel for Ground Vehicle Applications
Rachael Andrulonis¹; Brandon Saathoff¹; Brady Williams¹; Mark Shaw¹; Matthew Lowney¹; ¹Wichita State University - National Institute for Aviation Research (WSU - NIAR); ²U.S. Army Combat Capabilities Development Command - Ground Vehicles Systems Center (GVSC)

09:30 AM  
How do Contextual Factors Influence Additive Manufacturing Sustainability Performance? A Study in the Transportation Industry
Francesco Arcidiacono¹;²; Carmela Di Mauro²; Giovanna Cuiò²; ¹Schaeffler; ²Korea University of Enna; ²University of Catania; ³University of Udine

10:00 AM  
BREAK

10:30 AM  
Adoption Challenges of AM for Heavy Equipment Industry
Thierry Marchione¹; ¹Caterpillar

11:00 AM  
Stack Forging: Cost Effectively Making Complex Aluminum Parts at Scale
Kevin Simon¹; Allison Forsyth¹; ¹Alloy Enterprises

11:30 AM  
BrakeNode Technology: Optimized Additively Manufactured Structure that Integrates Brake Caliper and Wheel Carrier
Michael Kenworthy¹; Simon Pun¹; ¹Divergent

12:00 PM  
LUNCH

13:00 PM  
Magnus Metal’s Digital Casting Capability
Arwy Johnson¹; ¹Magnus Metal

14:00 PM  
Directed Energy Deposition Technology for the Repair of Die-Casting Molds
Daniele Grosso¹; John Stavridis¹; Erica Librera¹; Paolo Calefati¹; ¹Prima Additive

14:20 PM  
High-Speed Laser Cladding Process for Brake Disc Coating - From Process Development to Lifecycle Assessment
John Stavridis¹; Erica Librera¹; Daniele Grosso¹; Paolo Calefati¹; ¹Prima Additive

14:40 PM  
Investigation on Composites Use as Substitute for Obsolescent Rail Signaling Products
Philippe Kuchly¹; Pascal De Guio¹; ¹SNCF Réseau

15:00 PM  
BREAK

15:30 PM  
GEFERTEC 3DMP® Technology Applications in the Heavy Equipment Industry
Colin Clark¹; ¹GEFERTEC

16:00 PM  
Advancing Automotive Manufacturing with Metal Binder Jet Technology: Case Studies and Insights
Cody Cochran¹; Mattia Forgiarini¹; Amy Bray-Cotton¹; ¹Azoth

16:30 PM  
Mixing Infrared Laser and Blue Laser for Remote Welding in Automotive Applications
Erica Librera¹; John Stavridis¹; Daniele Grosso¹; Paolo Calefati¹; ¹Prima Additive

16:50 PM  
END OF DAY

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ICAM 2024 TENTATIVE PROGRAM AGENDA
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INDUSTRIAL SECTOR

MEDICAL

CO-ORGANIZERS:

David Dean
Ohio State University, USA
Matthew Di Prima
U.S. Food and Drug Administration (FDA), USA
Laura Gilmour
LG Strategies, USA
Ryan Kircher
rms Company, USA
Guha Manoharan
Pennsylvania State University, USA
Sean McEligot
Mayo Clinic, USA

30TH OCT 2024 (WED) – 01ST NOV 2024 (FRI)
LOCATION TBA

30TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM
REGULAR
Local Modulation of Stiffness in 3D Printed NiTi Skeletal Fixation Devices
David Dean1; Luis Olivas1; Agnieszka Chmielewska1; Stephen Niezgoda1; 1Ohio State University

09:10 AM
REGULAR
Investigating the Effects of Porous Geometries on the Interfacial Adhesion of UHMWPE-PEEK Structural Composites for Orthopedic Implant Applications
James Smith1; Cemile Basgul1; Steven Kurtz1; 1Drexel University

09:30 AM
INVITED
Evaluating the Effects of Powder Size Distribution on Additively Manufactured Ti6Al4V for Medical Applications
Kaoutar Bensaid1; Alek Nelson2; 1Tekna; 2rms Company

10:00 AM
BREAK

10:30 AM
INVITED
Additive Manufacturing of Biomaterials in Bone Tissue Engineering and Drug Delivery
Susmita Bose1; 1Washington State University

11:00 AM
INVITED
Melt Electrowriting as a Transformative Scaffold Fabrication Technology for Biomedical Applications
Paul Dalton1; 1University of Oregon

11:30 AM
REGULAR
4D Manufacturing: New Materials for Islet Tissue Patches in Cell-Based Diabetes Treatments and Regulatory Implications
Emily Wilts1; 1Exponent

11:50 AM
REGULAR
3D-Printed Tools for Standardized Wound Creation in In Vitro And Ex Vivo Models
Fahimeh Tabatabaei1; Mojtaba Javid2; 1I.Fyber; 2urSearch

12:10 PM
LUNCH

13:30 PM
INVITED
Bioprinting: Fact or Fiction?
Katie Weimer1; 13D Systems

14:00 PM
INVITED
Humans, Impressed and Policies, Impressionable: On the Regulation of Bioprinting
Jennifer Wagner1; Sara Gerke1; 1Pennsylvania State University

14:30 PM
INVITED
The Role of Standards in Facilitating Bioprinting Technology: Inroads Made, More Work to be Done
Katrina Wells1; 1Advanced Regenerative Manufacturing Institute (ARMI) - BioFabUSA

15:00 PM
BREAK

15:30 PM
INVITED
Digital Design and 3D Printing - The Future of Dentistry
Gerald Grant1; 1Lexington VA Dental

16:00 PM
INVITED
Multi-Material One-Piece Jetted Denture Solution: Revolutionizing Dental Prosthetics with Additive Manufacturing
Joana Araújo1; 13D Systems

16:30 PM
INVITED
3D Printed (FSD) Trabecular PEEK Spinal Implants: Structure, Biomechanics, Osseointegration and Early Clinical Outcomes
Erik Erbe1; 1Curiteva

17:00 PM
INVITED
PEKK: An Emerging Biomaterial for Fused Filament Fabrication Additive Manufacturing of Orthopaedic and Spine Implants
Steven Kurtz1; 1Drexel University

17:30 PM
END OF DAY

31ST OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM
REGULAR
Accelerated Qualification of Ti-6Al-4V Medical Implants using Profilometry-Based Indentation Plastometry (PIP)
Thomas Southern1; Ryan Kircher2; Adam Meyer2; Jimmy Campbell1; 1Plastometrex; 2rms Company

09:10 AM
REGULAR
Estimating the Potential Impact of Additive Manufacturing Material Variability on Medical Device Performance
Daniel Porter1; Matthew Di Prima1; 1U.S. Food and Drug Administration (FDA)

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<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:30 AM</td>
<td>Industrial Acoustic NDT - Flaw Detection and Signature Analysis of Medical Devices</td>
<td>Daniel Rodriguez Sanmartin¹, Julian Wright¹, James Watts¹, Alex Brennan¹, Ryan Kircher², Chad Beamer³, ¹Theta Technologies; ²Alenex Company; ³Quintus Technologies</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>BREAK</td>
<td></td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Evolving Regulation of 3D Printed Medical Devices</td>
<td>Kim Toruemke¹, ¹Ricoh</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>The Influence of Biomimetic Structures on Compliance of Medical Implants</td>
<td>Matthew Shomper¹, ¹Not a Robot Engineering</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>Static and Fatigue Interplay Analysis In DMLM: Effect Across Platform, Process Setting and Surface Finish</td>
<td>Trey Rodgers¹, Ryan Gruell¹, Sony Manandhar¹, ¹Zimmer Biomet</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>Additive Manufacturing and Lattice Structures Topology Optimization in Spine Surgery for Lumbar Vertebral Prosthesis Hacene Ameddah¹, ¹University of Batna 2</td>
<td></td>
</tr>
<tr>
<td>12:20 PM</td>
<td>LUNCH</td>
<td></td>
</tr>
<tr>
<td>13:30 PM</td>
<td>Emerging Applications of AM at the Point of Care</td>
<td>Adam Wentworth¹, Megan Loghry¹, Victoria Sears¹, ¹Mayo Clinic</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>From Scan to Surgery: Manufacturing Considerations for 3D Printed Titanium Implants at the Point-of-Care</td>
<td>Amy Alexander¹, Robert Hight¹, ¹Mayo Clinic</td>
</tr>
<tr>
<td>14:30 PM</td>
<td>The Shift from Prototyping to Mass Customization of Bespoke Medical Devices at the Point-of-Care</td>
<td>Diana Hall¹, ¹ActivArmor</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>BREAK</td>
<td></td>
</tr>
<tr>
<td>15:30 PM</td>
<td>Addressing an Unmet Need: Point-of-Care Titanium 3D Printed Implants at Mayo Clinic</td>
<td>Allen Rech¹, ¹Mayo Clinic</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>Material Handling for Quality Control at Point-of-Care Additive Manufacturing Facilities</td>
<td>Peter Liacouras¹, Nicole McMinn¹, Alese Devin¹, ¹Walter Reed National Military Medical Center</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>Ensuring Quality: Point-of-Care Titanium 3D Printing at Mayo Clinic</td>
<td>Sean McEligot¹, ¹Mayo Clinic</td>
</tr>
<tr>
<td>17:00 PM</td>
<td>Verification and Validation of Additive Manufacturing at the Point-of-Care</td>
<td>Nicole McMinn¹, Alese Devin¹, Peter Liacouras¹, ¹Walter Reed National Military Medical Center</td>
</tr>
<tr>
<td>17:20 PM</td>
<td>END OF DAY</td>
<td></td>
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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024

(Clicking on the ICAM logo on the right will link you back to the top of this document.)

INDUSTRIAL SECTOR

SPACE

CO-ORGANIZERS:

Tim Berry
JetZero, USA

Christo Dordofva
GKN Aerospace, Sweden

Andrew Norman
European Space Agency, The Netherlands

Rick Russell
The Barnes Global Advisors, USA

John Vickers
NASA, USA

30TH OCT 2024 (WED) – 01ST NOV 2024 (FRI)
LOCATION TBA

30TH OCTOBER 2024

SESSION CHAIR (PM SESSION):
TBA

13:30 PM
INVITED
Maturation and Hot-Fire Testing of Extreme Environment Additively Manufactured Alloys for Rocket Engine Applications
Paul Gradi1; Darren Tinker1; Timothy Smith2; Christopher Kantzos2; 1NASA - Marshall Space Flight Center (MSFC); 2NASA - Glenn Research Center (GRC)

14:00 PM
REGULAR
Fatigue Properties of Additively Manufactured GRX-810 Alloy at Elevated Temperatures
Alireza Jam1; Timothy Smith2; Christopher Kantzos2; Paul Gradi1; Shuai Shao1; Nima Shamsaei1; 1Auburn University; 2NASA - Glenn Research Center (GRC); 1NASA - Marshall Space Flight Center (MSFC)

14:20 PM
REGULAR
Tensile and Fatigue Behaviors of Additively Manufactured Haynes 282: From Cryogenic to Elevated Temperatures
Shuai Shao1; Nima Shamsaei1; 1Auburn University

14:40 PM
REGULAR
Exploring the Impact of Various Surface Treatments on the Fatigue Behavior of Additively Manufactured Haynes 282
Erfan Maaleki1; Nabeel Ahmad1; Paul Gradi2; Shuai Shao1; Nima Shamsaei1; 1Auburn University - National Center for Additive Manufacturing Excellence (NCAME); 2NASA - Marshall Space Flight Center (MSFC)

15:00 PM
BREAK

15:30 PM
INVITED
Additive Manufacturing Design and Process: Enabler for High Performance in Space
Mikkel Pedersen1; 1Oerlikon AM

16:00 PM
REGULAR
Material Selection and Process Development for Additive Manufactured Space Optical Instruments
Walter Zimbeck1; Zach Post1; Bill Swartz1; Benjamin Stewart1; Floris van Kempen2; Gerard Otter2; Steven Storck1; 1Johns Hopkins University - Applied Physics Laboratory (JHU - APL); Netherlands Organization for Applied Scientific Research (TNO)

16:20 PM
REGULAR
Evaluation of GR Cop 42 Laser Powder Bed Fusion with Green Laser
Adam Simons1; Paul Gradi2; Eliana Fu1; 1TRUMPF; 2NASA - Marshall Space Flight Center (MSFC)

16:40 PM
END OF DAY

31ST OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM
REGULAR
Computational Design to Experimental Validation of a Novel AM Steel for Space Application
Amit Behera1; 1QuesTek Innovations

09:10 AM
REGULAR
An Integrated CAD-to-Machine Control Framework for a Novel Multi-Material LPBF System for the Space Industry
Michael Tucker1; Alexander Oster2; Markus Bambach1; 1ETH Zurich; 2Autodesk

09:30 AM
INVITED
A Predictive Machine Learning Model of Microstructure and Mechanical Behavior of L-PBF Parts for Alloys in Aerospace Applications
Serah Hatch1; Shahroz Nafisi1; Myles Keefer1; Guha Manogharan2; Jacklyn Griffis2; 1Rocket Lab; 2Pennsylvania State University

10:00 AM
BREAK

10:30 AM
INVITED
America Makes AM for Space Propulsion Roadmap
Brandon Ribic1, 2; 1National Center for Defense Manufacturing and Machining (NCDMM); 2America Makes

11:00 AM
INVITED
NASA Spaceflight Certification of Additive Manufacturing of Nb C103 Refractory for Mission Critical Space Propulsion Systems
Youping Gao1; 1Castsheen

11:30 AM
INVITED
Multifunctional Additively Manufactured Lattice Structure Designs for Thermal and Mechanical Enhancement of Liquid Rocket Engine Injector Face Plates
Maximilian Strixner1; 1The Exploration Company

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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024
(Clicking on the ICAM logo on the right will link you back to the top of this document.)

12:00 PM LUNCH

13:30 PM INVITED
Design, Print, Test, Iterate. Transitioning from Development to Flight Aerospace Hardware with AM
Thomas Pomorski; 1Ursa Major

14:00 PM REGULAR
Niobium Alloy C-103 for High-Performance Space Applications - First Results with using Cold Spray Additive Manufacturing - CSAM
Markus Brotsack; Ján Kondás; Reeti Singh; 1Impact Innovations

14:20 PM REGULAR
Profilometry-Based Indentation Plastometry (PIP) for Space Applications
Thomas Southern; Jimmy Campbell; 1Plastometrex

14:40 PM REGULAR
Development of 3D Printed RF Filters for Space Applications
Sunil Acharya; Robert Smith; Christopher Robinson; 1Ansys; 2Optisys

15:00 PM BREAK

15:30 PM INVITED
Realities of AM Qualification for Spaceflight: Successes and Challenges
Alison Park; Andrew Glendening; Mallory James; Teri Juarez; Sarah Luna; 1NASA

16:00 PM INVITED
15 Years of Additive Manufacturing Space Propulsion at Aerojet Rocketdyne, Trials of Implementation for Flight Worthiness
Alan Fung; Daniel Matejczyk; Bryan Webb; 1Aerojet Rocketdyne

16:30 PM REGULAR
How to Effectively Generate an Additive Manufacturing Control Plan (AMCP) Documenting Compliance, Method of Implementation and Tailoring Rationale to NASA Technical Standard NASA-STD-6030
Timothy Poe; Andrew Glendening; 1NASA

16:50 PM END OF DAY

01ST NOVEMBER 2024

SESSION CHAIR (AM SESSION):
TBA

08:50 AM REGULAR
Process Planning for Large-Scale Wire Arc Additive Manufacturing and its Application on the Deposition of a Scaled Propellant Tank
Sakufu Ko; Shigeru Aoki; Keita Terashima; 1Shimizu Corporation - Institute of Technology; 2Japan Aerospace Exploration Agency (JAXA)

09:10 AM REGULAR
Creation of Large Aerospace Nozzles in Inconel 625 with High Surface Quality using Directed Energy Deposition Technology
Daniele Grosso; John Stavridis; Erica Librera; Paolo Calefati; 1Prima Additive

09:30 AM INVITED
COSM Electron Beam Metal Lithography (EBML), A Paradigm Shift in Performance, Versatility, and In-Situ Inspection for Large Metal Fabrication
Richard Comunale; John Ivory; Brian Bassett; Ray Hill; Tom Greene; Jason Albright; 1COSM Advanced Manufacturing Systems

10:00 AM BREAK

10:30 AM INVITED
Continuous Fiber Printing of Unitized Spacecraft Structures
Tim Berry; 1JetZero

11:00 AM INVITED
Green Laser Lights the Way for Freeform LMD in Space Applications
Adam Simons; Melanie Lang; Eliana Fu; 1TRUMPF; 2FormAlloy

11:30 AM REGULAR
Directed Energy Deposition Technology for Aerospace Applications in Aluminum with 1mm Thin Walls
Erica Librera; John Stavridis; Daniele Grosso; Paolo Calefati; 1Prima Additive

11:50 AM END OF DAY

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**ICAM 2024 TENTATIVE PROGRAM AGENDA**

Updated as of 22nd July 2024

*(Clicking on the ICAM logo on the right will link you back to the top of this document.)*

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**ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING**

**CO-ORGANIZERS:**

- Thomas Broderick
  Federal Aviation Administration (FAA), USA
- Nik Hrabe
  NIST, USA
- Christopher Ledford
  Oak Ridge National Laboratory (ORNL), USA

**28TH OCT 2024 (MON) – 01ST NOV 2024 (FRI)**

**LOCATION TBA**

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**SESSION CHAIR (PM SESSION):**

TBA

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**28TH OCTOBER 2024**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
</tr>
</thead>
</table>
| 11:50 AM | Toward Rapid Process Qualification of Laser Powder Bed Fusion Additive Manufacturing using Physics-Based Model Predictive Control  
Prahalad Rao¹; Alex Riensche¹; Benjamin Bevans¹; Antonio Carrington¹; Kaustubh Deshmuk⁰; Yuri Plotnikov²; Kyle Snyder²; John Sions²; ³Virginia Tech; ²Commonwealth Center for Advanced Manufacturing (CCAM) |

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**12:10 PM**

LUNCH

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**13:30 PM**

No Lack of Data: Handling Large L-PBF Monitoring Data Sets for Qualification  
Philip Sperling⁰; ¹Interplay Solutions

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**14:00 PM**

Qualification Methods and Post-Processing for High-Aspect-Ratio Extra Fine Feature LPBF Parts  
Jason Jyi Sheuan Ten¹; Junwei Tan¹; Hang Li Seel¹; Mui Ling Sharon Nai¹; ²A*STAR - Singapore Institute of Manufacturing Technology (SIMTech)

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**14:30 PM**

Qualifying Machine Learning Models for Use in Data-Driven Manufacturing Qualifications  
Aaron Stebner⁰; ¹Georgia Institute of Technology

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**15:00 PM**

BREAK

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**15:30 PM**

Qualification of New Materials and Processes for Additive Manufacturing  
Jeremy Iten¹; Chloe Johnson¹; ¹Elementum 3D

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**16:00 PM**

Development - Certification - Postprocessing: An Innovation View of Advanced Additive Manufacturing Methods  
Markus Langer¹; ¹toolcraft

---

**16:30 PM**

The Goal Oriented Qualification of AM Parts & Processes  
Gregor Reischle⁰; ¹AM Entrepreneur

---

**16:50 PM**

Parameter Development for Robust Processes  
Suraj Rao¹; Maritza Ruiz¹; ¹Velo3D

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**17:10 PM**

END OF DAY

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**29TH OCTOBER 2024**

**SESSION CHAIR (AM SESSION):**

TBA

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**SESSION CHAIR (PM SESSION):**

TBA

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**08:50 AM**

Leveraging HIP as a Productivity Tool for AM Metallic Components  
James Shipley¹; Chad Beamer¹; Andrew Cassese¹; Ryan Fishe⁰; ³Quintus Technologies; ²3D Systems

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**ICAM 2024 TENTATIVE PROGRAM AGENDA**

*Updated as of 22nd July 2024*

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<tr>
<th>Time</th>
<th>Session Type</th>
<th>Title</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:10 AM</td>
<td>REGULAR</td>
<td>Beyond the Printer: How Tailored Metal Powder and Modern HIP Technology are Expanding the Use Case for AM C18150 (CuCrZr)</td>
<td>Chad Beamer; Eleonora Bettini; Andrew Cassese; Quintus Technologies; Sandvik Additive Manufacturing</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>Contamination in Hot Isostatic Pressing (HIP)</td>
<td>Christopher Rivers; Darron Harris; Cory Cunningham; Boeing</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>BREAK</td>
<td></td>
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</tr>
<tr>
<td>10:30 AM</td>
<td>INVITED</td>
<td>The Effects of Hot Isostatic Pressing (HIP) on the Fatigue Behavior of Additive Manufactured (AM) Ti-6Al-4V Samples under 4-Point Bending and Uniaxial Loading</td>
<td>Francisco Medina; University of Texas at El Paso</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>Latest Developments in HIP and High-Pressure Heat Treatment for Additive Manufacturing</td>
<td>Chad Beamer; Andrew Cassese; Quintus Technologies</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>REGULAR</td>
<td>Advanced HIP Solutions - Expanding Possibilities for AM Applications</td>
<td>Oscar Martinez; Bodycote</td>
</tr>
<tr>
<td>11:50 AM</td>
<td>REGULAR</td>
<td>Sustainable Grinding Approach Towards Enhanced Properties of Additively Manufactured SS316L Stainless Steel Components</td>
<td>Varun Sharma; Aswani Kumar Singh; R Durga Prasad Reddy; Institute of Technology Roorkee</td>
</tr>
<tr>
<td>12:10 PM</td>
<td>END OF DAY</td>
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<td></td>
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<tr>
<td><strong>12:30 PM</strong></td>
<td>LUNCH</td>
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<tr>
<td>13:00 PM</td>
<td>REGULAR</td>
<td>Applying Support Minimising Strategies to Legacy PBF-LB Platforms</td>
<td>Alex Hardaker; The Manufacturing Technology Centre (MTC)</td>
</tr>
<tr>
<td>13:30 PM</td>
<td>INVITED</td>
<td>Selection of Finishing Processes for Enhanced Surface Quality of Metal Additive Manufactured Components: A Comprehensive Analysis</td>
<td>Jose Outeiro; Ahmed Razin; University of North Carolina at Charlotte</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>REGULAR</td>
<td>Applying Profilometry-Based Indentation Plastometry (PIP) for the Generation of DED-Arc Material Allowables</td>
<td>Marcus Ng; Harry Thompson; Jimmy Campbell; Thomas Southern; DEEP; Plastometrex</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>REGULAR</td>
<td>High-Throughput Creep Testing for Accelerated Process Development and Optimization</td>
<td>Austin Whit; Christopher Kantzos; Timothy Smith; NASA - Glenn Research Center (GRC)</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>REGULAR</td>
<td>Hybrid Manufacturing through PBF-LB/M 3D Micro Scarf Adhesive Joints Made of AISI10Mg and Ti64</td>
<td>Michael Ascher; Ralf Späth; University of the Bundeswehr Munich</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>BREAK</td>
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**30TH OCTOBER 2024**

**SESSION CHAIR (AM SESSION):** TBA

**SESSION CHAIR (PM SESSION):** TBA

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<table>
<thead>
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<tbody>
<tr>
<td>08:50 AM</td>
<td>REGULAR</td>
<td>Magnetorheological Finishing of Additively Manufactured Co-Cr Alloy for Biomedical Applications</td>
<td>Varun Sharma; Kunal Arora; Saurabh Singh Rathore; Indian Institute of Technology Roorkee</td>
</tr>
<tr>
<td>09:10 AM</td>
<td>REGULAR</td>
<td>Maximizing Machining Processes Efficiency of Ni Superalloys with Ceramic Cutting Tools</td>
<td>Tiago Silva; INEGI – Institute of Science and Innovation in Mechanical and Industrial Engineering</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>The Physical Metallurgy of Titanium Through an Additive Manufacturing Lens</td>
<td>Nicholas Derimov; Jake Benzing; Alec Saville; Nik Hrabe; NIST</td>
</tr>
<tr>
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<tr>
<td>10:30 AM</td>
<td>INVITED</td>
<td>Chemical and Chemical-Mechanical Polishing, Coating, and Testing of Additive Manufactured C103, Mo, and W</td>
<td>Brandon Colon; Fernando Reyes Tirado; Agustín Díaz; Joshua Boykin; Patrick McFadden; NASA - Marshall Space Flight Center (MSFC); REM Surface Engineering</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>Support Structure Removal via Chemically Assisted Post-Processing and Associated Fatigue Performance of Powder Bed Fusion Components</td>
<td>Justin Michaud; Agustín Díaz; Patrick McFadden; REM Surface Engineering</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>REGULAR</td>
<td>Cavitation Water Jet Peening (CWJP) for Cleaning Debris &amp; Powder, Blowing Away Support Structure and Fatigue Life Improvement of AM Ti Parts</td>
<td>Daniel Sanders; Sugino Machine</td>
</tr>
<tr>
<td>11:50 AM</td>
<td>REGULAR</td>
<td>Applying Support Minimising Strategies to Legacy PBF-LB Platforms</td>
<td>Alex Hardaker; The Manufacturing Technology Centre (MTC)</td>
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<td>Michael Ascher; Ralf Späth; University of the Bundeswehr Munich</td>
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<td>15:30 PM</td>
<td>INVITED</td>
<td>Beyond Structure - Enabling 21st Century Products through the 3D Deposition of Functional Materials</td>
<td>Richard Hague¹; University of Nottingham</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>Applying ICME to AM with Integrated Modeling and Simulation</td>
<td>Jiadong Gong¹; Tanner Kirk¹; QuesTek Innovations</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>REGULAR</td>
<td>Rapid AM Parameter Set Development and Alloy Optimization using ICMD® Materials Design Software</td>
<td>Kerem Taskin¹; QuesTek Innovations</td>
</tr>
<tr>
<td>16:50 PM</td>
<td>REGULAR</td>
<td>Understanding Challenges in Utilising Multiple and Novel Laser in PBF-LB for Production</td>
<td>Alex Hardaker¹; The Manufacturing Technology Centre (MTC)</td>
</tr>
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<td>17:10 PM</td>
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<tr>
<td>08:50 AM</td>
<td>REGULAR</td>
<td>GRX-810: A 3D Printable Alloy Designed for Extreme Environments</td>
<td>Timothy Smith¹; Christopher Kantzos¹; Paul Grad²; Milan Heczko³; Aaron Thompson¹; Austin Whitt¹; Timothy Gabb¹; Michael Mills³; NASA - Glenn Research Center (GRC); NASA - Marshall Space Flight Center (MSFC); Ohio State University</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>Alleviating Critical Mineral Supply Chain Challenges via Additive Manufacturing of Cobalt-Free Maraging Steels</td>
<td>Alec Saville¹; Jake Benzing¹; Nicholas Derimow¹; Nik Hrabe¹; Jordan Weaver¹; Tilman Seifert²; Michael Hirter²; NIST; voestalpine BÖHLER Edelstahl</td>
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<tr>
<td>10:30 AM</td>
<td>INVITED</td>
<td>High Throughput Screening Methods in Alloy and Process Development of AM Aluminum</td>
<td>Andrew Wessman¹; Marcus Lam¹; Carla Colon¹; University of Arizona</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>Approaches to Accelerate Adoption of Aluminum Laser Powder Bed Fusion Components Through a Better Alloy Solution - Constellium Aheadd</td>
<td>Ravi Shahani¹; Constellium</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>REGULAR</td>
<td>Laser Powder Bed Fusion Technology for Processing Gold and Other Precious Metals with Short Wavelength Lasers</td>
<td>John Stavridis¹; Erica Libera¹; Daniele Grosso¹; Paolo Calefati¹; Prima Additive</td>
</tr>
<tr>
<td>11:50 AM</td>
<td>REGULAR</td>
<td>Development of Magnesium Additive Manufacturing for Aerospace Applications</td>
<td>Marc de Smit¹; Maria Montero-Sistiaga¹; Tim Koenis¹; Royal NLR - Netherlands Aerospace Centre</td>
</tr>
<tr>
<td>12:10 PM</td>
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<tr>
<td>13:30 PM</td>
<td>REGULAR</td>
<td>Spatiotemporal Laser Beam Modification for Improved Process Control in Laser Powder Bed Fusion</td>
<td>Thejaswi Tumkur¹; Lawrence Livermore National Laboratory (LLNL)</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>REGULAR</td>
<td>The Use of Chemical Additives in a Green Electrolyte for the Post Processing of AM Metals</td>
<td>Mary Louise Gucik¹; Sandia National Laboratories</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>REGULAR</td>
<td>Chemically-Assisted Powder Declogging of Metal AM Microchannels</td>
<td>Joshua Boykin¹; Agustin Diaz¹; Justin Michaud¹; Patrick McFadden¹; REM Surface Engineering</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>REGULAR</td>
<td>Assessing the Impact of Simultaneous Powder Recoating and Laser Scanning on Metallurgical Properties of LPBF Samples and In-Situ Measurement of Process Spectral Emissions</td>
<td>Kevin Brind¹; Renshaw</td>
</tr>
<tr>
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<tr>
<td>15:30 PM</td>
<td>INVITED</td>
<td>Melt Pool and Microstructure Manipulation with the Aid of Ultrasound-Assisted Energy Coupling in Laser-Based DED</td>
<td>Frank Brückner¹; Fraunhofer Institute for Material and Beam Technology IWS</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>Characterization of Gas Flow Patterns in the EOS M290</td>
<td>Troy Haworth¹; Boeing</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>REGULAR</td>
<td>reAM 250 - An Open-Source Research and Development Platform for Process Monitoring and Control in the Powder Bed Fusion of Metals using a Laser Beam</td>
<td>Siegfried Bähr¹; Technical University of Munich - Institute for Machine Tools and Industrial Management (iwb)</td>
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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024
(Clicking on the ICAM logo on the right will link you back to the top of this document.)

16:50 PM  REGULAR  High-Throughput Quantitative Texture Imaging using Wide-Field Laser Polarized-Light Microscope
Brian Hoover¹; Cesar Ornelas¹; ¹Advanced Optical Technologies

17:10 PM  END OF DAY

01ST NOVEMBER 2024

SESSION CHAIR (AM SESSION):
TBA

08:50 AM  REGULAR  Cold Spray Additive Manufacturing as a Novel Manufacturing Process
Steven Camilleri¹; ¹SPEE3D

09:10 AM  REGULAR  Atomic Layer Deposition (ALD) for Improved Laser Powder Bed Fusion Processes
Christopher Gump¹; Joseph Gauspohl¹; Brandon Castro¹; Anthony Manerbino²; Jeremy Iten²; ¹Forge Nano; ²Elementum 3D

09:30 AM  INVITED  Cross-Scale Process-Structure-Property Relationships of Additively Manufactured Materials and Structures
Martina Zimmermann¹; Fabian Guenther¹, ²; Stefan Pilz²; Leonhard Stampf¹, ²; Joerg Bretschneider¹; Andrea Ostwaldt¹; Philipp Lepper¹; Sebastian Schettler¹; Markus Wagner¹; Annett Gebert³; ¹Fraunhofer Institute for Material and Beam Technology IWS; ²Dresden University of Technology; ³Leibniz Institute for Solid State and Materials Research

10:00 AM  BREAK

10:30 AM  INVITED  Neutron Phase and Internal Stresses Characterization in Metal Additive Manufacturing: From 3D Mapping to Real-Time Evolution
Sandra Cabeza Sanchez¹; ¹Institut Laue-Langevin (ILL)

11:00 AM  INVITED  An Innovative Approach for Optimizing Process Parameters in Additive Manufacturing
Ali Bonakdar¹; Ehsan Toyserkani²; Farzad Liravi²; Francis Dibia²; ¹University of North Carolina at Charlotte; ²University of Waterloo

11:30 AM  INVITED  Extending the Value Chain of Industrial LPB-F Systems - Insights Into the Industrialization of a Powder Bed-Based Hybrid Repair Process via Minimally Invasive Retrofit Technology
Simon Feicks¹; Clemens Miaskowski¹; ¹additiveStream4D

12:00 PM  END OF DAY

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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024
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29TH OCT 2024 (TUE) – 30TH OCT 2024 (WED)
LOCATION TBA

29TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

09:00 AM
Meso-Structural Design Elements in the Bee’s Honeycomb: Implications for Bio-Inspired Design for Additive Manufacturing
Dhruv Bhate; Jacqueline Lehner; Cahit Ozturk; Clint Penick; Nikhilesh Chawla; Arizona State University; Auburn University; Purdue University

09:30 AM
Machine Learning Aided Designs for Additive Manufacturing
Ajit Panesar; Imperial College London

10:00 AM
BREAK

10:30 AM
Design for 4D Printing
David Rosen; A*STAR - IHPC / SIMTech

11:00 AM
Machine Learning Based Design for Multimaterial 4D Printing
H. Jerry Qi; Georgia Institute of Technology

11:30 AM
Challenges and Opportunities in Designing Stimulus-Responsive Architectured Materials with High Work Capacity
Pablo Zavattieri; Purdue University

12:00 PM
LUNCH

13:30 PM
The Next Stage of Design for Additive Manufacturing - Supporting Multifunctional Design
Yaoyao Fiona Zhao; McGill University

14:00 PM
Geometric Datasets for Additive Manufacturing
Elissa Ross; Metafold 3D

14:30 PM
Revolutionizing Mechanical Design: Bridging the Gap between Traditional CAD/CAE and AM
Todd McDevitt; nTopolog

15:00 PM
BREAK

15:30 PM
Physics-Driven Generative Design to Fully Exploit the Benefits of Additive Manufacturing
Marco Pietropaoli; Enrico Gallino; ToffeeX; Ricoh 3D

16:00 PM
Navigating Challenges in Additive Manufacturing: A Blueprint for Success
Alex Rhoades; General Lattice

16:30 PM
The Role of Standardization in the Application of Design for Additive Manufacturing
Florian Günther; Alexander Koch; University of the Bundeswehr Munich

16:50 PM
END OF DAY

30TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

08:50 AM
Redesign of a Brake Support for Additive Manufacturing: An Industrial Case Study on the Digital Supply Chain
Michael Tucker; Gautier de Montmarin; Olivier Chandran; Markus Bambach; ETH Zürich; BOBST

09:10 AM
Achieving Design Intent is W-Hole-y Up to You: A Study of Small Diameter As-Printed Holes and Their Impacts on Design Intent
Bradley Hanks; Daniel Ryan; Bryan Quay; Brandon Kilian; Solar Turbines

09:30 AM
Use of AM in Patient Specific Orthopedic Device Design
Nathan Evans; restor3d

10:00 AM
BREAK

10:30 AM
Orthopedic Implant Design - Clinical Requirements to Final Device
Jesse Unger; Alphatec Spine (ATEC)

11:00 AM
Production for RF Applications
SJ Jones; JT Wojtowicz; Northrop Grumman

11:30 AM
END OF DAY

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**ICAM 2024 TENTATIVE PROGRAM AGENDA**

Updated as of 22nd July 2024

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**VALUE CHAIN**

**DIRECTED ENERGY DEPOSITION**

**CO-ORGANIZERS:**

Frank Brückner  
Fraunhofer IWS, Germany  
Paul Gradl  
NASA - Marshall Space Flight Center (MSFC), USA

Carl Hauser  
TWI, United Kingdom  
Filomeno Martina  
WAAM3D, United Kingdom

Misael Pimentel  
National Manufacturing Institute Scotland (NMIS), United Kingdom  
Baily Thomas  
Boeing, USA

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**29TH OCT 2024 (TUE) – 01ST NOV 2024 (FRI)**

**LOCATION TBA**

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**29TH OCTOBER 2024**

**SESSION CHAIR (PM SESSION):**

TBA

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**13:30 PM**  
**INVITED**  
Printing of High Temperature Nickel Alloys via the L-PBF & L-DED Processes  
**Conner Cleek**, Baily Thomas;  
**Daniel Driemeyer**;  
**Ali Yousefiani**;  
**Dana Smith**;  
**Baily Thomas**;  
**Boeing**

**14:00 PM**  
**REGULAR**  
Characterization of Inconel 718 and Inconel 625 Cladding using Laser Powder Directed Energy Deposition  
**Francisco Medina**;  
**University of Texas at El Paso**

**14:20 PM**  
**REGULAR**  
Coatings of Ni-Based Superalloy Haynes 230 Manufactured by Laser Directed Metal Deposition for High-Temperature Wear Resistance Applications  
**Sergio Ausejo**;  
**Angela Veiga**;  
**Nerea Burgos**;  
**Mustafa Megahed**;  
**Giselle Ramirez**;  
**Nuria Cuadrado**;  
**CeiT Research Center**;  
**ESI Group**;  
**Universitat Politècnica de Catalunya · BarcelonaTech (UPC)**;  
**Eurecat**

**14:40 PM**  
**REGULAR**  
High-Temperature Mechanical Properties in Nickel-Based Alloy 718 Deposits Made Through Wire-Arc DED Process  
**Yukinori Yamamoto**;  
**Andres Marquez Rossy**;  
**Andrez Nycz**;  
**Luke Meyer**;  
**Riley Wallace**;  
**William Carter**;  
**Ben Schaeffer**;  
**Badri Narayanan**;  
**Oak Ridge National Laboratory (ORNL)**;  
**Lincoln Electric**

**15:00 PM**  
**BREAK**

**15:30 PM**  
**INVITED**  
Allowables Generation for Ti-6Al-4V via the L-DED Process  
**Baily Thomas**;  
**Jim Dobbs**;  
**Andrew Steevens**;  
**Zachary Whitman**;  
**Conner Cleek**;  
**Dana Smith**;  
**Boeing**

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**16:00 PM**  
**REGULAR**  
Investigating the Influence of Process Parameters on Microstructural Characteristics and Mechanical Properties in Wire-Arc Additive Manufacturing of Inconel 718  
**Ahmad Nourian-Aval**;  
**Sinan Müftü**;  
**Jonathan Gager**;  
**Northeastern University**

**16:20 PM**  
**REGULAR**  
Compositional Design of Ferritic P91 and Austenitic 347H Graded Joints Manufactured with Directed Energy Deposition  
**Selda Nayir**;  
**Rangasayee Kannan**;  
**Sebastien Dryepondt**;  
**Peeyush Nandwana**;  
**Oak Ridge National Laboratory (ORNL)**

**16:40 PM**  
**REGULAR**  
Finite Element Analysis of Direct Energy Deposition Repair on Impeller Part: Thermal and Mechanical Predictions  
**Jos Vroon**;  
**Royal NLR - Netherlands Aerospace Centre**

**17:00 PM**  
**END OF DAY**

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**30TH OCTOBER 2024**

**SESSION CHAIR (AM SESSION):**

TBA

**SESSION CHAIR (PM SESSION):**

TBA

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**08:50 AM**  
**REGULAR**  
Cold Metal Transfer (CMT) Wire-Arc Additive Manufacturing (WAAM) within a High Vacuum Environment  
**Ilana Lu**;  
**NASA - Marshall Space Flight Center (MSFC)**

**09:10 AM**  
Laser-Blown Powder DED of Large Aluminum Parts for Space Industry Applications  
**Bhaskar Dutta**;  
**William Evans**;  
**Jeff Robertson**;  
**DM3D Technology**;  
**NASA - Marshall Space Flight Center (MSFC)**;  
**Hexagon Manufacturing Intelligence**

**09:30 AM**  
**INVITED**  
Integrating Wire and Arc Additive Manufacturing with Precision Robotic Milling to Produce Large-Scale Aerospikes in Aluminum or Copper Alloys  
**Gianrocco Marinelli**;  
**Giovanni Avallone**;  
**Caracol**

**10:00 AM**  
**BREAK**

**11:00 AM**  
**NO PROGRAM**  
Panel 05 (Large Format AM) at Location TBA

**12:00 PM**  
**LUNCH**

**13:30 PM**  
**INVITED**  
ReMake Glasgow - Additive Manufacturing in Screw Compressors  
**Fraser Jardine**;  
**Howden**

**14:00 PM**  
**REGULAR**  
EHLA - A High Speed Revolution  
**Josh Barras**;  
**TWI**

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### TENTATIVE PROGRAM AGENDA

Updated as of 22nd July 2024

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Details</th>
</tr>
</thead>
</table>
| 14:20 PM    | 14:20 PM REGULAR                             | Case Study: The Development of a Downhole Subsea Drilling Tool with a Directed Energy Deposition (DED) Tungsten Carbide Hardfacing for Improved Wear Resistance
|             |                                              | [Rohan Buntval;] [Alexandre Cachinhasky;] [Mikhail Anisimov;] [Jan Siwak;] [Baker Hughes]  |
|             | 14:40 PM REGULAR                             | Is Laser DED a Better Alternative to Arc Welding Repair of Rails and Turnouts in the Railway Sector?
|             |                                              | [Angela Veiga;] [Maria Florencia Schiopetto;] [Sergio Ausejo;] [Josu Lopez;] [Iñigo Perez;] [Itziar Ruiz;] [Borja Rodriguez;] [Celt Research Center]  |
|             | 15:00 PM                                     | Break                                                                   |
| 15:30 PM    | 15:30 PM INVITED                            | Applying Profilometry-Based Indentation Plastometry (PIP) for Acceleration of DED-Arc Optimisation
|             |                                              | [Harry Thompson;] [Marcus Ng;] [Baikhati Elok Sattii;] [Wei Ya;] [Adiya Rajesh;] [Marcel Hermans;] [1DEEP;] [Delft University of Technology;] [RAMLAB]  |
| 16:00 PM    | 16:00 PM INVITED                            | Deploying DED-Arc for the Production of Large-Scale Ship Components
|             |                                              | [Chris Dunn;] [Misael Pimentel;] [Malin Group;] [National Manufacturing Institute Scotland (NMIS)]  |
| 16:30 PM    | 16:30 PM INVITED                            | Advancements in Additive Manufacturing: Exploring the Potential of 3D Dynamic Material Deposition in Aerospace and Rocket Propulsion Applications
|             |                                              | [Simone Maffia;] [Tobias Stüttgen;] [Ponticon]  |
| 17:00 PM    |                                             | END OF DAY                                                              |

#### 31ST OCTOBER 2024

<table>
<thead>
<tr>
<th>Session Chair (AM Session):</th>
<th>TBA</th>
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<tbody>
<tr>
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<td>TBA</td>
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**08:50 AM REGULAR**

<table>
<thead>
<tr>
<th>Session</th>
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</thead>
<tbody>
<tr>
<td>Optimizing Metal DED for Larger Areas with Improved Physics &amp; Economics</td>
<td>[Jason Jones;] [Hybrid Manufacturing Technologies]</td>
</tr>
</tbody>
</table>

**10:00 AM BREAK**

**10:30 AM INVITED**

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<th>Session</th>
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**11:00 AM INVITED**

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**11:30 AM INVITED**

<table>
<thead>
<tr>
<th>Session</th>
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<tbody>
<tr>
<td>Tensile and Fatigue Characterization of Ti6Al4V Manufactured by DED-LB/M and Influence of Sample-Substrate Interface and Surface Roughness on Fatigue Strength</td>
<td>[Elena López;] [Francesco Bruzzo;] [Anne-Katrin Leopold;] [Mirko Riede;] [Marko Baertl;] [Bjorn Hinze;] [Frank Brückner;] [Fraunhofer Institute for Material and Beam Technology IWS;] [Rolls-Royce]</td>
</tr>
</tbody>
</table>

**12:00 PM LUNCH**

**13:30 PM INVITED**

<table>
<thead>
<tr>
<th>Session</th>
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<tbody>
<tr>
<td>Innovative Metal Feeding Approaches for Laser Additive Manufacturing</td>
<td>[Alexander Kaplan;] [Luleå University of Technology]</td>
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**14:00 PM REGULAR**

<table>
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<tr>
<th>Session</th>
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<tbody>
<tr>
<td>Enhancing Performance with Directed Energy Deposition (DED)</td>
<td>[Melanie Lang;] [FormAlloy]</td>
</tr>
<tr>
<td>Bringing Powder into Focus</td>
<td>[Jhonattan Gutjahr;] [TWI]</td>
</tr>
</tbody>
</table>

**15:00 PM BREAK**

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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024

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15:30 PM INVITED  Progress Towards Additively Manufacturing Crack-Sensitive High Strength Aluminum Alloys for Large Space Vehicle Structures  William Evans; Eric Brizes; 1NASA - Marshall Space Flight Center (MSFC); 2NASA - Glenn Research Center (GRC)

16:00 PM REGULAR  Aluminum-Based Lightweight Structures by wDED-Arc on L-PBF Substrates for Hydrogen Transportation Applications  Graham Matheson; Talha Cakmak; Florian Pixner; Christian Forstner; 1Oerlikon AM; 2AIT Austrian Institute of Technology; 3Cryomotive

16:20 PM REGULAR  Aluminum Lithium Feedstock for Cold Metal Transfer (CMT) Wire-Arc Additive Manufacturing (WAAM)  Ilana Lu; Anthony Reynolds; 1NASA - Marshall Space Flight Center (MSFC); 2University of South Carolina

16:40 PM REGULAR  DED Procedure Qualification: Approaches and Codes  Edward Peterson; 1Laser Welding Solutions

17:00 PM END OF DAY

01ST NOVEMBER 2024

SESSION CHAIR (AM SESSION):  TBA

08:50 AM REGULAR  Improving Printability of Large Directed Energy Deposition Components  Alejandro Lázaro Martínez; Francisco Carretero; Giorgio Olivieri; Enrique Escobar; Abel Ramos; Christopher Robinson; 1Meltio; 2Ansys

09:10 AM REGULAR  Innovative DED-LB System for the Development of Customized Metallic Alloys and Thermoplastics  Stefan Böhm; Florian Stredak; Niklas Sommer; Andre Bauer; Malte Vollmer; Alexander Liehr; Thomas Niendorf; 1University Kassel

09:30 AM INVITED  Laser Directed Energy Deposition of Tool Steels, Potentialities of Alloy Design and Tailored Heat Treatments  Faraz Deirmina; Massimo Pellizzari; 1Sandvik Additive Manufacturing; 2University of Trento

10:00 AM BREAK

10:30 AM INVITED  Direct Energy Deposition Driven by Industry 4.0  Jacek Reiner; Tomasz Kurzynowski; 1Wroclaw University of Science and Technology

11:00 AM REGULAR  Enhancing Additive Manufacturing: Integrating Digital Twin with Experimental Validation for Thermal Behavior in 3DPMD  Yiyun Tong; Daniel Vieweger; Peter Mayr; 1Technical University of Munich

11:20 AM REGULAR  Leveraging Big Data for Closed Loop Control in DED  Zachary Gray; 1Siemens

11:40 AM REGULAR  Effects of In-Situ Monitoring Feedback and Controls for DED Part Performance  Tyson Gregory; 1Nidec Machine Tool America

12:00 PM END OF DAY

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# Value Chain

## Environmental and Corrosion

### Co-Organizers:

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jiadong Gong</td>
<td>QuesTek Innovations, USA</td>
</tr>
<tr>
<td>Michael Melia</td>
<td>Sandia National Laboratories, USA</td>
</tr>
<tr>
<td>Nicole Tailleart</td>
<td>U.S. Naval Research Laboratory (NRL), USA</td>
</tr>
<tr>
<td>Rajeev Gupta</td>
<td>North Carolina State University, USA</td>
</tr>
<tr>
<td>Matt Sanders</td>
<td>Stress Engineering Services, USA</td>
</tr>
</tbody>
</table>

### 31st October 2024 (Thu)

**Location TBA**

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## 31st October 2024

### Session Chair (AM Session): TBA

### Session Chair (PM Session): TBA

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 AM</td>
<td>Rapid Screening of Additively Manufactured Metals for Marine Service Environments</td>
</tr>
<tr>
<td></td>
<td>Raymond Santucci¹; Christine Sanders¹; Nicole Tailleart¹; U.S. Naval Research Laboratory (NRL)</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>Critical Pitting Temperature Comparison of Additively Manufactured (AM) and Wrought 316L Stainless Steel in Marine Service</td>
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<tr>
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<td>Suresh Divi¹; Stress Engineering Services</td>
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<tr>
<td>10:00 AM</td>
<td><strong>BREAK</strong></td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Advanced Characterization of Microstructural Defects in Additively Manufactured Metals and Implications on Performance</td>
</tr>
<tr>
<td></td>
<td>David Sprouster¹; Stony Brook University</td>
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<tr>
<td>11:00 AM</td>
<td>Relating Microstructure to Environmental Degradation in Al-Mg Alloys</td>
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<tr>
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<td>Josh Kacher¹; Georgia Institute of Technology</td>
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<tr>
<td>11:30 AM</td>
<td>Composition and Microstructure Impact on Active and Transpassive Corrosion of Additively Manufactured 316L</td>
</tr>
<tr>
<td></td>
<td>Robert Kelly¹; Timothy Montoya¹; Duane Macatangay¹; University of Virginia</td>
</tr>
<tr>
<td>12:00 PM</td>
<td><strong>LUNCH</strong></td>
</tr>
<tr>
<td>13:30 PM</td>
<td>A Multi-Modal Approach to Understanding Crevice Corrosion of AM316</td>
</tr>
<tr>
<td></td>
<td>Carlos Hangarter¹; Dillon Watring²; Scott Olig¹; Patrick Callahan¹; Andrew Geltmacher¹; Nicole Tailleart¹; U.S. Naval Research Laboratory's (NRL); National Science Foundation</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>Employing Machine Learning to Accelerate High Temperature Corrosion-Resistant Materials Design</td>
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<tr>
<td></td>
<td>Yu Lin¹; Noriaki Arai¹; Zhi Liang¹; Thomas Kozmeš¹; Jiadong Gong¹; David Poerschke²; QuesTek Innovations; University of Minnesota</td>
</tr>
<tr>
<td>14:30 PM</td>
<td>Exploiting Corrosion Phenomena to Simplify the Post-Processing of Powder Bed Fusion Printed Metal Components</td>
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<td>Owen Hildreth¹; Colorado School of Mines</td>
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<tr>
<td>15:00 PM</td>
<td><strong>BREAK</strong></td>
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<tr>
<td>15:30 PM</td>
<td>Corrosion Behavior of Additively Manufactured Refractory-Based Alloys</td>
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<td>Michael Melia¹; Mary Louise Gucik¹; Kasandra Escarcega¹; Andrew Kustas¹; Erin Barrick¹; Tyler LeBrun¹; Sandia National Laboratories</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>Evaluation of Material Behavior in Hydrogen Environment by Developing an Integrable Test Chamber for Energy Applications</td>
</tr>
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<td></td>
<td>Alexander Koch¹; Lars Gerdes¹; Kai Donnerbauer¹; Matthias von Pavel¹; Frank Walther¹; TU Dortmund University</td>
</tr>
<tr>
<td>16:20 PM</td>
<td><strong>END OF DAY</strong></td>
</tr>
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ICAM 2024 TENTATIVE PROGRAM AGENDA
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VALUE CHAIN

FATIGUE AND FRACTURE

CO-ORGANIZERS:
Stefano Beretta
Politecnico di Milano, Italy

Thomas Niendorf
University of Kassel, Germany

Jutima Simsiriwong
University of North Florida, USA

William Tilson
NASA - Marshall Space Flight Center (MSFC), USA

Zachary Whitman
Boeing Commercial Airplanes, USA

30TH OCT 2024 (WED) – 01ST NOV 2024 (FRI)
LOCATION TBA

30TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM REGULAR Fatigue of Lattice Structures: Geometric Analysis, Fatigue Testing, and Multiaxial Stress Analysis
Reza Molaei1; Mohammad Amjadi2; Krista Dyer3; Minh Tran4; 1University of Memphis; 2University of North Florida; 3University of Tokyo; 4Arkansas Tech University

09:10 AM REGULAR A Novel Method to Forecast the Fatigue Behavior of Stress Concentration Features in Additive Manufacturing Components
Armando Coro1; 1ITP Aero

09:30 AM INVITED Qualification of Additively Manufactured Ti6Al4V ELI Lattice Structures for Permanent Medical Implants by Innovative Research Approach
Frank Walther1; Sebastian Stammkötter1; Mirko Teschke1; Alexander Koch1; 1TU Dortmund University

10:00 AM BREAK

10:30 AM INVITED Post-Processing Strategies to Improve Fatigue and Fracture Properties of Net-Shape Titanium Parts
Jake Benzing1; Orion Kafka2; Nicholas Derimow1; Nik Hrabe1; Sara Randal1; Julius Bonini2; Chad Beamer3; Ryan Fisher4; 1NIST; 2Lucideon; 3Quintus Technologies; 43D Systems

11:00 AM INVITED HIP Process Effects on Static/Fatigue Properties for Ti-6Al-4V Fabricated via LDED AM
Dana Smith1; 1Boeing

11:30 AM INVITED Investigation of the Residual Stress State and Fatigue Behavior of A PBF-LB/M AISi10Mg Subjected to Low Temperature Heat Treatments
Itziar Serrano-Munoz1; 1Bundesanstalt für Materialforschung und -prüfung (BAM)

12:00 PM LUNCH

13:30 PM INVITED Influence of AM-Typical Microstructural Features on the Fatigue Behavior of AlSi 316L and AlSi10Mg
Tilmann Beck1; Patrick Lehner1; Bastian Blinn1; 1University of Kaiserslautern-Landau (RPTU)

14:00 PM INVITED Fatigue and Fracture in Additively Manufactured Materials for High-Temperature Applications
Thomas Niendorf1; 1University of Kassel

14:30 PM INVITED Fatigue Behavior of Laser Powder Bed Fused Stainless Steels: Effect of Stress Gradient
Jutima Simsiriwong1; Nima Shamsaei2; 1University of North Florida; 2Auburn University

15:00 PM BREAK

15:30 PM INVITED Improving the Probabilistic Damage Tolerance Assessment of Additive Manufacturing Safety-Critical Applications by Anomalies Random Fields
Armando Coro1; 1ITP Aero

16:00 PM REGULAR Analysis of Ti64 Manufactured by L-PBF with Net-Shape and Chemically Milled Surface Conditions
Luca Patriarca1; Stefano Beretta1; Tatiana Risposi1; Lorenzo Rusnati1; 1Politecnico di Milano

Erembert Nizery1; Luca Patriarca2; Ravi Shahani1; Lorenzo Rusnati2; Stefano Beretta2; 1Constituum; 2Politecnico di Milano

16:40 PM REGULAR Predicting Fatigue Life Due to Surface Roughness from Additive Manufacturing Process
Xueyong (Kevin) Qu1; Leland Shimizu2; Warren Nadvornick2; Jacob Rome1; Alex De La Cruz2; Cristian Banellos2; Francisco Medina2; 1The Aerospace Corporation; 2University of Texas at El Paso

17:00 PM END OF DAY

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### 31ST NOVEMBER 2024

**SESSION CHAIR (AM SESSION):**
TBA

**SESSION CHAIR (PM SESSION):**
TBA

<table>
<thead>
<tr>
<th>Time</th>
<th>Type</th>
<th>Title</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:50 AM</td>
<td>REGULAR</td>
<td>Fatigue Performance and DADT Certification of Powder-Bed Additively-Manufactured Ti-6Al-4V: Defect Assessments, EDS Distributions, and Inspection Limits</td>
<td>Patrick Golden(^1); Matthew Krug(^1); Sushant Jha(^2); Luke Sheridan(^1); Reji John(^1); Bryce Jolley(^1); Air Force Research Laboratory (AFRL); University of Dayton Research Institute</td>
</tr>
<tr>
<td>09:10 AM</td>
<td>REGULAR</td>
<td>Design Against Fatigue of Super Duplex Stainless Steel Structures Fabricated by Wire Arc Additive Manufacturing Process</td>
<td>Pete Goumas(^1); Andy Sales(^1)</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>Recent Advancements in Fatigue Design of Additively Manufactured Metamaterials</td>
<td>Simone Murchio(^2); Filippo Berto(^1); Raffaele De Biasi(^2); Gianluca Zappini(^2); Marcello Laurenti(^1); Matteo Benedetti(^2); Sapienza University of Rome; University of Trento; Lincotek Medical</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>BREAK</td>
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</tr>
<tr>
<td>10:30 AM</td>
<td>INVITED</td>
<td>Sensitivity of AM Anomaly Distributions to AM Anomaly Measurements</td>
<td>James Sobota(^1); Erin DeCarlo(^1); Michael Enright(^1); Southwest Research Institute (SwRI)</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>Application of Probabilistic Damage Tolerance Analysis and Evaluation of Variable Impact on Fracture Risk</td>
<td>James Mavo(^1)</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>INVITED</td>
<td>Fatigue Life Computation Based on Surface and Near-Surface Defect Distributions in Powder Bed Fusion Manufactured Ti-6Al-4V</td>
<td>Viktor Sandell(^1); Sushovan Roychowdhury(^1); Thomas Hansson(^1); Mats Delin(^1); Pia Åkerfeldt(^2); Marta-Lena Antti(^2); GKN Aerospace; Luleå University of Technology</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>LUNCH</td>
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<tr>
<td>13:30 PM</td>
<td>INVITED</td>
<td>Fretting Fatigue of Additively Manufactured Metals: A Review</td>
<td>Ali Fatemi(^1); Samira Ghadar(^1); Nam Phan(^2); University of Memphis; Naval Air Systems Command (NAVAR)</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>REGULAR</td>
<td>Investigation of the Fatigue Performance of Ti6Al4V Parts Produced by Selective Laser Melting</td>
<td>Umit Ayta(^1); Celli Bayar(^1)</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>REGULAR</td>
<td>A Universal Effect of Defect Model for Various Engineering Alloys Made with Laser Powder Bed Fusion</td>
<td>Emiel Amsterdam(^1); Wessel Wits(^1); Maria Montero-Sistiaga(^1); Marc de Smit(^1); Royal NLR; Netherlands Aerospace Centre</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>REGULAR</td>
<td>High Temperature Fatigue and Fracture Behavior of AM IN718 Analysis using Machine Learning Feature Importance</td>
<td>Richard Neu(^1); Alexander Caputo(^2); Xiayun Zhao(^1); Haolin Zhang(^1)</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>BREAK</td>
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<tr>
<td>15:30 PM</td>
<td>INVITED</td>
<td>Discussion of Fatigue Limits of PBF-LB Materials Based on Short Fatigue Crack Behavior</td>
<td>Karl Michael Krämer(^1); Timo Brune(^1); Christian Kontermann(^1); Christian Schweizer(^2); Matthias Oechsner(^1); Technical University of Darmstadt; Fraunhofer Institute for Mechanics of Materials IWM</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>When is a “Defect” is Critical? Surface, Sub-Surface, Geometric and Microstructure Effects in Laser Powder Bed Fusion</td>
<td>Joy Gockel(^1)</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>INVITED</td>
<td>What are Fatigue Allowables? - Considerations for AM and Lessons Learned from “Conventional” Material Systems</td>
<td>Michael Gorelik(^1)</td>
</tr>
<tr>
<td>17:00 PM</td>
<td>END OF DAY</td>
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### 01ST NOVEMBER 2024

**SESSION CHAIR (AM SESSION):**
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<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>08:50 AM</td>
<td>REGULAR</td>
<td>Tensile and Fatigue Analysis of Functionally Graded Materials with Varying Concentrations Manufactured using Material Extrusion</td>
<td>Suhas Alkunte(^1); Ismail Fidan(^2); Shamil Gudavasov(^2); Vivekanand Naikwadi(^2); Old Dominion University; Tennessee Tech University</td>
</tr>
<tr>
<td>09:10 AM</td>
<td>REGULAR</td>
<td>Effect of Material Variables on Minimum Fatigue Life of Additively Manufactured Nickel Alloy 718</td>
<td>Sushant Jha(^1); Nathan Bryant(^1); Howard Sizek(^2); Jessica Orr(^1); University of Dayton Research Institute; Air Force Life Cycle Management Center</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>Fatigue Evaluation of AISi10Mg using Fractography and CT Scans</td>
<td>Farsad Forghani(^2); Boeing; Sustai</td>
</tr>
</tbody>
</table>
10:00 AM  BREAK

10:30 AM  INVITED  Fatigue and Fracture of Additively Manufactured Ti6Al4V
Christopher Faraj1; DeeAnn Deles-Stagner1; Zachary Whitman1; 1Boeing

11:00 AM  INVITED  Criticality of Volumetric Defects on the Fatigue Behavior of Additive Manufactured Ti-6Al-4V
Sajith Soman1; Muzahid Muhammad1; Mohammad Salman Yasin1; Shuai Shao1; Nima Shamsaei1; 1Auburn University

11:30 AM  REGULAR  Experimental and Numerical Investigation on the Fatigue Behavior of Defect-Afflicted Additive Manufactured Titanium Alloys
Leonhard Stampa1, 2; Fabian Günther1, 2; Stefan Pliz3; Jörg Bretschneider2; Markus Wagner2; Markus Kästner1; Anett Gebert3; Martina Zimmermann1, 2; 1Dresden University of Technology; 2Fraunhofer Institute for Material and Beam Technology IWS; 3Leibniz Institute for Solid State and Materials Research

11:50 AM  END OF DAY

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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024
(Clicking on the ICAM logo on the right will link you back to the top of this document.)

VALUE CHAIN

FEEDSTOCK CHARACTERIZATION, SPECIFICATION, AND REUSE

CO-ORGANIZERS:
Ronald Aman
Amaero, USA
Frédéric Marion
GE Additive - AP&C, Canada
Tony Thornton
Micromeritics, USA
Louis-Philippe Lefebvre
National Research Council Canada, Canada
Amir Nobari
Tekna, Canada

28TH OCT 2024 (MON) – 29TH OCT 2024 (TUE)
LOCATION TBA

28TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM REGULAR Valorization of Titanium Ti-6Al-4V Scrap into High Added Value Powders for Manufacturing Technologies
Marine Jean-Baptiste1; Salvatore Pillitteri2; Cédric Georges1; Anders Bæk Hjermitzlev2; 1CRM Group; 2Granutools; 3Danish Technological Institute

09:10 AM REGULAR Novel Single Step Process for Manufacturing ELI Titanium Alloy Spherical Powders from Recycled Feedstock
Sunil Badwe1; Matthew Charles1; 1Continuum Powders

09:30 AM INVITED Powder Reuse and Recyclability in Metal Additive Manufacturing: Current Status and Challenges
Swathi Vunnam1; 1AddUp

10:00 AM BREAK

10:30 AM INVITED Characterization of Powder Surfaces through Triboelectric Charging
Mathieu Brochu1; Emilio Galindo1; Ali Alagha1; Eileen Espiritu1; Mathilde Rossier4; Pierre Hudon1; 1McGill University

11:00 AM INVITED Spreadability of AM Powder: Investigating the Impact of Recoating Conditions and Powders Characteristics
Roger Pelletier1; Anatolie Timercan1; Louis-Philippe Lefebvre1; 1National Research Council Canada (NRC Canada)

11:30 AM REGULAR Spreadability Prediction for Metallic Powders: Latest Developments
Filip Francqui1; Aurélien Neveu1; Laurent Weiss2; Pascal Laheurte2; Geoffroy Lumay3; 1Granutools; 2University of Lorraine; 3University of Liège

11:50 AM REGULAR An Interlaboratory Study for Assessing Repeatability and Reproducibility of the Data Generated by Rotating Drum Powder Rheometer
Vijin Tondare1; Justin Whiting2; Adam Pintar1; Shawn Moylan1; 1Aurélien Neveu1; Filip Francqui3; 1NIST; 2DMG MORI Additive Solutions; 3Granutools

12:10 PM LUNCH

13:30 PM INVITED Exploring the Potential of Coarse Ti-6Al-4V Powder in Laser-Powder Bed Fusion: Results and Benefits
Amir Nobari1; Jérôme Pollak1; 1Tekna

14:00 PM INVITED Expanded Ti6Al4V Powder Size Distribution and Laser Powder Bed Fusion Processed Enhancements
Paul Davies1; Mary Kate Johnston1; Faraz Deirmina1; 1Sandvik Additive Manufacturing

14:30 PM INVITED The Impact of Powder Feedstock on Carbon Footprint of the Additive Manufacturing Process Chain
Martin Dopler1; Anna Koell1; 1Metalpine

15:00 PM BREAK

15:30 PM INVITED Improved Feedstock Powder Characteristics to Accelerate Additive Manufacturing Deployment
Iver Anderson1; Jordan Thiarks1; David Byrd1; Trevor Riedemann1; Ross Anderson1; 1Ames National Laboratory

16:00 PM INVITED Characterization and Testing of Metal Powders
Edward Herderick1; David Scannapieco1; Ronald Aman2; 1NSL Analytical; 2Amaero

16:30 PM REGULAR Powder Characterisation and Part Properties for IN718 in Laser Powder Bed Fusion Powder Reuse & Correlations to Powder Usage Metrics
Jason Jyi Sheuan Ten1; Jiazhao Huang1; Duy Nghia Luu1; Andrew Nathaniels1; Haris Tauik1; Joel Goh1; 1A*STAR - Singapore Institute of Manufacturing Technology (SIMTech); 2A*STAR - Advanced Remanufacturing and Technology Centre (ARTC)

16:50 PM REGULAR Rapid Chemical Characterization of Powder for Quality Control and Process Control
Fergus Keenan1; Ellen Williams1; Jonathan Putman1; Jeffrey Williams1; 1Exum Instruments

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ICAM 2024 TENTATIVE PROGRAM AGENDA
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17:10 PM  END OF DAY

29TH OCTOBER 2024

SESSION CHAIR (AM SESSION): TBA
SESSION CHAIR (PM SESSION): TBA

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Type</th>
<th>Presentation Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:50 AM</td>
<td>REGULAR</td>
<td>New Feedstocks for Additive Manufacturing Purposes: Upcycling Metallic Residues</td>
<td>Omid Emadinia¹; ¹INEGI – Institute of Science and Innovation in Mechanical and Industrial Engineering</td>
</tr>
<tr>
<td>09:10 AM</td>
<td>REGULAR</td>
<td>Recyclability of Ni-Base Powder and its Effect on Microstructure and High Cycle Fatigue of LPBF Components</td>
<td>Alber Sadek¹; ¹EWI</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>Harnessing Ar + H2 Plasma for Decontamination and Direct Oxide Reduction</td>
<td>Alexandre Bois-Brochu¹; Elena Rosemarie; Ulate Kolitsy¹; Sébastien Germain Careau¹; ¹Québec Metallurgy Centre (CMQ)</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>BREAK</td>
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<tr>
<td>10:30 AM</td>
<td>INVITED</td>
<td>Feedstock Re-Use and Additively Manufactured Medical Devices: The FDA Perspective</td>
<td>Matthew Di Prima¹; Daniel Porter¹; ¹U.S. Food and Drug Administration (FDA)</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>Investigations into the Powder Lifecycle of Ti6Al4V in Medical Device PBF-L Manufacturing</td>
<td>Ryan Kircher¹; Nik Hrabe²; ²rms Company; ³NIST</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>INVITED</td>
<td>Influence of Ti-6Al-4V Powder Oxygen Homogeneity on Properties of L-PBF Parts: Addition of “Out-of-Specification” Powders</td>
<td>Frédéric Marion¹; ¹GE Additive - AP&amp;C</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>LUNCH</td>
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<tr>
<td>13:30 PM</td>
<td>INVITED</td>
<td>Contamination in Additive Powder Feedstock</td>
<td>Paul Wilson¹; Jérôme Pollak²; ²Boeing Research &amp; Technology; ³Tekna</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>REGULAR</td>
<td>Understanding the Effects of Powder Feedstock Heterogeneity on the L-PBF Process</td>
<td>Jordan Weaver¹; Aniruddha Das¹; Nicholas Derimow¹; Nik Hrabe¹; ¹NIST</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>REGULAR</td>
<td>Redefining LPBF Productivity: Beyond Powder Characteristics to Printing Strategy</td>
<td>Juan Manuel Martinez Alvarez¹; ¹ArcelorMittal</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>REGULAR</td>
<td>Achieving High-Productivity in Laser Powder Bed Fusion via Enhanced AISi10Mg Powders</td>
<td>Sabina Kumar¹; ¹Eaton</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>BREAK</td>
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<tr>
<td>15:30 PM</td>
<td>INVITED</td>
<td>Standardization Challenges in Small-Scale Metal Powder Production for R&amp;D in Additive Manufacturing via Ultrasonic Atomization</td>
<td>Bartosz Morończyk¹; Łukasz Żodowski¹; Steven Adler²; Tomasz Choma¹; Jakub Ciftci¹; ¹AMAZEMET; ²A3DM</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>Pushing the Boundaries in Additive Manufacturing of Al Alloys: Material Candidates for High-Performance Applications</td>
<td>Priyanshu Bajaj¹; Andreas Pelz¹; ¹m4p material solutions</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>INVITED</td>
<td>Efficient Production of High Temperature Shape Memory Alloy Powder</td>
<td>Christopher Ledford¹; ¹Oak Ridge National Laboratory (ORNL)</td>
</tr>
<tr>
<td>17:00 PM</td>
<td>INVITED</td>
<td>Investigating the Influence of Powder Age on Microstructure and Mechanical Properties of LPBF Alloy 625</td>
<td>Matthew Rowson¹; ¹Rolls-Royce</td>
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<tr>
<td>17:30 PM</td>
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ICAM 2024 TENTATIVE PROGRAM AGENDA
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VALUE CHAIN

IN-SITU MONITORING AND IN-PROCESS CONTROL

CO-ORGANIZERS:

Jack Beuth
Carnegie Mellon University, USA

Ulrich Kleinhans
EOS, Germany

Erin Lanigan
NASA - Marshall Space Flight Center (MSFC), USA

Edward (Ted) Reutzel
Pennsylvania State University, USA

Zackary Snow
Oak Ridge National Laboratory (ORNL), USA

13:30 PM
INVITED
13:00 PM
REGULAR
Real-Time Detection and Classification of Laser Powder Bed Fusion Process Induced Defects using High Resolution Long-Exposure In-Process Monitoring Technique
Andrey Molotnikov1, 2, 3; Marten Jurg1; 4Royal Melbourne Institute of Technology (RMIT University); 4RMIT Centre for Additive Manufacturing (RCAM); 4Additive Assurance

14:00 PM
REGULAR
Exploring the Real-Time Feedback Control for Laser Powder Bed Fusion Additive Manufacturing
Ho Yeung1; 2NIST

14:20 PM
REGULAR
Impact of Interlayer Time Delay on Global and Melt Pool Thermal Conditions and Mechanical Properties for Thin Wall Components (Ti-6Al-4V) Built using Directed Energy Deposition
James Craig1; Abdalla Nassar2; Edward (Ted) Reutzel3; William Frazier4; 5Stratonics; 5John Deere; 6Pennsylvania State University - Applied Research Laboratory (PSU - ARL); 6Pilgrim Consulting

30TH OCT 2024 (WED) – 01ST NOV 2024 (FRI)
LOCATION TBA

30TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM
REGULAR
Leveraging Computer Vision and Machine Learning for In-Situ Real-Time Monitoring of Part and Powder Layer Surface Quality in Laser Powder Bed Fusion
Enrico Tosoratti1; Christopher Bennewitz2; Markus Bambach2; 1inspire - Innovation Center for Additive Manufacturing Switzerland (icams); 2ETH Zürich

09:10 AM
REGULAR
Harnessing In-Situ Recoater Torque Dynamics for Enhanced LPBF Build Quality Assurance
Benjamin Robinson1; 1Additive Industries

09:30 AM
INVITED
Understanding Acceptance Limits for LPBF In Process Monitoring
Thomas Jones1; 1Rolls-Royce Submarines

10:00 AM
BREAK

10:30 AM
INVITED
Empowering Additive Manufacturing Qualification through In-Situ Process Monitoring
Michael Heiden1; 1Sandia National Laboratories

11:00 AM
INVITED
Towards Real-Time Certification of AM Parts with In Situ Inspection
Niall O'Dowd1; 1Phase3D

11:30 AM
INVITED
Putting In-Process Monitoring to Work:
Towards Real-Time Digital Quality Assurance
Paul Hooper1; 1Imperial College London

12:00 PM
LUNCH

13:30 PM
INVITED
Real-Time Detection and Classification of Laser Powder Bed Fusion Process Induced Defects using High Resolution Long-Exposure In-Process Monitoring Technique
Andrey Molotnikov1, 2, 3; Marten Jurg1; 4Royal Melbourne Institute of Technology (RMIT University); 4RMIT Centre for Additive Manufacturing (RCAM); 4Additive Assurance

14:00 PM
REGULAR
Exploring the Real-Time Feedback Control for Laser Powder Bed Fusion Additive Manufacturing
Ho Yeung1; 2NIST

14:20 PM
REGULAR
Impact of Interlayer Time Delay on Global and Melt Pool Thermal Conditions and Mechanical Properties for Thin Wall Components (Ti-6Al-4V) Built using Directed Energy Deposition
James Craig1; Abdalla Nassar2; Edward (Ted) Reutzel3; William Frazier4; 5Stratonics; 5John Deere; 6Pennsylvania State University - Applied Research Laboratory (PSU - ARL); 6Pilgrim Consulting

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# ICAM 2024 Tentative Program Agenda

**Updated as of 22nd July 2024**

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<tr>
<td>17:00 PM</td>
<td>INVITED</td>
<td>Inference of Highly Time-Resolved Melt Pool Visual Characteristics and Spatially-Dependent Lack-of-Fusion Defects in Laser Powder Bed Fusion using Acoustic and Thermal Emission Data</td>
<td>Levent Burak Kara¹; Hao Lin²; Anthony Rollett¹; Jack Beuth¹; Christian Gobert¹; Kevin Ferguson¹; Hongrui Chen¹; Brandon Abranovic¹; Carnegie Mellon University</td>
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<td>17:30 PM</td>
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<tr>
<td>31ST OCTOBER 2024</td>
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<tr>
<td>08:50 AM</td>
<td>REGULAR</td>
<td>Integration of Feedback and Feedforward Control in Laser Powder Bed Fusion</td>
<td>Rongxuan Wang¹; Auburn University</td>
</tr>
<tr>
<td>09:10 AM</td>
<td>REGULAR</td>
<td>In Process Monitoring of PBF AM by Fringe Projection Method</td>
<td>Ryuichi Narita¹; Mitsubishi Heavy Industries</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>Cruise Control for Metal Additive: Advancements in In-Process Monitoring -- One Layer at a Time</td>
<td>Ben DiMarco¹; Michael Groeber¹; Ohio State University</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>BREAK</td>
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<tr>
<td>10:30 AM</td>
<td>INVITED</td>
<td>Data Fusion for In-Situ Sensor-Based Flaw Detection and Property Prediction</td>
<td>Luke Scime¹; Zackary Snow¹; William Halsey¹; Vincent Paquilt¹; Oak Ridge National Laboratory (ORNL)</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>A Data-Driven, Context-First Approach to In Situ Flaw Predictions for Additive Manufacturing</td>
<td>Zackary Snow¹; Luke Scime¹; William Halsey¹; Amir Ziahari¹; Chase Joslin¹; Vincent Paquilt¹; Oak Ridge National Laboratory (ORNL)</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>INVITED</td>
<td>Bringing Data Analytics and Machine Learning to the Forefront of Additive Manufacturing - Opportunities and Challenges</td>
<td>Jan Petrich¹; Edward (Ted) Reutzel¹; Pennsylvania State University - Applied Research Laboratory (PSU - ARL)</td>
</tr>
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<td>LUNCH</td>
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<td>13:30 PM</td>
<td>INVITED</td>
<td>Bolstering Process Monitoring with Machine Monitoring: Keeping an Eye on AM Machine Performance</td>
<td>Jaime Berez¹; University of North Carolina at Charlotte</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>REGULAR</td>
<td>Embedding Sensors to Create a Smart Build Plate</td>
<td>Mark Norfolk¹; Fabrisonic</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>REGULAR</td>
<td>Non-Contact Measurement of Powder Bed Density using Temperature Response</td>
<td>Nathan Crane¹; Shu Wang¹; Brigham Young University</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>REGULAR</td>
<td>Thermal Conduction Error Due to Thermocouple Attachment in LPBF Processes</td>
<td>Alexandra Vest¹; Antoinette Maniatty²; U.S. Army Combat Capabilities Development Command - Weapons and Software Engineering Center (WSEC) Benét Laboratories; Renesselae Polytenechnic Institute</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>BREAK</td>
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<tr>
<td>15:30 PM</td>
<td>INVITED</td>
<td>Two-Color Thermal Imaging Applied to E-Beam Spot Melt Process Mapping</td>
<td>Jack Beuth¹; Alexander Myers¹; William Frieden¹; Jonathan Malen¹; Shu Wang¹; Carnegie Mellon University</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>Enhancing Monitoring in Laser Powder Bed Fusion (LPBF) Processes using Electromagnetic Sensors</td>
<td>Bernard Revaz¹; AMiquam</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>INVITED</td>
<td>Accelerated Materials Development and Qualification using In-Situ Monitoring and X-CT</td>
<td>Behrang Poorangij¹; Koki Takeshita²; Shinji Ishibashi²; Erika Ono²; Takeyuki Mizutani²; Morf3D²; Nikon</td>
</tr>
<tr>
<td>17:00 PM</td>
<td>INVITED</td>
<td>Evaluation of In Situ Monitoring Approaches by Comparison to X-Ray CT Data</td>
<td>Nicholas Calt¹; Sanam Gorgannejad¹; Michael Juhasz¹; Zheng Wu¹; Ethan Sprague¹; Gabe Guss¹; Justin Patridge¹; Steven Hoover¹; Lawrence Livermore National Laboratory (LLNL)</td>
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<tr>
<td>17:30 PM</td>
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<tr>
<td>01ST NOVEMBER 2024</td>
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<tr>
<td>SESSION CHAIR (AM SESSION):</td>
<td>TBA</td>
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</tr>
<tr>
<td>08:50 AM</td>
<td>REGULAR</td>
<td>Monitoring and Control of Surface Quality of STEP-Printed Parts on SVP Platform</td>
<td>Aleksandr Shkoruta¹; Manish Boorugu¹; Jerry Pickering¹; Evolve Additive Solutions</td>
</tr>
<tr>
<td>Note: This agenda features a list of the accepted presentations for ICAM 2024 and their tentative allocated timeslots. The program arrangement can still be subjected to changes as a result of other program considerations. Do contact us at <a href="mailto:icam@astm.org">icam@astm.org</a> if you need more information.</td>
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</tbody>
</table>
ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024

(Clicking on the ICAM logo on the right will link you back to the top of this document.)

09:10 AM  REGULAR
Non-Destructive Automated Monitoring of 3D Printing Filament Properties Based on Longitudinal Encoding, Multi-Axis Diameter and Electric Permittivity Real-Time Measurements
Jakub Aniulis¹; Grzegorz Dudzik¹; Krzysztof Abramski¹; ¹Wrocław University of Science and Technology

09:30 AM  INVITED
Advances in In-Situ Laser Ultrasonic Testing during Additive Manufacturing
Bradley Bobbs¹; Marvin Klein¹; ¹Intelligent Optical Systems

10:00 AM  BREAK

10:30 AM  INVITED
In-Situ Data Mining, Monitoring and Control in Additive Manufacturing: What’s Next
Bianca Maria Colosimo¹; ¹Politecnico di Milano

11:00 AM  INVITED
Process Monitoring for Feed-Forward Control in Metal Additive Manufacturing
Manyalibo Matthews¹; ¹Lawrence Livermore National Laboratory (LLNL)

11:30 AM  INVITED
In Situ Monitoring for a Production Environment
Christopher Barrett¹; ¹Laser Fusion Solutions

12:00 PM  INVITED
Electrochemical Additive Manufacturing, High-Resolution 3D Metal Printing with Pixel Scale In-Situ Inspection and Closed-Loop Monitoring
Ian Winfield¹; Tim Ouradnik¹; Kareem Shaik¹; ¹Fabric8Labs

12:30 PM  END OF DAY

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<tr>
<th>Time</th>
<th>Type</th>
<th>Title</th>
<th>Speakers</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:30 AM</td>
<td>REGULAR</td>
<td>Microstructure and Defect Sensitive Fatigue and Damage Tolerance Models for Additively Manufactured Structures</td>
<td>Frank Walther; Alexander Koch; Sebastian Stammkötter; Jochen Tenkamp; TU Dortmund University</td>
<td>TBA</td>
</tr>
<tr>
<td>11:50 AM</td>
<td>REGULAR</td>
<td>Probing the Process Window Boundaries in Powder Bed Fusion-Laser Beam: Highlighting Inherent Process Nuances</td>
<td>Sneha Nara; Justin Miner; William Frieden Templeton; Shawn Hinnebusch; Seth Strayer; Albert To; Anthony Rollett; Jack Beuth; Carnegie Mellon University; University of Pittsburgh</td>
<td></td>
</tr>
<tr>
<td>12:10 PM</td>
<td>LUNCH</td>
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</tr>
<tr>
<td>13:30 PM</td>
<td>INVITED</td>
<td>Microstructure and Mechanical Properties of High Strength 3D Printing Aluminum Matrix Composites</td>
<td>Che-Nan Kuo; National Sun Yat-Sen University</td>
<td>TBA</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>INVITED</td>
<td>Uncovering Dislocation-Precipitate Interactions During Cyclic Loading of Wire Arc Additive Manufactured Nickel-Aluminum-Bronze</td>
<td>Ariel Murphy-Leonard; Ohio State University</td>
<td>TBA</td>
</tr>
<tr>
<td>14:30 PM</td>
<td>INVITED</td>
<td>Benchmarking of New Aluminium Alloys for Additive Manufacturing</td>
<td>Joseph Chamberlin; The Manufacturing Technology Centre (MTC)</td>
<td>TBA</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>BREAK</td>
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<tr>
<td>15:30 PM</td>
<td>INVITED</td>
<td>Effects of Chemical Polishing, Chemical-Mechanical Polishing, and Hot Isostatic Pressing on Metal-Based Powder Bed Fusion Specimens Printed With and Without Contour</td>
<td>Aguustin Diaz; Joshua Boykin; Patrick McFadden; Eric Wendt; REM Surface Engineering</td>
<td>TBA</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>Progress in Gradient Boundary Condition Creep Testing</td>
<td>Calvin Stewart; Artur Ulsenheimer; Christo Boudreault; Ohio State University</td>
<td>TBA</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>REGULAR</td>
<td>Enabling High Power Processes in LPBF</td>
<td>Marita Ruiz; Ana Maria Montes Arango; Velo3D</td>
<td>TBA</td>
</tr>
<tr>
<td>16:50 PM</td>
<td>REGULAR</td>
<td>Advancements in Thick-Section Laser and Laser-Hybrid Welding of Superalloy Materials used in Advanced Ultra-Super Critical Thermal Power Plant Boilers</td>
<td>Aggel Mohd; University of Hyderabad</td>
<td>TBA</td>
</tr>
<tr>
<td>17:10 PM</td>
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# ICAM 2024 Tentative Program Agenda

Updated as of 22nd July 2024

(Clicking on the ICAM logo on the right will link you back to the top of this document.)

## 29th October 2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Chair (AM Session):</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:50 AM</td>
<td>TBA</td>
</tr>
</tbody>
</table>

**SESSION CHAIR (PM SESSION):** TBA

### 08:50 AM Regular

**Invited**

- **Combined Hot Isostatic Pressure (HIP) with Post-Build Heat Treatment of Haynes® 282 Ni-Based Superalloy Processed by PBF-L:** Influence on Microstructure and Mechanical Properties
  - **Nerea Ordas:** 1
  - **Julia Perez de Arriuza:** 1
  - **Saul Martín:** 1
  - **Lorena Lozada:** 1
  - **Iñigo Iturriza:** 1
  - **Miguel Ampudia:** 2
  - **Oscar Meabe:** 3
  - **Ruben García:** 3
  - **1Ceit Technology Center; 2Aenium; 3Hiperbaric**

### 09:10 AM Regular

**Invited**

- **Residual Stress Modeling of LPBF IN-718:**
  - **Alexandra Vest:** 1
  - **U.S. Army Combat Capabilities Development Command - Weapons and Software Engineering Center (WSEC) Benét Laboratories**

### 09:30 AM Invited

- **Microstructural Evaluation of the Creep Behavior in L-PBF Ni-Based Superalloys:**
  - **Chantal Sudbrack:** 1
  - **National Energy Technology Laboratory (NETL)**

### 10:00 AM Break

### 10:30 AM Invited

- **Reinventing H230 through Additive Manufacturing for Exception Elevated Temperature Performance:**
  - **Jonathan Pegues:** 1
  - **Youping Gao:** 1
  - **Robert Hayes:** 2
  - **Steve Combs:** 3
  - **1Castheon; 2Metals Technology**

### 11:00 AM Invited

- **Measurements of Multi-Material Laser Powder Bed Fusion GRCop-42 and Ni718 Interface Strength:**
  - **Ryan Fishell:** 1
  - **Thomas Southern:** 2
  - **Jeff Shaffer:** 1
  - **Ryan Overdorff:** 2
  - **Guha Manoharan:** 3
  - **Safa Khodabakhsh:** 3
  - **13D Systems; 2Plastometrex; 3Pennsylvania State University**

### 11:30 AM Regular

- **Directed Energy Deposition of Inconel 625 - GRCop42 Alloys:**
  - **Somayeh Paseban:** 1
  - **Jakub Preis:** 1
  - **Stephanie Lawson:** 1
  - **1Oregon State University**

### 11:50 AM Regular

- **Custom-Post-Process Heat Treatments and In-Situ Processing to Eliminate Columnar Microstructure in W-DED Components:**
  - **Hannah Sims:** 1
  - **Jonathan Pegues:** 1
  - **LaRico Treadwell:** 1
  - **Michael Aberle:** 1
  - **1Sandia National Laboratories; 2Castheon**

### 12:10 PM Lunch

### 13:30 PM Invited

- **Enabling Large-Format Wire-DED 3D Printing through Materials and Process Control Development for High-Strength Aluminum Structures:**
  - **Nicholas Bagshaw:** 1
  - **Fortius Metals**

### 14:00 PM Invited

- **Additive Manufacturing of Aluminium Alloys and Composites by Powder Bed Fusion:**
  - **Swee Leong Sing:** 1
  - **National University of Singapore (NUS)**

### 14:30 PM Invited

- **Microstructure Control for Damage Prevention during Metal Additive Manufacturing:**
  - **Zhongji Sun:** 1
  - **A*STAR - Institute of Materials Research and Engineering (IMRE)**

### 15:00 PM Break

### 15:30 PM Invited

- **Understanding the Evolution of Microstructures in Laser Powder Bed Fusion of Nickel-Based Alloys and their Importance for the Application in Turbo Machinery:**
  - **Christoph Haberland:** 1
  - **Olutayo Adegoke:** 1
  - **Håkan Brodin:** 1
  - **Sebastian Piegert:** 1
  - **Siemens Energy**

### 16:00 PM Regular

- **Reactive Additive Manufacturing (RAM) of an Al-Si-V-Fe Alloy: Processing & Feedstock Design Impacts on Microstructural Development & Mechanical Performance:**
  - **Jeremy Iten:** 1
  - **Chloe Johnson:** 1
  - **Adam Polizzi:** 1
  - **Derek Harris:** 1
  - **1Elementum 3D**

### 16:20 PM Invited

- **Microstructure and Mechanical Evaluation of 17-4PH Stainless Steel Manufactured via LPBF with Roller Recoating Technology:**
  - **Lucas Becker:** 1
  - **1AddUp**

### 16:40 PM Regular

- **Laser Beam Shaping Effect in Coaxial Wire Deposition:**
  - **Noëmie Martin:** 1
  - **Thomas Denoréaz:** 1
  - **Markus Bambach:** 1
  - **1ETH Zürich**

### 17:00 PM End of Day

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## 30th October 2024

**SESSION CHAIR (AM SESSION):** TBA

**SESSION CHAIR (PM SESSION):** TBA

### 08:50 AM Regular

- **Effect of Powder Characteristics and Post-Thermal Treatments on Microstructure and Mechanical Properties of Laser Powder Bed Fusion Processed Ti-6Al-4V:**
  - **Swathi Vunnam:** 1
  - **Amir Nobari:** 1
  - **1AddUp; 2Tekna**

### 09:10 AM Regular

- **Systematic Control of PBF-L Ti-6Al-4V Microstructure and Mechanical Properties:**
  - **Nicholas Derimow:** 1
  - **Jake Benzing:** 1
  - **Ping Lu:** 1
  - **Chad Beamter:** 4
  - **Ryan Fishell:** 4
  - **Frank DelRio:** 4
  - **Nik Hrabe:** 1
  - **Safa Khodabakhsh:** 4
  - **Fortius Metals; 2Elementum 3D**

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<th>Time</th>
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<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:30 AM</td>
<td>INVITED Fatigue Behavior of Novel PBF-L Ti-6Al-4V High Pressure Heat Treatments</td>
<td>Nik Hrabe¹; Nicholas Derimow¹; Jake Benzing¹; Newell Moser¹; Orion Kafka¹; Chad Beamer²; Ryan Fishel³; Chris Hadley⁴; Mahesh Waje⁴; ¹NIST; ²Quintus Technologies; ³3D Systems; ⁴Lynntech</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>BREAK</td>
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</tr>
<tr>
<td>10:30 AM</td>
<td>INVITED Controlling AM Microstructures through In-Situ Laser Annealing and Rapid Post-Processing Optimization</td>
<td>Kaila Bertsch¹; Connor Rietema¹; Jennifer Glerum¹; John Roehling¹; William Smith¹; ¹Lawrence Livermore National Laboratory (LLNL)</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED Machine Learning for Next Generation Additively Manufactured Structural Alloys in Extreme Environments</td>
<td>S. Mohadeseh Taheri-Mousavi¹; ¹Carnegie Mellon University</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>INVITED Evaluation of Mechanical Performance as Indicated by Lightweight In-Situ Monitoring Sensor Modalities in Laser Powder Bed Fusion Metal Additive Manufacturing</td>
<td>Ben Brown¹; Cody Lough¹; Jon Zettwoch¹; ¹Kansas City National Security Campus</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>LUNCH</td>
<td></td>
</tr>
<tr>
<td>13:30 PM</td>
<td>INVITED Variable Mechanical Properties in Additively Manufactured Components using Profilometry-Based Indentation Plastometry (PIP)</td>
<td>Jimmy Campbell¹; Ravi Aswathanarayanawamy²; Jed Robinson-Wall²; Tony Fry²; Thomas Southern¹; ¹Plastometrex; ²Renishaw; ³National Physical Laboratory (NPL)</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>REGULAR Structural Analysis and Characterization of Cu Alloys Fabricated by Laser Powder Bed Fusion</td>
<td>Ramin Rahmani Ahranjani¹; ¹Centro de Interface Tecnológico Industrial (CiTin); ²Instituto Politécnico de Viana do Castelo (IPVC)</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>REGULAR Understanding the Consequence of Build Pauses in PBF-LB</td>
<td>Alex Hardaker¹; Ruaridh Mitchinson¹; ¹The Manufacturing Technology Centre (MTG)</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>REGULAR Profilometry-Based Indentation Plastometry for High-throughput Testing of Additive Manufactured Metals and Composites</td>
<td>Tanaji Paul¹; Tyler Dolmetsch¹; Sohail Mohammed¹; Denny John¹; Anil Lama¹; Blanca Palacios¹; Arvind Agarwal¹; ¹Florida International University</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>BREAK</td>
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<tr>
<td>15:30 PM</td>
<td>INVITED Tensile Testing of Additively Manufactured Material - A Study of Geometry, Size and Instrumentation Effects</td>
<td>Tony Fry¹; Maria Lodeiro¹; Peter Woolliams¹; Cameron Breheny²; ¹National Physical Laboratory (NPL); ²HiETA Technologies</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED Comparative Study and Discussion of Mechanical Testing Methods for Metal Additive Manufacturing Products</td>
<td>Junbeom Kwon¹; ¹Korea Institute of Materials Science (KIMS)</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>INVITED Deterministic Microstructure over Disparate Geometric Features via Programmatically Defined Process Parameters</td>
<td>Steve Walton¹; ¹Dyndrite</td>
</tr>
<tr>
<td>17:00 PM</td>
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VALUE CHAIN
NON-DESTRUCTIVE EVALUATION AND INSPECTION

CO-ORGANIZERS:
Anton du Plessis  Ben Dutton
Stellenbosch University, South Africa / Comet Technologies
Canada / Comet Technologies
Patrick Howard Felix Kim
GE Aerospace, USA NIST, USA
Philip Riegler
Norsk Titanium, USA

28TH OCT 2024 (MON) – 29TH OCT 2024 (TUE)
LOCATION TBA

28TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM REGULAR In Situ Crack Detection during Laser Directed Energy Deposition using Frequency Resolved Acoustic Emission Testing
Elena López¹; Jacob Maetje¹; Julius Hendl²; Mirko Riede¹; Frank Brückner¹; ¹Fraunhofer Institute for Material and Beam Technology IWS; ²Dresden University of Technology

09:10 AM REGULAR Eddy Current Arrays for In-Situ Imaging and Inspection of Parts during Metal PBF-LB AM Processing
Bernard Revaz¹; ¹AMiqam

09:30 AM INVITED Inline Nondestructive Evaluation and Process Control during Laser Power Directed Energy Deposition
Hoon Sohn¹; Kiyoon Yi¹; Subin Shin¹; Seokjin Shin¹; Jihyun Jang¹; ¹Korea Advanced Institute of Science and Technology (KAIST); ²InnsTek

10:00 AM BREAK

10:30 AM INVITED NEXUS: An In-Process Inspection Platform for Metal Additive Manufacturing
Sebastian Larsen¹; Paul Hooper¹; ¹Imperial College London

11:00 AM INVITED Fulfilling AM’s Potential: Fast Development Cycles, NDT and Quality Assurance using Nonlinear Resonance
Julian Wright¹; James Watts¹; Daniel Rodriguez Sanmartín¹; Alex Brennan¹; ¹Theta Technologies

11:30 AM INVITED Comparison of Process Compensated Resonance Testing (PCRT) Results, Tensile Testing Results and RUS Model Inversion Results for Additive Manufactured Parts
Sevilla Sunetchieva¹; ¹Vibrant

12:00 PM LUNCH

13:30 PM INVITED Forcing a Renaissance - On The Needs and Opportunities for Closely Coupling Materials Science and Nondestructive Evaluation for Metals-Based Additive Manufacturing
Peter Collins¹; ¹Iowa State University

14:00 PM REGULAR Optical Tomography Based on Near Infrared Imaging for Flaw Detection in LPBF
Eduardo Miramontes¹; Shuchi Khurana¹; Brett Brady²; Caleb Campbell²; Bradley Jared²; ¹Addiguru; ²University of Tennessee, Knoxville

14:20 PM REGULAR Contact Cracks in AM Components: Flaw Generation Mechanisms and Detection using Nonlinear Resonance
James Watts¹; Daniel Rodriguez Sanmartín¹; Julian Wright¹; Alex Brennan¹; Jacques Wood²; ¹Theta Technologies; ²Plymouth Science Park

14:40 PM REGULAR Automated Metrology Enables Additive Manufacturing Process Insights and Predictions
Davis McGregor¹; Miles Bimrose²; Chenhui Shao³; Sameh Tawfick³; William King³; ¹University of Maryland; ²University of Illinois Urbana-Champaign; ³University of Michigan

15:00 PM BREAK

16:00 PM **No Program**
Panel 02 (Inspection) at Location TBA

17:00 PM END OF DAY

29TH OCTOBER 2024

SESSION CHAIR (AM SESSION):
TBA

SESSION CHAIR (PM SESSION):
TBA

08:50 AM REGULAR Super-Resolution Algorithms for Application in X-Ray Computed Tomography of AM Parts
Haley Duba-Sullivan¹; Aniket Pramanik¹; Singanallur Venkatakrishnan¹; Amir Ziabari¹; ¹Oak Ridge National Laboratory (ORNL)

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<td>09:10 AM</td>
<td>REGULAR</td>
<td>Development of Representative Quality Indicators (RQIs) Metrics to Validate Computed Tomography (CT) Capability for Additively Manufactured Parts</td>
<td>Jonathan Moorman(^1); Ryan Mooers(^1); John Brausch(^1); Air Force Research Laboratory (AFRL)</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>NDE Inspection Needs and Gap Analysis for Additively Manufactured Hardware</td>
<td>Jesse Waller(^1); New Mexico State University</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>BREAK</td>
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</tr>
<tr>
<td>10:30 AM</td>
<td>INVITED</td>
<td>Comparison of Three Measurement Modalities for 3D Characterization of Manufactured Features and Process-Induced Porosity in Additively Manufactured Titanium Alloy Parts</td>
<td>Bryce Jolley(^1); Michael Uchic(^1); Andrew Townsend(^2); Nikola Draganic(^2); Chen Yee(^2); Daniel Sparkman(^1); Michael Chapman(^2); Air Force Research Laboratory (AFRL); Lawrence Livermore National Laboratory (LLNL); BlueHalo</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>Monitoring Quality of a CT Scanning System for Production Hardware</td>
<td>Ben Connors(^1); Kyle Stoll(^1); Nikon Metrology</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>INVITED</td>
<td>Quantitative Surface Quality Evaluation by X-Ray Computed Tomography</td>
<td>Tatiana Mishurova(^1); Tobias Fritsch(^1); Giovanni Bruno(^1); Bundesanstalt für Materialforschung und -prüfung (BAM)</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>LUNCH</td>
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<tr>
<td>13:30 PM</td>
<td>INVITED</td>
<td>Practice for Computed Tomographic Examination of Additive Manufactured Parts</td>
<td>Thomas Maeder(^1); Boeing</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>REGULAR</td>
<td>Classification of Melt Pool Boundaries and Flaws using Dual-Energy X-Ray CT of Crept Additively Manufactured Parts</td>
<td>Obaidullah Rahman(^1); Oak Ridge National Laboratory (ORNL)</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>REGULAR</td>
<td>A Comparative Study of Non-Destructive Evaluation Techniques: Ultrasonic Testing, X-Ray Computed Tomography, and Large-Field-of-View Synchrotron Tomography</td>
<td>Curtis Frederick(^1); Paul Brackman(^1); Ravi Shahani(^2); George Panourgias(^2); Gianni Pisa(^2); Herve Stoppiglia(^2); Guillermo Requena(^2); Elodie Boller(^2); Katrin Bugelini(^2); Amir Ziafati(^2); ZEISS Industrial Metrology; Constellium; German Aerospace Center (DLR); European Synchrotron Radiation Facility; Oak Ridge National Laboratory (ORNL)</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>REGULAR</td>
<td>Synchrotron-Based In Situ / Operando Characterization Capabilities at NSLS-II</td>
<td>Zhongshu Ren(^1); Brookhaven National Laboratory</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>BREAK</td>
<td></td>
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<tr>
<td>15:30 PM</td>
<td>INVITED</td>
<td>Cryo-Ultrasonic Testing of Complex Shape Components</td>
<td>Francesco Simonetti(^1); University of Cincinnati</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>Probability of Detection of Volumetric Defects in Additively Manufactured Metallic Materials</td>
<td>Alireza Jam(^1); Shaharyar Baig(^1); Shuai Shao(^1); Nima Shamsaei(^1); Auburn University</td>
</tr>
<tr>
<td>16:30 PM</td>
<td>REGULAR</td>
<td>Fatigue-Based Surface Roughness Analysis: A Novel Methodology and Practical Insights</td>
<td>Mikel González(^1,2); Armando Coro(^3); Silvia Martinez(^1,2); Aeronautics Advanced Manufacturing Center (CFAA); University of the Basque Country (UPV/EHU); ITP Aero</td>
</tr>
<tr>
<td>16:50 PM</td>
<td>END OF DAY</td>
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<tr>
<td>Time</td>
<td>Session</td>
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<tr>
<td>11:30 AM</td>
<td>Emerging Sinter Based AM Technologies for High Frequency Parts for 5G, 6G and Beyond</td>
<td>Thomas Studnitzky¹; Thomas Weißgärber¹; Kay Reuter¹; Chongliang Zhong¹; Jakob Scheibler¹; ¹Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM</td>
<td></td>
</tr>
<tr>
<td>11:50 AM</td>
<td>Processing of P91 Heat Resistant Steel by Binder Jetting Technology for Energy Applications</td>
<td>Inigo Agote¹; Asier Lores¹; Naiara Azurmendi¹; ¹TECNALIA</td>
<td></td>
</tr>
<tr>
<td>12:10 PM</td>
<td>An Experimentally-Validated Multiphysics, Fluid–Particle Interaction Modeling</td>
<td>Framework for Binder Jet 3D Printing</td>
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<td></td>
<td>C. Fred Higgs, III¹; ¹Rice University</td>
<td></td>
</tr>
<tr>
<td>14:00 PM</td>
<td>Towards Understanding Powder Structure Evolution during Binder Jet Printing</td>
<td>Nathan Crane¹; Jacob Lawrence¹; Madilyn Lawrence¹; Colton Inkley²; ¹Brigham Young University; ²Merit Medical</td>
<td></td>
</tr>
<tr>
<td>14:20 PM</td>
<td>Streamlining Metal Binder Jetting Production with CNC Depowdering</td>
<td>Ross Adams¹; ¹Markforged</td>
<td></td>
</tr>
<tr>
<td>14:40 PM</td>
<td>Metal Powders for Sinter-Based Technologies</td>
<td>Tibor Gyorgyi¹; ¹Endeavor 3D</td>
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</tr>
<tr>
<td>15:00 PM</td>
<td></td>
<td>BREAK</td>
<td></td>
</tr>
<tr>
<td>15:30 PM</td>
<td>HP Metal Jet S100: Adoption to Production Solution</td>
<td>Rocío Muñoz Moreno¹; ¹HP</td>
<td></td>
</tr>
<tr>
<td>16:00 PM</td>
<td>Streamlining Material Development for Sinter Based AM of Metals and Ceramics</td>
<td>Ben Arnold¹; ¹Tritone Technologies</td>
<td></td>
</tr>
<tr>
<td>16:30 PM</td>
<td>A Review of Binders and their Importance for Bind and Sinter Additive Manufacturing</td>
<td>Dustin Gilmer¹; Amy Elliott³; Temonorri Saito²; ¹University of Tennessee–Oak Ridge Innovation Institute (UT-ORII); ²Oak Ridge National Laboratory (ORNL)</td>
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<td>17:00 PM</td>
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</tbody>
</table>
30TH OCTOBER 2024

SESSION CHAIR (AM SESSION): TBA

SESSION CHAIR (PM SESSION): TBA

08:50 AM REGULAR Upcycling of Glass Waste by Binder Jetting 3D Printing Technology: A Sustainable Approach
Arish Dasan1; Jozef Kraxner1; Luca Grigolato2; Gianpaolo Savio2; Dusan Galusek1; Enrico Bernardi1; 1Alexander Dubček University of Trenčín - Centre for Functional and Surface Functionalized Glass (FunGlass); 2University of Padua

09:10 AM REGULAR Sustainable Metal Additive Manufacturing: Recycled and Eco-Friendly Resources
Ramona Fayatzar1; 1Ontario Tech University

09:30 AM INVITED NextGen-AM - Emerging Sinter-Based Additive Manufacturing Technologies for Sustainable Innovations
Thomas Weißgärber1; 1Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM

10:00 AM BREAK

10:30 AM INVITED Material and Process Optimization of Binder-Jetting to Reduce Sintering Deformation of Aluminum
Takahumi Sasak1; Daichi Yamaguchi1; 1Ricoh

11:00 AM INVITED Advancements in Sintering and Distortion for Mass Production of Binder Jet Aluminum 6061
Joe Croteau1; 1Kymera International

11:30 AM INVITED Automated Distortion Prediction and Compensation of Sintered Parts using Multi-Physics
Andy Roberts1; 1Desktop Metal

12:00 PM LUNCH

13:30 PM INVITED Improving Geometric Accuracy in Sintering-Based Manufacturing via Numerical Modeling and Simulation
Basil Paudel1; Zack Francis1; Chong Teng1; Albert To2; 1Ansys; 2University of Pittsburgh

14:00 PM REGULAR Simulation and Experimental Validation of Sintered 316L Pipe Tee Connectors Printed by Binder Jetting Additive Manufacturing
Elisa Torresani1; Alberto Cabo Rios2; Thomas Grippi1; Andrii Maksymenko1; Marco Zago1; Ilaria Cristofolini1; Eugenie Olevsky1; 1San Diego State University; 2Chalmers University of Technology; 3University of Trento

14:20 PM REGULAR Designing Distortion Compensation and Setters of Binder Jet-Printed Parts
Andreas Vlahinos1; Sunil Acharya2; 1Advanced Engineering Solutions; 2Ansys

14:40 PM REGULAR Vacuum Debinding and Sintering Aerospace Parts Built by Bound Metal Deposition
Calvin Stewart1; Britton DeGarmo1; 1Ohio State University

15:00 PM BREAK

15:30 PM INVITED Principles for Success with Sinter-Based Metal AM
Stefan Joens1; 1DSH Technologies

16:00 PM INVITED Challenges and Approach to Turn Binder Jet from Prototype into Mass Production
Jinjie Shi1; Eric Johnson1; Vinaya Manvatkar1; Sabina Kumar1; Casey Miles1; 1Eaton

16:30 PM REGULAR Case Studies of Metal Binder Jetting in Serial Production Applications
Ross Adams1; 1Markforged

16:50 PM END OF DAY

31ST OCTOBER 2024

SESSION CHAIR (AM SESSION): TBA

SESSION CHAIR (PM SESSION): TBA

08:50 AM REGULAR Multi-Material Additive Manufacturing for Sinterable Materials
Amy Elliott1; 1Oak Ridge National Laboratory (ORNL)

09:10 AM REGULAR Additive Manufacturing and Spark Plasma Sintering: Fabrication of Powder Components for Advanced Applications
Eugene Olevsky1; Elisa Torresani1; Thomas Grippi1; Maricruz Carrillo1; Chris Haines2; Dalold Martin2; 1San Diego State University; 2U.S. Army Combat Capabilities Development Command - Army Research Laboratory (ARL)

09:30 AM INVITED Hot Isostatic Pressing of Additive and Micro-Additive Manufactured 316L Stainless Steel via Metal Binder Jetting and Metal Material Jetting
Mattia Forgiarini1; Michael Pires3; Mari-Therese Burton2; Chad Beamer2; Wojciech Misiolek2; 1Azoth; 2Lehigh University; 3Quintus Technologies

10:00 AM BREAK

10:30 AM INVITED Use of Binder Jetting for Reactor Plant Components
Jonathan Hendry1; 1Rolls-Royce Submarines
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speakers</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>Development of Corrosion Resistant 2205 Duplex Stainless Steel for Binder Jetting</td>
<td>Eleonora Bettini; Kyle Myers; Timothy Neal; Faraz Deirmina; Sandvik Additive Manufacturing; Desktop Metal; AmPd Labs</td>
<td></td>
</tr>
<tr>
<td>11:30 AM</td>
<td>INVITED</td>
<td>Binder Jetting of High Alloyed Steels - Advancement in Tooling</td>
<td>Simon Höges; GKN Additive</td>
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<tr>
<td>12:00 PM</td>
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<td>LUNCH</td>
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<tr>
<td>13:30 PM</td>
<td>INVITED</td>
<td>The Power of ColdMetalFusion</td>
<td>Christian Fischer; Headmade Materials</td>
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<tr>
<td>14:00 PM</td>
<td>REGULAR</td>
<td>Recent Advances in the Biomedical Field with the Lithography-Based Metal Manufacturing Process</td>
<td>György Harakály; Incus</td>
<td></td>
</tr>
<tr>
<td>14:20 PM</td>
<td>REGULAR</td>
<td>Key Considerations in Mass Production of Precision Metal Components through Sinter-Based AM</td>
<td>Mukund Nagaraj; INDO-MIM</td>
<td></td>
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<tr>
<td>14:40 PM</td>
<td>REGULAR</td>
<td>Comparative Analysis: Metal Binder Jetting versus Laser Powder Bed Fusion</td>
<td>Ross Adams; Markforged</td>
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<tr>
<td>15:00 PM</td>
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<td>BREAK</td>
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<tr>
<td>15:30 PM</td>
<td>INVITED</td>
<td>Sinter-Based Additive Manufacturing of Copper</td>
<td>Mahmood Shirooyeh; 3DEO</td>
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</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>Two Heat Treatable Copper Alloys for AM: C18150 and C18000</td>
<td>Joe Croteau; Kymera International</td>
<td></td>
</tr>
<tr>
<td>16:30 PM</td>
<td>REGULAR</td>
<td>Production-Ready Metal Binder Jetting through Precision Machine Designed Printer</td>
<td>Ross Adams; Markforged</td>
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<tr>
<td>16:50 PM</td>
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<td>END OF DAY</td>
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</tbody>
</table>
### VALUE CHAIN

#### SUSTAINABILITY AND ECONOMICS

**CO-ORGANIZERS:**
- Ramona Fayazfar, Ontario Tech University, Canada
- Marius Lakomeic, EOS, Germany
- Sherri Monroe, Additive Manufacturer Green Trade Association (AMGTA), USA
- Behrang Poorangji, MorF3D, USA

**TENTATIVE PROGRAM AGENDA**

#### 28TH OCT 2024 (MON) – 29TH OCT 2024 (TUE)

**LOCATION TBA**

### 29TH OCTOBER 2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Chair (AM Session)</th>
<th>TBA</th>
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</thead>
<tbody>
<tr>
<td>08:00 AM</td>
<td>Regular</td>
<td>Additive Manufacturing: A Key Sustainability Driver in Aerospace</td>
</tr>
<tr>
<td>09:00 AM</td>
<td>Regular</td>
<td>Reprintable Polymers for Circular Vat</td>
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<tr>
<td>09:45 AM</td>
<td>Regular</td>
<td>From Waste to Eco-Construction: Low-Carbon Materials Driving 3D Printing</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED</td>
<td>The Economies of Powder Production</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>LUNCH</td>
<td>The Environmental Impact that Powder Manufacturing Processes Can Have on an LCA</td>
</tr>
<tr>
<td>13:00 PM</td>
<td>INVITED</td>
<td>Sustainable and Economic State of the Art</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>INVITED</td>
<td>Powder and Process Optimization for Sustainable Additive Manufacturing</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>INVITED</td>
<td>Optimising AM Processes for Minimising CO2 Emissions and Manufacturing</td>
</tr>
<tr>
<td>17:00 PM</td>
<td>END OF DAY</td>
<td>Definition and Application of AM Specific Production KPIs to Compare Performance Relevant Attributes with Conventional Productions Processes</td>
</tr>
<tr>
<td>20:00 PM</td>
<td>BREAK</td>
<td>TBA</td>
</tr>
</tbody>
</table>

Note: This agenda features a list of the accepted presentations for ICAM 2024 and their tentative allocated timeslots. The program arrangement can still be subjected to changes as a result of other program considerations. Do contact us at icam@astm.org if you need more information.
15:30 PM  REGULAR  A Rigorous Life Cycle Assessment Framework for Disruptive Manufacturing of Maritime Spare Parts via Additive and Conventional Manufacturing Methods
Kamal Azrague\(^1\); Trond Halvorsen\(^1\); Afaf Saai\(^1\); Håkon Ellekjær\(^2\); \(^1\)SINTEF; \(^2\)Pelagus

15:50 PM  REGULAR  Investigation on the Relevance of Reuse of Old Aluminum Copper Casting Parts through Atomization and SLM
Pascal De Guio\(^1\); Philippe Kuchly\(^1\); Veronique Vidal\(^1\); \(^1\)SNCF Réseau

16:10 PM  REGULAR  Sustainability by Investigating the Bonding Mechanisms and Performance of Recycled Aluminum Chips in the Production of Semi-Finished Products
Alexander Koch\(^1\); Frank Walther\(^1\); \(^1\)TU Dortmund University

16:30 PM  END OF DAY
ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024

(Clicking on the ICAM logo on the right will link you back to the top of this document.)

NON-METALLIC MATERIALS

CERAMICS

CO-ORGANIZERS:

Shawn Allan  Brandon Cox
Lithoz, USA  Honeywell, USA

Jason Jones  Russell Maier
Moog, USA  NIST, USA

Sadaf Sobhani  Cornell University, USA

28TH OCT 2024 (MON)
LOCATION TBA

28TH OCTOBER 2024

SESSION CHAIR (PM SESSION):
TBA

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:30 PM</td>
<td>Invited Ceramic Additively Manufactured (AM) Piezoelectric Acoustic Transducers</td>
<td>Casey Corrado¹; Justin Tufariello¹; Barry Robinson²; Shawn Allan³; Alex Angilella¹; Brian Pazoi²; ¹MITRE; ²MSI Transducer; ³Lithoz</td>
</tr>
<tr>
<td>14:00 PM</td>
<td>Regular Multi-Oxide Direct Ink Writing and Co-Sintering for Duplex Ceramic Nuclear Fuel Applications</td>
<td>Patrick Snarr¹; Corson Cramer¹; Beth Armstrong¹; Derek Haas²; Joseph Beaman²; Christian Petrie¹; Andrew Nelson¹; ¹Oak Ridge National Laboratory (ORNL); ²University of Texas at Austin</td>
</tr>
<tr>
<td>14:20 PM</td>
<td>Regular Comparative Rheological Assessment of Ceramic Ink Printability: Capillary vs. Rotational Techniques in Direct Ink Writing</td>
<td>Lynnora Grant¹; Russell Maier¹; Ran Tao¹; Stian Romberg¹; Benjamin Dolata¹; ¹NIST</td>
</tr>
<tr>
<td>14:40 PM</td>
<td>Regular Microwave 3D Lunar Building</td>
<td>Holly Shulman¹; ¹DrHollyShulman</td>
</tr>
<tr>
<td>15:00 PM</td>
<td>Break</td>
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</tr>
<tr>
<td>15:30 PM</td>
<td>Invited Advanced Alumina and Silicon Carbide Fabrication using Laser Induced Slip Casting</td>
<td>Corson Cramer¹; ¹Oak Ridge National Laboratory (ORNL)</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>Regular Comparative Analysis of Laser Parameters, Pure Titanium, and Titanium Alloy Effects on Dendrite Growth in TiO2-Ceramic</td>
<td>Abid Ullah¹; Asif Ur Rehman²; Karim Asami¹; Kashif Azer³; Claus Emmelman¹; ¹Hamburg University of Technology; ²EUTOPIA; ³King Fahd University of Petroleum and Minerals</td>
</tr>
</tbody>
</table>

16:20 PM  Regular Additive Manufacturing of Ceramics: Laser Scan Strategies and How They Influence Alumina Printed Parts
Brigid Mullany¹; Sarah-Margaret Andrews¹; Angela Allen¹; Taylor Barrett¹; Tien Herd¹; ¹University of North Carolina at Charlotte

16:40 PM  END OF DAY

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NON-METALLIC MATERIALS

POLYMERS

CO-ORGANIZERS:

Thomas Fabian
Blue Sky Polymer Consulting, USA

Callie Higgins
NIST, USA

Michael Pecota
Naval Air Systems Command (NAVAIR), USA

JESSICA HEMOND
TE Connectivity, USA

KARL NELSON
Stratasys, USA

RICHARD SCHMIDT
Interactive Inks & Coatings, USA

Note: This agenda features a list of the accepted presentations for ICAM 2024 and their tentative allocated timeslots. The program arrangement can still be subjected to changes as a result of other program considerations. Do contact us at icam@astm.org if you need more information.
17:10 PM  REGULAR  Introducing a Novel Technique for Overlapping Two Polymer Materials using Material Extrusion 3D Printing
Emmanuel Arriola; ¹DOST - Metals Industry Research and Development Center (MIRDC)

17:30 PM  END OF DAY
ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024
(Clicking on the ICAM logo on the right will link you back to the top of this document.)

INDUSTRY 4.0

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

CO-ORGANIZERS:
- Shaw Feng, NIST, USA
- Simon McCallin, Authentise, United Kingdom
- Luke Scime, Oak Ridge National Laboratory (ORNL), USA
- Jia (Peter) Liu, Auburn University, USA

31ST OCT 2024 (THU) – 01ST NOV 2024 (FRI)
LOCATION TBA

SESSION CHAIR (AM SESSION): TBA
SESSION CHAIR (PM SESSION): TBA

<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>08:50 AM</td>
<td>REGULAR Explainable AI for Defect Detection</td>
<td>Sebastian Larsen¹; Paul Hooper¹; Imperial College London</td>
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<tr>
<td></td>
<td>in Laser Powder Bed Fusion</td>
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<tr>
<td>09:30 AM</td>
<td>INVITED Multi-Modal Sensor and AI for Defect Detection in Laser Powder Bed Fusion Process Shuchi Khurana¹; Addiguru</td>
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<tr>
<td>10:00 AM</td>
<td>BREAK</td>
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<tr>
<td>10:30 AM</td>
<td>INVITED Multimodal Process Monitoring Data Fusion for Enhanced Pore Identification during Laser Powder Bed Fusion Sanam Gorgannejad¹; Lawrence Livermore National Laboratory (LLNL)</td>
<td></td>
</tr>
<tr>
<td>11:00 AM</td>
<td>INVITED Diffusion and Transformer Modeling for Additive Manufacturing Digital Twins Hyunwoong Ko¹; Fatemeh Elhambaksh¹; Suk Ki Lee¹; Arizona State University</td>
<td></td>
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<tr>
<td>11:30 AM</td>
<td>REGULAR Process Parameter Optimization using Topological Methods Michael Sprayberry¹; Amir Ziabari¹; Oak Ridge National Laboratory (ORNL)</td>
<td></td>
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<tr>
<td>11:50 AM</td>
<td>REGULAR Additive Manufacturing Process Parameter Design for Variable Component Geometries using Reinforcement Learning Elham Mirkoohi¹; Auburn University</td>
<td></td>
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</table>

12:00 PM     | LUNCH                                      |                                                                          |

13:30 PM     | INVITED Machine Learning Applied to Understanding the Melt Pool Spatter Problem in AM Jack Beuth¹; Nicholas O'Brien¹; Christian Gobert¹; Sabir Singh¹; Carnegie Mellon University | |

14:00 PM     | INVITED Understand the Fatigue Failure of LPBF from Surface and Internal Defects using a Data-Driven Framework and Machine Learning Jia (Peter) Liu¹; Auburn University | |

14:30 PM     | INVITED Machine Learning for In-Situ Additive Manufacturing Anthony Garland¹; Jesse Adamczyk¹; Matthew McKinney¹; Michael Heiden¹; Dan Bolintineanu¹; Sandia National Laboratories | |

15:00 PM     | BREAK                                      |                                                                          |

15:30 PM     | INVITED Machine Learning for Smart and Ethical Manufacturing Hongyue Sun¹; University of Georgia | |

16:00 PM     | REGULAR The Human - Machine Workforce. Where Do We Go from Here? Cecelia Wren¹; Claire Technologies | |

16:20 PM     | REGULAR Intelligent Feed Forward Optimization of LPBF Input Parameters: Exploring Training, Models & Results Gabe Guss¹; Lawrence Livermore National Laboratory (LLNL) | |

16:40 PM     | REGULAR Inverse Generation of Metamaterial using Graph Neural Network Ajit Panesar¹; Jier Wang¹; Imperial College London | |

17:00 PM     | REGULAR Solution Strategy for Group Decision Making in Materials Selection Problem using Fuzzy MCDM: A Turbine Engine Case Study Alaa Momena¹; Prince Sattam bin Abdulaziz University (PSAU) | |

17:20 PM     | END OF DAY                                  |                                                                          |

01ST NOVEMBER 2024

SESSION CHAIR (AM SESSION): TBA

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>08:50 AM</td>
<td>REGULAR First Time Right: The Contribution of Laser Toolpath in Laser Powder Bed Fusion Sébastien Lani¹; Huba Horompoly²; Switzerland Innovation Park Biel/Bienne; Gravity Pull Systems</td>
<td></td>
</tr>
</tbody>
</table>

Note: This agenda features a list of the accepted presentations for ICAM 2024 and their tentative allocated timeslots. The program arrangement can still be subjected to changes as a result of other program considerations. Do contact us at icam@astm.org if you need more information.
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<th>Time</th>
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<th>Title</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:10 AM</td>
<td>REGULAR</td>
<td>Decision Support System for Parts’ Manufacturing using Additive Manufacturing</td>
<td>Elad Schiller(^1); CASTOR</td>
</tr>
<tr>
<td>09:30 AM</td>
<td>INVITED</td>
<td>Breaking the Data Barrier: Physics-Informed Machine Learning for Metal Additive Manufacturing</td>
<td>Azadeh Haghighi(^1); Meysam Faegh(^1); University of Illinois Chicago</td>
</tr>
<tr>
<td>10:00 AM</td>
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<td><strong>BREAK</strong></td>
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<tr>
<td>10:30 AM</td>
<td>INVITED</td>
<td>Deep Artificial Intelligence vs. Pragmatic Artificial Intelligence vs. Digital Twins - Physics-Based Pathways for Accelerated Qualification of Additive Manufacturing</td>
<td>Prahalad Rao(^1); Virginia Tech</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>REGULAR</td>
<td>Harnessing Generative AI for Intelligent Engineering and Manufacturing: Lessons Learned and Future Directions</td>
<td>Erica Vlahinos(^1); Authentise</td>
</tr>
<tr>
<td>11:20 AM</td>
<td>REGULAR</td>
<td>Harnessing the Power of AI and LLMs in Revolutionizing Manufacturing, Design, and Standards Application</td>
<td>Tim Bell(^1); Sciath aiM Forge</td>
</tr>
<tr>
<td>11:40 AM</td>
<td>REGULAR</td>
<td>The Importance of Reliable AI Model Inference in Real-Time Monitoring and Issue Detection of Additive Manufacturing Processes</td>
<td>Petros Apostolou(^1); Robert Bray(^1); Shuchi Khurana(^1); Addiguru</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>REGULAR</td>
<td>AI in AM Production Workflows: Leveraging Automated Defect Recognition in Real-Time and Post-Build Inspections to Reduce Production Costs</td>
<td>Amar Patel(^1); Rohan Buntval(^1); Baker Hughes</td>
</tr>
<tr>
<td>12:20 PM</td>
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<td><strong>END OF DAY</strong></td>
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</tbody>
</table>
INDUSTRY 4.0
DATA MANAGEMENT

CO-ORGANIZERS:

Peter Coutts  
Pennsylvania State University, USA

James Fonda  
Boeing, USA

Yan Lu  
NIST, USA

Mike Vasquez  
3Degrees, USA

30TH OCTOBER 2024 (WED)  
LOCATION TBA

30TH OCTOBER 2024

SESSION CHAIR (AM SESSION):  
TBA

SESSION CHAIR (PM SESSION):  
TBA

08:50 AM  
REGULAR  
AI-Driven Real-Time Quality Monitoring and Process Optimization for Enhanced Manufacturing Performance  
Olanrewaju Okuyelu¹; ³Pacific Seafood

09:10 AM  
REGULAR  
Using a Modular, Bottom-Up Data Pipeline to Combine On- and Off-Machine Data, Enabling the Deployment and Management of Third Party Models in Production  
Gareth Tear¹; Jose Videira¹; James Bird¹; ³Synbiosys

09:30 AM  
INVITED  
AM Data Quality Management for Successful Digital Twin Implementations  
Yan Lu¹; ³NIST

10:00 AM  
BREAK

10:30 AM  
INVITED  
Navigating Exponential Growth: Automating Data Management for Efficiency and Compliance  
Alex Benham¹; ³Dyndrite

11:00 AM  
INVITED  
Using Effective AM Data Management to Make Meaningful Engineering Decisions  
Mike Vasquez¹; ³3Degrees

11:30 AM  
REGULAR  
A Business Centric Data Framework to Enable Certification of Additively Manufactured Products in an Industrial Environment for the Heavily Regulated Energy Industry  
Faisal Iqbal¹; ³Baker Hughes

11:50 AM  
REGULAR  
Micrograph Data Modeling for Additive Manufacturing Data Registration and Analytics  
Shaw Feng¹; Yan Lu¹; ³NIST

12:10 PM  
LUNCH

13:30 PM  
INVITED  
Additive Manufacturing Data Management for ML: Case Studies, Challenges, and Next Steps  
Marco Musto¹; James Saal¹; ³Citrine Informatics

14:00 PM  
INVITED  
Moving From a Development to a Production Mindset in AM Data Management  
Matthew Scott¹; James Fonda¹; ³Boeing

14:30 PM  
INVITED  
Challenges in Producing, Curating, and Sharing Large Multimodal, Multi-Institutional Data Sets for Additive Manufacturing  
Lyle Levine¹; Brandon Lane¹; Gerard Lemson²; Jai Won Kim²; Gretchen Greene¹; ³NIST; ²Johns Hopkins University

15:00 PM  
BREAK

15:30 PM  
INVITED  
Need for Robust Data Management to Enable Navy Operationalization of Additive Manufacturing (AM)  
Lewis Shattuck¹; Michael Presley²; Shaun Verrinder¹; ³Naval Sea Systems Command (NAVSEA); ²Johns Hopkins University - Applied Physics Laboratory (JHU - APL)

16:00 PM  
INVITED  
Where Additive Manufacturing, Metrology and Data Management Meet  
John Laureto¹; ³Renishaw

16:30 PM  
INVITED  
Digital Twin Playground for Additive Manufacturing Applications  
Maciej Zawodniok¹; Steven Thompson¹; ³Missouri University of Science and Technology

17:00 PM  
INVITED  
Unveiling the Power of Digital Infrastructure  
Gregor Reischle¹; ³AM Entrepreneur

17:30 PM  
END OF DAY

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### INDUSTRY 4.0

**MODELING, SIMULATION, AND DIGITAL TWINS**

**CO-ORGANIZERS:**
- Nicholas Mulé, Boeing, USA
- Shuai Shao, Auburn University, USA
- James Sobotka, Southwest Research Institute (SwRI), USA
- Soheil Sohrati, Ohio State University, USA
- Wei Xiong, University of Pittsburgh, USA

**28TH OCT 2024 (MON) – 29TH OCT 2024 (TUE)**

**LOCATION TBA**

#### 28TH OCTOBER 2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 AM</td>
<td><strong>INVITED</strong> Digital Qualification of LPBF Components</td>
<td>Abdullah Azam¹; Jazib Hassan¹; Farsad Forghani²; Lukas Jiranek¹; Boeing; Alloyed</td>
</tr>
<tr>
<td>09:30 AM</td>
<td><strong>INVITED</strong> Rapid Qualification of Additively Manufactured Parts: Building the Digital Thread between Computed Tomography and Structural Analysis</td>
<td>Steven Kraft¹; Lockheed Martin</td>
</tr>
<tr>
<td>10:00 AM</td>
<td><strong>BREAK</strong></td>
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</tr>
<tr>
<td>10:30 AM</td>
<td><strong>INVITED</strong> Model-Assisted Qualification for AM: Practical Examples and Future Directions</td>
<td>Brendan Croom¹; Michael Presley¹; David Furrer²; Morgana Trexler¹; Anthony Rollett¹; Somnath Ghosh¹; Johns Hopkins University; Pratt &amp; Whitney; Carnegie Mellon University</td>
</tr>
<tr>
<td>11:00 AM</td>
<td><strong>REGULAR</strong> Qualification and Optimization of Laser Powder Bed Fusion (LPBF) Parts through Simulation</td>
<td>Alaa Olleak¹; Ansys</td>
</tr>
<tr>
<td>11:20 AM</td>
<td><strong>REGULAR</strong> Using Microstructure-Sensitive Modeling to Accelerate Qualification of Fatigue Critical AM Alloys</td>
<td>Gary Whelan¹; QuesTek Innovations</td>
</tr>
<tr>
<td>11:40 AM</td>
<td><strong>REGULAR</strong> A Multiscale Simulation Framework for Optimizing the Shot-Peening Process using Reduced Order Modeling</td>
<td>Satish Kumar Meenakshisundaram¹; Sunil Acharya¹; Ahmad Haghnegahdar¹; Ansys</td>
</tr>
<tr>
<td>12:00 PM</td>
<td><strong>LUNCH</strong></td>
<td></td>
</tr>
<tr>
<td>13:30 PM</td>
<td><strong>INVITED</strong> Advancing Computational Tools for Additive Manufacturing</td>
<td>Mallory James¹; NASA - Marshall Space Flight Center (MSFC)</td>
</tr>
<tr>
<td>14:00 PM</td>
<td><strong>REGULAR</strong> New Developments for Probabilistic Modelling of Complex Parts</td>
<td>Stefano Beretta¹; Politecnico di Milano</td>
</tr>
<tr>
<td>14:20 PM</td>
<td><strong>REGULAR</strong> Influence of Volumetric Defect’s Geometry on Fatigue Crack Initiation of Additively Manufactured Materials</td>
<td>Sajith Soman¹; Mohammad Aquib Anis¹; Shuai Shao¹; Nima Samsaei¹; Auburn University</td>
</tr>
<tr>
<td>14:40 PM</td>
<td><strong>REGULAR</strong> Investigating the Impact of Multiple Stress Raisers on the Fatigue Performance of Laser Powder Bed Fusion Additive Manufacturing Components</td>
<td>Enrique Escobar¹; Armando Corò²; Sascha Hell¹; Hrushikesh Mapari¹; Patrick Herberich¹; Santiago Mañé²; Ansys; ITP Aero</td>
</tr>
<tr>
<td>15:00 PM</td>
<td><strong>BREAK</strong></td>
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<tr>
<td>15:30 PM</td>
<td><strong>REGULAR</strong> Melting and Solidification Simulation Combining Virtual Powder Bed and CFD Simulation for Laser Powder Bed Fusion Process</td>
<td>Takashi Maeshima¹; Hideaki Ikehata¹; Tsuyoshi Mizutani²; Mio Ban³; Tsubasa Kobayashi³; Toyota Central R&amp;D Labs; DENSO; AISIN</td>
</tr>
<tr>
<td>15:50 PM</td>
<td><strong>REGULAR</strong> Development and Numerical Optimization of Variable Process Parameters in Laser Powder Bed Fusion of Magnesium</td>
<td>Tim Koenis¹; Maria Montero-Sistiaga¹; Marc de Smit¹; Yang Yang²; Can Ayas³; Royal NLR - Netherlands Aerospace Centre; Delft University of Technology</td>
</tr>
<tr>
<td>16:10 PM</td>
<td><strong>REGULAR</strong> Optimization of Cooling using Conformal and Lattice Geometries with LPBF and CFD</td>
<td>Ryan Fishel¹; Kirill Volcheck¹; 3D Systems; Qtyon</td>
</tr>
<tr>
<td>16:30 PM</td>
<td><strong>END OF DAY</strong></td>
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</tbody>
</table>

#### 29TH OCTOBER 2024

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:50 AM</td>
<td><strong>REGULAR</strong> Integrated Pre-Build Process Planning Toolbox for Cold Spray Additive Manufacturing</td>
<td>Elizabeth Chang-Davidson¹; Akshay Vaidya¹; Mann Patel¹; Ozan Özdemir¹; Sinan Müftü¹; Northeastern University</td>
</tr>
</tbody>
</table>

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ICAM 2024 TENTATIVE PROGRAM AGENDA
Updated as of 22nd July 2024
(Clicking on the ICAM logo on the right will link you back to the top of this document.)

09:10 AM REGULAR Reducing the Requirement of Expensive Experimental Data by Supplementing it with Synthetic Data: A Case Study on Metal Additive Manufacturing
Amrita Basak1; Nandana Menon1; 1Pennsylvania State University

09:30 AM INVITED Data Driven and High Fidelity Modeling Approaches to Advance Understanding and TRL Level of 3D Printing
Saad Khairallah1; 1Lawrence Livermore National Laboratory (LLNL)

10:00 AM BREAK

10:30 AM INVITED Solutions for Experimental Verification of Melt Pool Modeling for Additive Manufacturing
Allyce Jackman1; 1Flow Science

11:00 AM REGULAR Accounting for Non-Uniform Laser Loading in Additive Process Simulation
Ariana Rennie1; 1GE Research

11:20 AM REGULAR Computational Model and Experimental Calibration for Densification, Shape Distortion and Geometry Compensation during Sintering of Metal Binder Jetting
Karthik Rajan Venkatesan1; Logan Ware2; Jinjie Shi1; Sabina Kumar1; Eric Johnson1; Niloofar Sanaei1; 1Eaton

11:40 AM REGULAR Compressive Behavior and Failure Mode Prediction of Additively Manufactured LPBF Inconel 718 Lattice Structures
Hend Alqaydi1; 1Technology Innovation Institute

12:00 PM LUNCH

13:30 PM INVITED Physics-Informed and Data-Driven Digital Twinning for Fusion-Based Metal Additive Manufacturing
Tugrul Ozel1; 1Rutgers University-New Brunswick

14:00 PM REGULAR Digital Twins to Deliver Unprecedented Process Control for Additive Manufacturing
Jun Zeng1; 1HP

14:20 PM REGULAR Advancing Large-Format Additive Manufacturing (LFAM) through Physics-Based Computational Modeling
Mallikharjun Marrey1; Saratchandra Kundurthi1; Harsh Baid1; Eli Rogers2; 1AlphaSTAR; 2Azure Printed Homes

14:40 PM REGULAR Digital Twin in Design for the Optimization of the Development of Bio-Composites Based on Plastic and Biowaste
Linzhi Ding1; 1Hong Kong Metropolitan University

15:00 PM BREAK

15:30 PM INVITED First Principles Design of Hybrid Autonomous Manufacturing Processes
Glenn Daehn1; Jian Cao2; John Lewandowski3; Tony Schmitz4; Jag Sankar6; Michael Groebeler1; Brian Thrurston1; Steve Niezgoda1; 1Ohio State University; 2Northwestern University; 3Case Western Reserve University; 4University of Tennessee, Knoxville; 5North Carolina Agricultural and Technical State University

16:00 PM INVITED Automated Microstructure Reconstruction, Mesh Generation, and AI-Driven Algorithms for Modeling Materials with Complex Microstructures
Soheil Soghrati1; Balavignesh Vemparala1; Salil Pal1; Kartik Kashyap1; Pengfei Zhang1; 1Ohio State University

16:30 PM END OF DAY

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INDUSTRY 4.0

ROBOTICS AND AUTOMATION

CO-ORGANIZERS:
Azadeh Haghighi
University of Illinois
Chicago, USA

Matthew Robinson
Southwest Research Institute
(SwRI), USA

Sina Sareh
Royal College of Art, UK

Milton Walker
Intel, USA

31ST OCT 2024 (THU)
LOCATION TBA

31ST OCTOBER 2024

SESSION CHAIR (PM SESSION):
TBA

13:30 PM INVITED How AI Enabled Robots and Tools can Enable your Material Removal and Finishing Processes
Michael Haas1; 1FerRobotics

14:00 PM REGULAR Exploring Novel Solutions for Enhanced Mechanical Performance and Efficiency in Robotic Additive Manufacturing
Azadeh Haghighi1; Suyog Ghungrad1; 1University of Illinois Chicago

14:20 PM REGULAR How Cloud Robotics Empowers Small and Medium Manufacturers to Pursue Industrial Automation
Francois Giguere1; 1Vention

14:40 PM REGULAR Updates on Standards for Robotic Bin Picking Applications
Kamel Saidi1; Prem Rachakonda1; Marek Franaszek1; Helen Qiao1; Armin Khatoonabadi2; David Dechow3; 1NIST; 2Apera AI; 3Machine Vision Source

15:00 PM BREAK

15:30 PM INVITED Real-Time Predictions of Distortion and Residual Stress Resulting from Weld Sequences using AI Algorithms
Matthew Robinson1; 1Southwest Research Institute (SwRI)

16:00 PM INVITED Automated Robotic Wire Arc Additive Manufacturing (WAAM) with Integrated Sensing
John Wen1; Honglu He1; Chen-Lung Lu1; Jinhan Ren1; Joni Chandra Dhar1; Glenn Saunders1; John Wason1; Johnson Samuel1; Agung Julius1; 1Rensselaer Polytechnic Institute

16:30 PM REGULAR Robots for Additive Automation
Kaleigh Mota1; 1Ai Build

16:50 PM END OF DAY

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INDUSTRY 4.0
SECURITY ASPECTS

CO-ORGANIZERS:

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chris Adkins</td>
<td>Materialise, USA</td>
</tr>
<tr>
<td>Jason Daniels</td>
<td>Integrity Training Consulting, USA</td>
</tr>
<tr>
<td>Joshua Lubell</td>
<td>NIST, USA</td>
</tr>
<tr>
<td>Mark Yampolskiy</td>
<td>Auburn University, USA</td>
</tr>
</tbody>
</table>

29TH OCT 2024 (TUE)
LOCATION TBA

29TH OCTOBER 2024

SESSION CHAIR (AM SESSION): TBA
SESSION CHAIR (PM SESSION): TBA

09:00 AM INVITED
Approaches for Securely Scaling Additive Manufacturing
Victor Gerdes¹; ¹Stratasys

09:30 AM INVITED
Implementing a Cyber Security Certification for the Additive Manufacturing Process
Alan Sukert¹; Paul Tykodi²; ¹IEEE-ISTO - Printer Working Group; ²Tykodi Consulting Services

10:00 AM BREAK

10:30 AM INVITED
Assessing the Quantum Threat in Additive Manufacturing Systems
Michele Maasberg¹; Leslie Butler²; Ian Taylor²;
¹United States Naval Academy (USNA);
²Louisiana State University; ²SIMBA Chain

11:00 AM INVITED
Trustworthy Cyber-Physical Manufacturing via Physics-Aware and AI-Powered Security
Saman Zonouz¹; ¹Georgia Institute of Technology

11:30 AM INVITED
The Risk Management Framework and Model-Based Systems Engineering: Two Great Tastes that Go Great Together (and Can Improve AM Security)
Duncan Gibbons¹; Joshua Lubell¹; ¹NIST

12:00 PM LUNCH

13:30 PM INVITED
Nadcap Developments in Counterfeit Avoidance
Richard Freeman¹; ¹Performance Review Institute

14:00 PM ROUND TABLE
Understand AM Security?
Moderator:
Mark Yampolskiy, Auburn University

15:00 PM BREAK

15:30 PM INVITED
A Secure and Distributed Production Model for the Scale and Quality of Additive Manufacturing
Nicholas Mulé¹; Wentao Fu¹; ¹Boeing

16:00 PM INVITED
The Security-Quality Nexus for Distributed Manufacturing
Sharon Flank¹; ¹InfraTrac

16:30 PM INVITED
Empowering Distributed AM with SECURE PRINT
Zvi Stachel¹; ¹Assembrix

17:00 PM INVITED
AM & AI: Risks and Opportunities Assessment for Intellectual and Technical Property Protection
Jérémie Farret¹; Zbigniew Sagan²; Elham Soleymani¹; ¹Mind in a Box; ²Advanced Track & Trace

17:30 PM END OF DAY

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### 28TH OCT 2024 (MON)

<table>
<thead>
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<th>Time</th>
<th>Event</th>
<th>Moderator</th>
<th>Panelists</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 AM</td>
<td><strong>KEYNOTE 01</strong></td>
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<td><strong>TITLE:</strong> TBA</td>
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<tr>
<td></td>
<td><strong>KEYNOTE SPEAKER:</strong> TBA</td>
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<tr>
<td>11:00 AM</td>
<td><strong>ACCELERATING INDUSTRY 4.0 ADOPTION</strong></td>
<td>Melissa Orme, Boeing</td>
<td>• TBA</td>
</tr>
<tr>
<td>16:00 PM</td>
<td><strong>PANEL 02</strong></td>
<td>Brian Fisher, RTX Technology Research Center</td>
<td>• TBA</td>
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<td></td>
<td><strong>TITLE:</strong> TBA</td>
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<tbody>
<tr>
<td>08:00 AM</td>
<td>Keynote</td>
<td>Title: TBA, Keynote Speaker: TBA</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>Panel 03: Defense / Aviation / Space</td>
<td>Title: TBA, Moderator: Martin White, ASTM International, Panelists: TBA</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>Panel 04: Medical</td>
<td>Enabling Point of Care Manufacturing, Moderator: Ryan Kircher, rms Company, Panelists: TBA</td>
</tr>
</tbody>
</table>

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# ICAM 2024 Tentative Program Agenda

Updated as of 22nd July 2024

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## Keynotes & Panel Discussions

**Location TBA**

### 30th Oct 2024 (Wed)

<table>
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<th>Panelists</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 AM</td>
<td>Keynote 03</td>
<td>TBA</td>
<td>TBA</td>
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<tr>
<td>11:00 AM</td>
<td>Panel 05</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>Panel 06</td>
<td>AM Economics and Business Models: The Role of Government and Private Sector</td>
<td>Terry Wohlers, Wohlers Associates</td>
<td>TBA</td>
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</tbody>
</table>
# KEYNOTES & PANEL DISCUSSIONS

**LOCATION TBA**

## 31ST OCT 2024 (THU)

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Keynote Speaker</th>
<th>Location</th>
<th>Panelists</th>
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<tbody>
<tr>
<td>08:00 AM</td>
<td>KEYNOTE 04</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>11:00 AM</td>
<td>PANEL 07</td>
<td>TBA</td>
<td>Standards</td>
<td>Mohsen Seifi, TBA</td>
</tr>
<tr>
<td>16:00 PM</td>
<td>PANEL 08</td>
<td>TBA</td>
<td>QUALIFICATION &amp; CERTIFICATION</td>
<td>TBA</td>
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</tbody>
</table>

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### Keynotes & Panel Discussions

**Location TBA**

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<th>01st Nov 2024 (Fri)</th>
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<tr>
<td><strong>08:00 AM</strong></td>
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<tr>
<td><strong>Keynote 05</strong></td>
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<tr>
<td><strong>TBA</strong></td>
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**Title:** TBA  
**Keynote Speaker:** TBA

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