

ASTM ICAM 2024

International Conference on **Additive Manufacturing**

CONFERENCE PROGRAM BOOKLET

OCTOBER 28 - NOVEMBER 1, 2024 ▼ ATLANTA, GA



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About

The **ASTM International Conference on Advanced Manufacturing (ASTM ICAM 2024)** is scheduled to take place from October 28 to November 1, 2024, at the Hilton Atlanta in Atlanta, GA, USA. This event is proudly hosted by the ASTM International Additive Manufacturing Center of Excellence (AM CoE) and is further supported by over a dozen ASTM technical committees.





ICAM 2024 marks the ninth annual flagship event for ASTM, emphasizing standardization, qualification, and certification, with a particular focus on industry-specific requirements encompassing the entire advanced manufacturing processes and value chains. The conference's comprehensive agenda includes 20+ symposia, covering vital topics and key areas in additive and advanced manufacturing. ICAM is thoughtfully organized by a dedicated team of over 100 scientific committee members, all recognized as advanced manufacturing experts hailing from various sectors, including industry, academia, government and regulatory agencies, national labs, and more.

This conference addresses application specific requirements of various industry sectors in addition to covering the fundamentals of advanced manufacturing processes with the goal of transitioning research to application through standardization. Industry, academia, and government agency professionals in the AM community are invited to address the current and future state of:

- Industry standards
- Design principles
- Qualification and certification
- Innovations in the industry
- Materials and processes
- Data management, sharing, analysis, and beyond



CO-CHAIR
NIMA SHAMSAEI
AUBURN UNIVERSITY



CO-CHAIR
MOHSEN SEIFI
ASTM INTERNATIONAL

Overview

INDUSTRIAL SECTOR

- Aviation
- Construction on Earth and Beyond
- Defense
- Energy, Maritime, Oil and Gas
- Ground Transportation and Heavy Machinery
- Medical
- Space

INDUSTRY 4.0

- Artificial Intelligence and Machine Learning
- Data Management
- Modeling, Simulation, and Digital Twins
- Robotics and Automation
- Security

NON-METALLIC MATERIALS

- Ceramics
- Polymers

VALUE CHAIN

- Advanced Topics in AM
- Design
- Directed Energy Deposition
- Environmental and Corrosion
- Fatigue and Fracture
- Feedstock Characterization, Specification, and Reuse
- In-Situ Monitoring and In-Process Control
- Microstructural and Mechanical Behavior
- Non-Destructive Evaluation and Inspection
- Sinter-Based AM Technologies
- Sustainability and Economics

STUDENT PRESENTATION AND POSTER COMPETITION



PANEL
DISCUSSIONS



KEYNOTE
ADDRESSES



STUDENT
COMPETITION



SHORT
CERTIFICATE
COURSES



EXHIBIT



AWARDS
CEREMONY



Welcome

October 28 – November 01, 2024

Hilton Atlanta – 255 Courtland Street NE Atlanta, GA 30303

tel +1.855.605.0316

REGISTRATION

Registration Desk (2nd Floor)

Sunday 1 p.m. to 5 p.m. | **Monday – Thursday** 7 a.m. to 5 p.m. | **Friday** 7 a.m. to 10 a.m.

KEYNOTE BREAKFAST

Salon (2nd Floor)

Monday – Friday 8 a.m.

COFFEE NETWORKING BREAKS

Grand Ballroom (2nd Floor)

Monday – Thursday 10 a.m. to 10:30 a.m., 3 p.m. to 3:30 p.m. | **Friday** 10 a.m. to 10:30 a.m.

EXPO HAPPY HOURS

Grand Ballroom (2nd Floor)

Monday – Thursday 5 p.m. to 6:30 p.m.

AWARDS RECEPTION

Salon (2nd Floor)

Tickets for purchase at ASTM Registration Desk

Wednesday 7 p.m. to 8:30 p.m.

WIFI

Network HILTON-MEETING

Password ASTM2024

SAVE THE DATE

ICAM 2025

October 5-10, 2025 | Westgate Las Vegas

Questions? Please visit us at the
Registration Desk or contact icam@astm.org

SUNDAY, OCTOBER 27

Short Certificate Courses

MONDAY, OCTOBER 28

Panel Discussions
Advanced Topics
Aviation
Ceramics

Energy
Feedstock
Microstructure / Mechanical
Modeling

NDE
Student Presentation
Sustainability
Transportation

TUESDAY, OCTOBER 29

Panel Discussions
Advanced Topics
Aviation
DED
Defense

Design
Energy
Feedstock
Keynote Breakfast and Panel
Microstructure / Mechanical

Modeling NDE
Security
Sinter-Based
Sustainability

WEDNESDAY, OCTOBER 30

Panel Discussions
Advanced Topics
Construction
Data Management
DED

Defense
Design
Fatigue
In-Situ Monitoring
Medical

Microstructure / Mechanical
Polymers
Sinter-Based
Space

THURSDAY, OCTOBER 31

Panel Discussions
Advanced Topics
Artificial Intelligence
Construction

DED
Environmental
Fatigue
In-Situ Monitoring

Medical
Robotics
Sinter-Based
Space

FRIDAY, NOVEMBER 1

Advanced Topics
Artificial Intelligence
Construction

DED
Fatigue
In-Situ Monitoring

Medical
Space



THE HUB RESTAURANTS

Planet Smoothie
Roman Delight Pizza
Salata
Southern Candy Co
Taste of India
Willy's Mexicana Grill
Yami Yami
Gus's Famous Fried Chicken
Hsu's Gourmet Chinese
MEtro Café Diner
Tin Lizzy's
Aviva by Kameel
Beni's Cubano Robust
BEP!
Bistro 7
Café Momo
Caribou Coffee
Checkers
Chick-fil-A
Dairy Queen
Farmer's Basket
Firehouse Subs
Freshii Fresh
Gibney's Pub
GLC Café
Great Wraps Grille/TJ's Subs
Last Stop Snack Shop
Metro Café Diner
Noodle Café
Panbury's Pie

Concierge Restaurant Recommendations

Please contact the Concierge (**ext. 6309**) for additional suggestions and reservations or large party events.

HILTON ATLANTA

Trader Vic's (Polynesian)

Lower Lobby
5 p.m.-10:30 p.m. (Tues.-Sat.)
Reservations suggested
tradervics.com

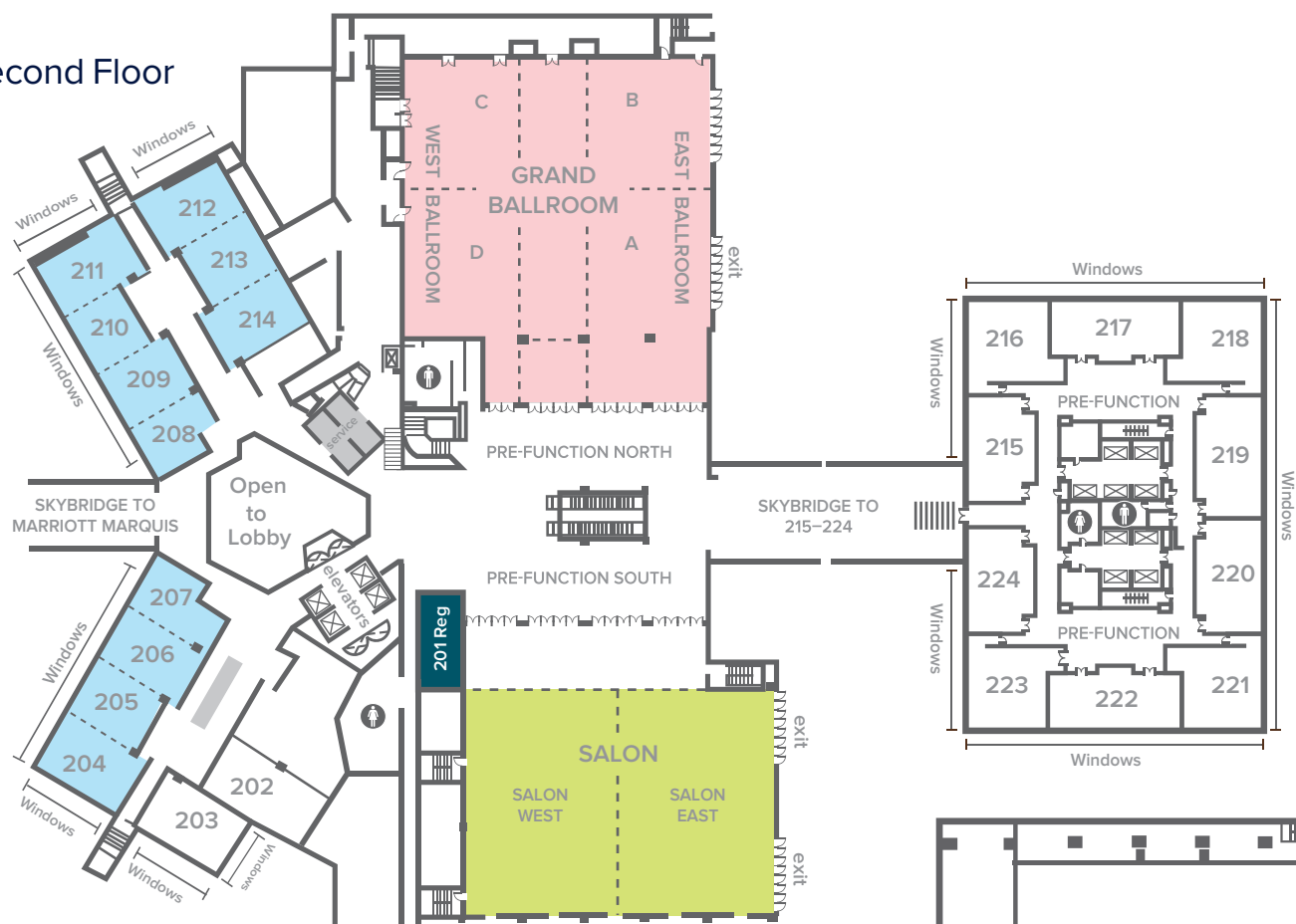
Nikolai's Roof (European)

Top Floor
5 p.m.-10p.m. (Tues.-Sat.).
reservations suggested
nikolaisroofatl.com

Southern Elements

Main Lobby
Breakfast, lunch, and dinner
6 a.m.-2 p.m. | 4 p.m.-11 p.m. (daily)

Second Floor



- Exhibit Hall, Poster Competition, and Networking Events
- Concurrent Sessions
- Keynote Breakfast
- Registration

Third Floor

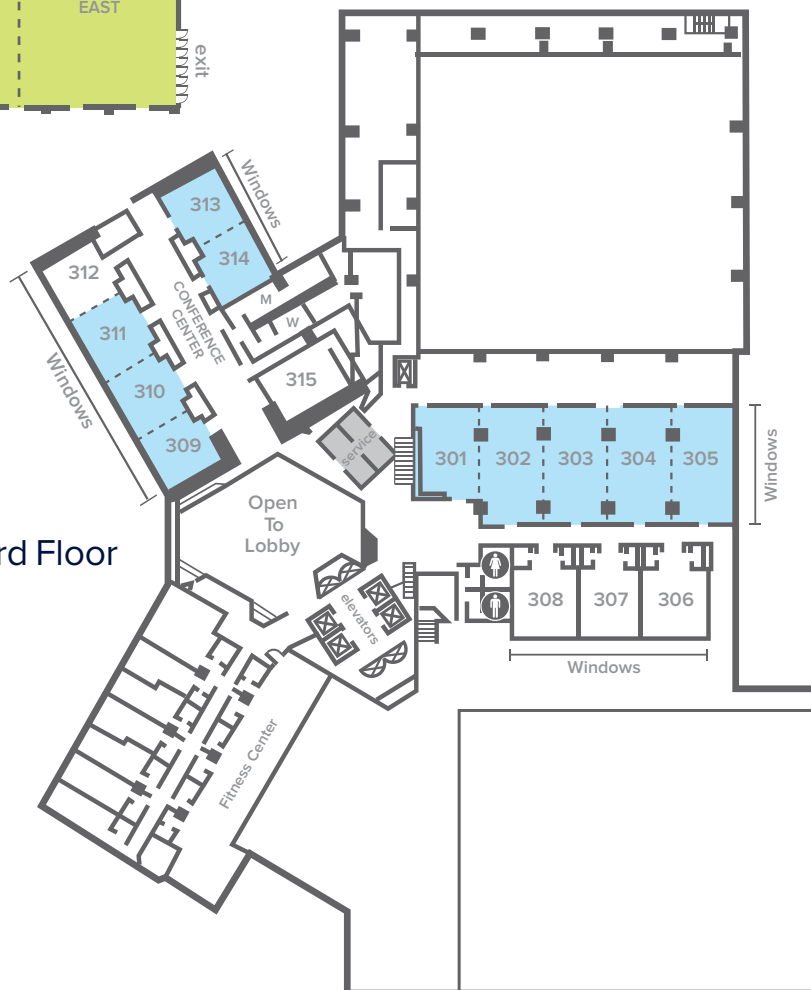
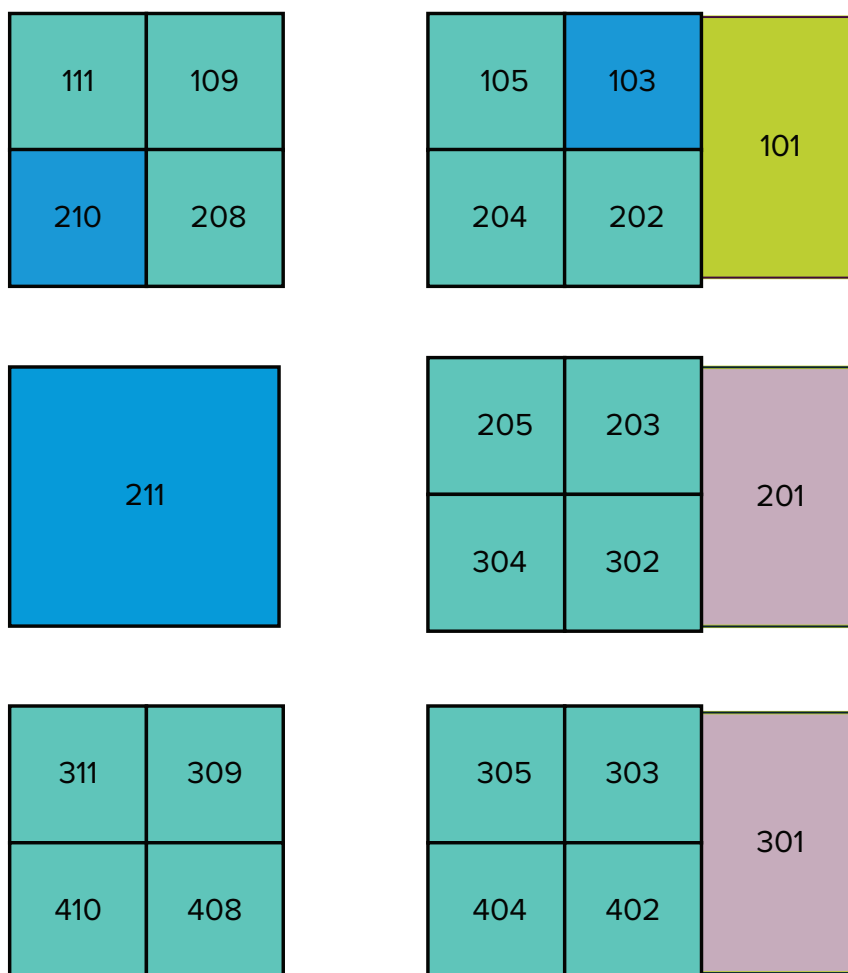


Exhibit Space



- Diamond Sponsor
- Platinum Sponsor
- Gold Sponsor
- Supporting Organization

- | | |
|--|---|
| 201 Nikon Advanced Manufacturing & Nikon SLM Solutions ■ | 304 Incus GmbH ■ |
| 301 3D Systems and Oqton ■ | 305 Herding Filtration ■ |
| 101 Sandvik Additive Manufacturing ■ | 309 JEOL USA ■ |
| 105 REM Surface Engineering ■ | 311 AMAZEMET ■ |
| 109 Hyphen Innovations ■ | 402 NIDEC MACHINE TOOL AMERICA ■ |
| 111 Advanced Optical Technologies ■ | 404 Plastometrex ■ |
| 202 Qualified AM ■ | 408 Siemens Energy Additive Manufacturing ■ |
| 203 Verder Scientific Inc. ■ | 410 National Center for Additive Manufacturing Excellence (NCAME) ■ |
| 204 Constellium ■ | 103 SME ■ |
| 205 MTS Systems ■ | 210 Formnext ■ |
| 208 Addiguru ■ | 211 ASTM AM CoE and Wohlers Associates ■ |
| 302 Xact Metal ■ | |
| 303 Nano Dimension ■ | |

ICAM 2024 FINAL PROGRAM AGENDA

Updated as of 04th November 2024

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



PROGRAM OVERVIEW & TIMETABLE

Click on any symposium / keynote / panel title to jump directly to the list of presentations.

	MONDAY 28 OCTOBER 2024	TUESDAY 29 OCTOBER 2024	WEDNESDAY 30 OCTOBER 2024	THURSDAY 31 OCTOBER 2024	FRIDAY 1 NOVEMBER 2024
AM	<ul style="list-style-type: none">▶ GROUND TRANSPORTATION AND HEAVY MACHINERY▶ MICROSTRUCTURAL AND MECHANICAL BEHAVIOR▶ ENERGY, MARITIME, OIL AND GAS▶ MODELING, SIMULATION, AND DIGITAL TWINS▶ ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING▶ FEEDSTOCK CHARACTERIZATION, SPECIFICATION, AND REUSE▶ AVIATION▶ NON-DESTRUCTIVE EVALUATION AND INSPECTION▶ CERAMICS▶ STUDENT PRESENTATION COMPETITION FINAL EVALUATION▶ KEYNOTE 01 – AVIATION▶ PANEL 01 – INDUSTRY 4.0	<ul style="list-style-type: none">▶ DESIGN▶ MICROSTRUCTURAL AND MECHANICAL BEHAVIOR▶ ENERGY, MARITIME, OIL AND GAS▶ MODELING, SIMULATION, AND DIGITAL TWINS▶ ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING▶ FEEDSTOCK CHARACTERIZATION, SPECIFICATION, AND REUSE▶ AVIATION▶ NON-DESTRUCTIVE EVALUATION AND INSPECTION▶ SUSTAINABILITY AND ECONOMICS▶ SECURITY ASPECTS▶ DEFENSE▶ SINTER-BASED TECHNOLOGIES▶ KEYNOTE 02 – AVIATION▶ PANEL 03 – DEFENSE / AVIATION / SPACE	<ul style="list-style-type: none">▶ DESIGN▶ MICROSTRUCTURAL AND MECHANICAL BEHAVIOR▶ IN-SITU MONITORING AND IN-PROCESS CONTROL▶ DIRECTED ENERGY DEPOSITION▶ ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING▶ CONSTRUCTION ON EARTH AND BEYOND▶ FATIGUE AND FRACTURE▶ MEDICAL▶ POLYMERS▶ DATA MANAGEMENT▶ DEFENSE▶ SINTER-BASED TECHNOLOGIES▶ KEYNOTE 03 – ECONOMICS▶ PANEL 05 – LARGE FORMAT AM	<ul style="list-style-type: none">▶ SPACE▶ ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING▶ IN-SITU MONITORING AND IN-PROCESS CONTROL▶ DIRECTED ENERGY DEPOSITION▶ ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING▶ CONSTRUCTION ON EARTH AND BEYOND▶ FATIGUE AND FRACTURE▶ MEDICAL▶ ENVIRONMENTAL AND CORROSION▶ SINTER-BASED TECHNOLOGIES▶ KEYNOTE 04 – MEDICAL▶ PANEL 07 – ECONOMICS	<ul style="list-style-type: none">▶ SPACE▶ ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING▶ IN-SITU MONITORING AND IN-PROCESS CONTROL▶ DIRECTED ENERGY DEPOSITION▶ ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING▶ CONSTRUCTION ON EARTH AND BEYOND▶ FATIGUE AND FRACTURE▶ MEDICAL▶ KEYNOTE 05 – DEFENSE
PM	<ul style="list-style-type: none">▶ GROUND TRANSPORTATION AND HEAVY MACHINERY▶ MICROSTRUCTURAL AND MECHANICAL BEHAVIOR▶ ENERGY, MARITIME, OIL AND GAS▶ MODELING, SIMULATION, AND DIGITAL TWINS▶ ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING▶ FEEDSTOCK CHARACTERIZATION, SPECIFICATION, AND REUSE▶ AVIATION▶ NON-DESTRUCTIVE EVALUATION AND INSPECTION▶ SUSTAINABILITY AND ECONOMICS▶ STUDENT POSTER COMPETITION▶ PANEL 02 – INSPECTION	<ul style="list-style-type: none">▶ DESIGN▶ MICROSTRUCTURAL AND MECHANICAL BEHAVIOR▶ ENERGY, MARITIME, OIL AND GAS▶ MODELING, SIMULATION, AND DIGITAL TWINS▶ DIRECTED ENERGY DEPOSITION▶ FEEDSTOCK CHARACTERIZATION, SPECIFICATION, AND REUSE▶ AVIATION▶ NON-DESTRUCTIVE EVALUATION AND INSPECTION▶ SUSTAINABILITY AND ECONOMICS▶ SECURITY ASPECTS▶ DEFENSE▶ SINTER-BASED TECHNOLOGIES▶ PANEL 04 – MEDICAL	<ul style="list-style-type: none">▶ SPACE▶ MICROSTRUCTURAL AND MECHANICAL BEHAVIOR▶ IN-SITU MONITORING AND IN-PROCESS CONTROL▶ DIRECTED ENERGY DEPOSITION▶ ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING▶ CONSTRUCTION ON EARTH AND BEYOND▶ FATIGUE AND FRACTURE▶ MEDICAL▶ POLYMERS▶ DATA MANAGEMENT▶ DEFENSE▶ SINTER-BASED TECHNOLOGIES▶ PANEL 06 – STANDARDS	<ul style="list-style-type: none">▶ SPACE▶ ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING▶ IN-SITU MONITORING AND IN-PROCESS CONTROL▶ DIRECTED ENERGY DEPOSITION▶ ADVANCED TOPICS IN AM: QUALIFICATION, NEW MATERIALS, AND POST-PROCESSING▶ CONSTRUCTION ON EARTH AND BEYOND▶ FATIGUE AND FRACTURE▶ MEDICAL▶ ENVIRONMENTAL AND CORROSION▶ ROBOTICS AND AUTOMATION▶ SINTER-BASED TECHNOLOGIES▶ PANEL 08 – Q&C	<ul style="list-style-type: none">▶ NO PROGRAM

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STUDENT PRESENTATION COMPETITION FINAL EVALUATION

28TH OCT 2024 (MON)

28TH OCTOBER 2024
< ROOM 303 (LEVEL 03) >

SESSION CHAIR (AM + PM SESSIONS):

Ryan Kircher, rms Company

09:00 AM STUDENT PRESENTATION COMPETITION	Understanding Local vs. Global Deformation in Additively Fabricated Hastelloy X Justin Lynch ¹ ; Ritam Pal ¹ ; Brandon Kemerling ² ; Daniel Ryan ² ; Sudhakar Bollapragada ² ; Amrita Basak ¹ ; ¹ Pennsylvania State University; ² Solar Turbines
09:15 AM STUDENT PRESENTATION COMPETITION	Accelerated Creep Testing and Modeling of Alloy GRX-810 Jacob Pellicotte ¹ ; Calvin Stewart ¹ ; ¹ Ohio State University
09:30 AM STUDENT PRESENTATION COMPETITION	Metallurgical and Mechanical Properties of Laser Metal Deposited NbTaTiV Refractory High Entropy Alloy Eric Barth ¹ ; Anis Hor ² ; ¹ Institut Clément Ader (ICA, CNRS UMR 5312); ² Institut Supérieur de l'Aéronautique et de l'Espace (ISAE-SUPAERO)
09:45 AM STUDENT PRESENTATION COMPETITION	Development of Molybdenum Alloys for Use with Powder Blown Laser Direct Energy Deposition Additive Manufacturing Nathaniel Lies ¹ ; Aaron Stebner ¹ ; ¹ Georgia Institute of Technology
10:00 AM	BREAK
10:30 AM STUDENT PRESENTATION COMPETITION	Direct Energy Deposition of Inconel 718-Copper Bimetallic Structures with Excellent Comprehensive Properties Stefano Felicioni ¹ ; Alberta Aversa ¹ ; Federica Bondioli ¹ ; Gildo Di Domenico ² ; Flavio Lucibello ² ; Andrea Zanin ² ; ¹ Politecnico di Torino; ² Hypatia Research Consortium
10:45 AM STUDENT PRESENTATION COMPETITION	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 ; ¹ Swansea University; ² Rolls-Royce
11:00 AM STUDENT PRESENTATION COMPETITION	Fatigue Performance of WAAM ER70S-6 and ER80S-Ni1 Hannah Kessler ¹ ; Shirin Raschid Farrokh ¹ ; Ryan Sherman ¹ ; ¹ Georgia Institute of Technology

11:15 AM STUDENT PRESENTATION COMPETITION	In-Situ Monitoring of Laser Powder Bed Fusion Process with Acoustic Emission Sensors Mihir Darji ¹ ; Prahalad Rao ¹ ; Benjamin Bevens ¹ ; Alexander Riensche ¹ ; Antonio Carrington ¹ ; Yuri Plotnikov ² ; John Sions ² ; Kyle Snyder ² ; Derek Hass ² ; ¹ Virginia Tech; ² Commonwealth Center for Advanced Manufacturing (CCAM)
11:30 AM STUDENT PRESENTATION COMPETITION	Towards In-Layer Closed-Loop Feedback Control in LBPF: Impact of the Process Window and Reference Value Selection Barış Kavas ¹ ; Markus Bambach ¹ ; Michael Tucker ¹ ; ¹ ETH Zürich
11:45 AM STUDENT PRESENTATION COMPETITION	Real-Time In Situ Monitoring in Fused Filament Fabrication using Current-Based Sensor Alexander Isiani ¹ ; Kelly Crittenden ¹ ; Leland Weiss ¹ ; ¹ Louisiana Tech University
12:00 PM	LUNCH
13:30 PM STUDENT PRESENTATION COMPETITION	Evaluation of Fracture Properties of Additively Manufactured IN718 under Quasi-Static and Dynamic Loading Alex Edwards ¹ ; Hareesh Tippur ¹ ; ¹ Auburn University
13:45 PM STUDENT PRESENTATION COMPETITION	Effects of Post-Processing Heat Treatments on Microstructure and Mechanical Properties of PBF-LB AlSi10Mg Nancy Huang ¹ ; Qixiang Luo ¹ ; Dean Bartles ² ; Timothy Simpson ¹ ; Allison Beese ¹ ; ¹ Pennsylvania State University; ² Manufacturing Technology Deployment Group Inc. (MTDG)
14:00 PM STUDENT PRESENTATION COMPETITION	**CANCELLED** Influence of Alternative Post-Processing Conditions on Mechanical Performance of Inconel 718 Manufactured by Powder Bed Fusion – Supporting Standardisation & High Calibre Datasets Phoebe May ¹ ; Robert Lancaster ¹ ; Martin White ² ; Alberto Bordin ² ; Richard Huff ² ; ¹ Swansea University; ² ASTM International
14:15 PM STUDENT PRESENTATION COMPETITION	Unraveling the Effect of Part Thermal History on Microstructural Evolution and Mechanical Properties in Stainless Steel 316L Laser Powder Bed Fusion Kaustubh Deshmukh ¹ ; Alex Riensche ¹ ; Ryan Lane ¹ ; Kyle Snyder ² ; Christopher Williams ¹ ; Reza Mirzaeifar ¹ ; Prahalad Rao ¹ ; ¹ Virginia Tech; ² Commonwealth Center for Advanced Manufacturing (CCAM)
14:30 PM STUDENT PRESENTATION COMPETITION	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 ; ¹ Pennsylvania State University

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14:45 PM
STUDENT
PRESENTATION
COMPETITION
Topology Optimization of Continuous Fiber-Reinforced Composites Considering Manufacturing Constraints
[Janet Wong](#)¹; David Rosen²; Emily Sanders¹;
¹Georgia Institute of Technology; ²A*STAR - IHPC / SIMTech

15:00 PM **BREAK**

15:30 PM
STUDENT
PRESENTATION
COMPETITION
Investigating Hardening, Damage, and Defect Effects in Additively Manufactured Metal Matrix Composites using a Large-Strain Elasto-Viscoplastic FFT-Framework
[Claire Ticknor](#)¹; Jamila Khanfri²; Alex Butler²; Josh Kacher²; Aaron Stebner²; Ashley Spear¹;
¹University of Utah; ²Georgia Institute of Technology

15:45 PM
STUDENT
PRESENTATION
COMPETITION
3D Printing Engineered Composite Materials with Tailored Properties using Multi-Step Curing and Ultrasound-Assisted Vat Photopolymerization with a Rotating Build Platform
[Duy Le](#)¹; Bart Raeymaekers¹; ¹Virginia Tech

16:00 PM
STUDENT
PRESENTATION
COMPETITION
~~Fabrication of Durable and Inextensible Silicon Rubber Molds Tailored for High-Pressure Embossing of IR Transparent Materials~~
~~[Abolfazl Vahab](#)¹; Shima Jalali¹; Asad Asad¹; James Hogan¹; Patricia Dolez¹; Dan Sameoto¹; ¹University of Alberta~~

16:15 PM
STUDENT
PRESENTATION
COMPETITION
Advanced Acoustic Architectural Design through Robotic 3D Printing of Fungal Biomaterials with Parameter Optimization
[Alale Mohseni](#)¹; Özgüç Bertuğ Çapunaman¹; Alireza Zamani¹; Natalie Walter¹; Benay Gürsoy¹; ¹Pennsylvania State University

16:30 PM **END OF DAY**

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STUDENT POSTER COMPETITION

28TH OCT 2024 (MON)

TIME: 17:00 TO 18:30 PM

28TH OCTOBER 2024

< GRAND BALLROOM (LEVEL 02) >

STUDENT POSTER #001
A Parameter Space for Molybdenum using Laser Powder Bed Fusion
[Ernest Porterfield](#)¹; ¹Auburn University

STUDENT POSTER #002
~~Machine Learning-Accelerated Property Prediction of Additively Manufactured Metamaterials: A Framework for Defining Repeated Periodic Lattice Cells in Polar and Cartesian Coordinates~~
~~[Jake Peloquin](#)¹; [Ken Gall](#)¹; [L. Catherine Brinson](#)¹; [Juan Matias Di Martino](#)¹; ¹Duke University~~

STUDENT POSTER #003
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 Kota](#)¹; [Nidhi Manish Shanghavi](#)¹; [Ji Ho Jeon](#)¹; [Shreyes Melkote](#)¹; ¹Georgia Institute of Technology

STUDENT POSTER #004
Leveraging Additive Manufacturing to Better Understand Nondestructive Evaluation
[Jacey Birkenmeyer](#)¹; [Harshith Kumar Adepu](#)¹; [Meher Mirza](#)¹; [Luz Sotelo](#)¹; ¹Purdue University

STUDENT POSTER #005
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

STUDENT POSTER #006
Characterization of 3D Printed Underwater Concrete with Different Environmental Conditions
[Khalilullah Taj](#)¹; [Yen-Fang Su](#)¹; ¹Louisiana State University

STUDENT POSTER #007
In-Situ Metal Powder Quality Assessment through Frequency-Domain Thermal Property Evaluation
[Sina Ghadi](#)¹; [Xiaobo Chen](#)¹; [Nicholas Tomasello](#)¹; [Srikanth Rangarajan](#)¹; [Guangwen Zhou](#)¹; [Scott Schiffres](#)¹; ¹Binghamton University

STUDENT POSTER #008
Effect of Additive Manufacturing Methodologies and Biomaterials on the Mechanical Properties of Porous Architectures
[Niusha Daneshdoost](#)¹; [Jake Peloquin](#)¹; [Amanda Heimbrook](#)¹; ¹Duke University

STUDENT POSTER #009
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

STUDENT POSTER #010
Nondestructive Evaluation of Additively Manufactured Components with Internal Structures
[Harshith Kumar Adepu](#)¹; [Jacey Birkenmeyer](#)¹; [Meher Mirza](#)¹; [Luz Sotelo](#)¹; ¹Purdue University

STUDENT POSTER #011
Micromechanical Properties and Microstructure Evolution of Copper-Manganese-Tin Alloy using Selective Laser Melting
[Bing Ru Hsieh](#)¹; ¹National Sun Yat-Sen University

STUDENT POSTER #012
A Novel Approach to Integrate Additive Manufacturing to Metal Casting: Lost-PLA Casting
[Mohammad Alshaikh Ali](#)¹; [Ismail Fidan](#)¹; [Fred Vondra](#)¹; [Marshall Miller](#)²; ¹Tennessee Technological University; ²3D Systems

STUDENT POSTER #013
Fabrication of Interdigitated Capacitors using Aerosol Jet Printing
[Yvonne Fu](#)¹; [Cam Eldridge](#)¹; [Connor Smith](#)¹; [Hatem ElBidweihy](#)¹; ¹United States Naval Academy (USNA)

STUDENT POSTER #014
Investigation of Bone Cement Adhesion to Additively Manufactured Implant Surface Finishes and Porosities
[Caroline Alting](#)¹; ¹Duke University

STUDENT POSTER #015
Micromechanical and Electrical Properties of Copper-Manganese Alloy using Selective Laser Melting
[Chi-Chen Shih](#)¹; ¹National Sun Yat-Sen University

STUDENT POSTER #016
Nondestructive Quantification of the Effect of Varying Cooling Conditions on Additively Manufactured Polylactic 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; ¹Purdue University

STUDENT POSTER #017
Multi-Scale Testing and Optimization of Additively Manufactured Aluminum Metal Matrix Composites on Powder Bed and Directed Energy Deposition Systems
[Jamila Khanfri](#)¹; [Alex Butler](#)¹; [Aaron Stebner](#)¹; ¹Georgia Institute of Technology

STUDENT POSTER #018
Quantification of Carbide Pickup in Binder Jet Printed SS 316L using Computer Vision
[Pooja Maurya](#)¹; ¹Carnegie Mellon University

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STUDENT POSTER #019	Development of a Robust Modeling Approach to Predict Residual Stresses and Distortions in the Laser Powder Bed Fusion Process: The Influence of Material Constitutive Laws Hossein Mohammadtaheri ¹ ; Ramin Sedaghati ¹ ; Marjan Molavi-Zarandi ² ; ¹ Concordia University; ² University of North Carolina at Charlotte	STUDENT POSTER #027	Effect of Layer Thickness on the Microstructure and Mechanical Properties of In-Situ Alloying of Ti-30Ta using Laser Powder Bed Fusion Cherq Chua ^{1,2} ; Yanting Liu ¹ ; Swee Leong Sing ¹ ; Chee Kai Chua ² ; ¹ National University of Singapore (NUS); ² Singapore University of Technology and Design (SUTD)
STUDENT POSTER #020	An Introduction to Advanced Manufacturing for Underrepresented Groups Helen Hu ¹ ; ¹ Georgia Institute of Technology	STUDENT POSTER #028	Is Additive Construction Ready for Seismic Regions? - A New Seismic Protective System Enabled by Additive Construction Anthony Mackin ¹ ; Islam Mantawy ¹ ; Jenna Migliorino ¹ ; Hamdy Fahroud ¹ ; ¹ Rowan University
STUDENT POSTER #021	Topology Optimization Based Additive Construction Process for Compression-Only Structures: Additive Construction Processes Jenna Migliorino ¹ ; Islam Mantawy ¹ ; Aly Ahmed ¹ ; Anthony Mackin ¹ ; Zaid Hanoun ¹ ; ¹ Rowan University	STUDENT POSTER #029	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 ¹ ; Lang Yuan ¹ ; ¹ University of South Carolina; ² Savannah River National Laboratory
STUDENT POSTER #022	Prediction of Factors Affecting Young's Modulus of Ti-6Al-4V Printed by Powder Bed Fusion with Adaptive Neuro Fuzzy Inference System Yanting Liu ¹ ; Cherq Chua ^{1,2} ; Chee Kai Chua ² ; Swee Leong Sing ¹ ; ¹ National University of Singapore (NUS); ² Singapore University of Technology and Design (SUTD)	STUDENT POSTER #030	Gradient Segmentation of In-Situ Infrared Images in Electron Beam Powder Bed Fusion Brian Johnstone ¹ ; Christopher Saldaña ¹ ; ¹ Georgia Institute of Technology
STUDENT POSTER #023	The Effects of Heat Treatment on the Microstructure and Mechanical Properties of Cold-Sprayed Chromium-Carbide / Nickel-Chromium Coatings for Railroad Repairs Sohayb Batwa ¹ ; Ahmad Nourian-Avval ¹ ; Sinan Müftü ¹ ; ¹ Northeastern University	STUDENT POSTER #031	Laser Powder Bed Fusion Melt Pool Instability Caused by Plume-Entrained Particles Blocking the Laser Jamie Bell ¹ ; ¹ Imperial College London
STUDENT POSTER #024	Improving Thermal Debinding of Ceramics using Mass Transport Networks Olorunfemi Esan ¹ ; Christopher Hansen ¹ ; Amy Peterson ¹ ; ¹ University of Massachusetts Lowell	STUDENT POSTER #032	Automated and Robust Initial Alignment of Raw Laser-Scanned Data through Sequentially Constrained Rigid Motions Akash Anand ¹ ; Weizhi Lin ² ; Qiang Huang ² ; ¹ Massachusetts Institute of Technology; ² University of Southern California
STUDENT POSTER #025	Improving the Prediction of Geometric Deviations in Additively Manufactured Parts with Varying L-PBF Process Parameters using Conditional Generative Adversarial Networks Subigyamani Bhandari ¹ ; Sangjin Jung ¹ ; ¹ Southern Illinois University Carbondale	STUDENT POSTER #033	Additively Manufactured Fuse for Concentric Braced Frame in Seismic Regions Hamdy Farhoud ¹ ; Islam Mantawy ¹ ; ¹ Rowan University
STUDENT POSTER #026	Development and Characterization of Al/SiC Based Metal Matrix Composites through Cold Spray Deposition Amir Mansouri ¹ ; Ahmad Nourian-Avval ¹ ; Evan Coronado ¹ ; Sinan Müftü ¹ ; ¹ Northeastern University	STUDENT POSTER #034	Multifunctional Glass Composites via 3D Printing Taylor Sobczak ¹ ; Kenan Song ¹ ; Arunachalam Ramanathan ¹ ; Sri Vaishnavi Thummalapalli ¹ ; ¹ University of Georgia
		STUDENT POSTER #035	Composite Coatings for Magnesium-Based Implants with Enhanced Corrosion Resistance and Biocompatibility Abdelrahman Amin ¹ ; Vipul Patil ¹ ; Devin Melton ¹ ; Bryce Williams ² ; Mostafa Elsaadany ² ; Hamdy Ibrahim ¹ ; ¹ University of Tennessee at Chattanooga; ² University of Arkansas

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STUDENT POSTER #036

****CANCELLED****

Fast and Efficient Fabrication of Functional Electronics through Grayscale Digital Light Processing 3D Printing
[Farzad Gholami](#)¹; Liang Yue¹; Mingzhe Li¹; Marcus Fratarcangeli¹; H. Jerry Qi¹; ¹Georgia Institute of Technology

STUDENT POSTER #037

****CANCELLED****

Role of Manganese Composition on the Strain-Controlled Fatigue Life in Additively Manufactured 316L Austenitic Stainless Steel
[Ian Wirotecha-Reiman](#)¹; Andrew Iams²; Stephen Sabol³; Todd Palmer¹; ¹Pennsylvania State University; ²NIST; ³Naval Nuclear Laboratory (NNL)

STUDENT POSTER #038

Characterisation of Transition Welds Manufactured using Laser Powder Bed Fusion (LPBF)
[Kelsey Parker](#)¹; Robert Lancaster¹; Thomas Jones²; ¹Swansea University; ²Rolls-Royce Submarines

STUDENT POSTER #039

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

STUDENT POSTER #040

Multi-Stimuli Integration in Alloy Design: Friction-Assisted Processing of Al-Mg Alloys for High-Performance Nano-Composite Materials
[Md Jasim Uddin](#)¹; Aniruddha Malakar¹; Michael Lastovich¹; Farhan Ishrak¹; Caleb Schenck¹; Bharat Gwalani¹; ¹North Carolina State University

STUDENT POSTER #041

Additive Construction of Low Embodied Carbon Concrete: Geopolymer Concrete
[Aly Ahmed](#)¹; [Islam Mantawy](#)¹; ¹Rowan University

STUDENT POSTER #042

Advanced Reinforcements for Next-Generation Composite Manufacturing
[Arunachalam Ramanathan](#)¹; Kenan Song¹; ¹University of Georgia

STUDENT POSTER #043

Stress Concentration Strengthening of SS316L with IN718 through Multi-Metal Additive Manufacturing
[Britton DeGarmo](#)¹; Dwight Smith²; Hiroyuki Tauchi²; Greg Behm²; Karen Manley²; Calvin Stewart¹; ¹Ohio State University; ²Nidec Machine Tool

STUDENT POSTER #044

Interpass Peening Impact on Residual Stress in Wire-Arc Additive Manufactured Ti-6Al-4V using Phased-Array Ultrasonic Testing
[Joseph Walker](#)¹; Brandon Mills¹; Yashar Javadi¹; Yongle Sun²; Pradeeptta Taraphdar²; Fiona Sillars¹; Charles MacLeod¹; Anthony Gachagan¹; Gareth Pierce¹; ¹University of Strathclyde; ²Cranfield University

STUDENT POSTER #045

Conformal Toolpath Design for Slab-on-Grade 3DCP by Integrating Vision-Based Scanning Systems for Pre-Process Monitoring
[Paniz Farrokhsiar](#)¹; Özgüç Bertuğ Çapınaman¹; Sven Bilén¹; Jose Duarte¹; Benay Gursay¹; ¹Pennsylvania State University

STUDENT POSTER #046

Machine Learning-Assisted 3D Printing of Conductive Polymer Composites for Energy Storage Devices
[Sri Vaishnavi Thummalapalli](#)¹; ¹University of Georgia

STUDENT POSTER #047

Data-Driven Design Rules for Dimensional Accuracy of Green Parts Manufactured using Binder Jetting Additive Manufacturing
[Edward Yang](#)¹; Mihaela Vlasea¹; ¹University of Waterloo

STUDENT POSTER #048

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

STUDENT POSTER #049

Integrated Topology and Lattice Optimization Approach for the Additively Manufactured Heat Exchangers
[Joseph Nonso Orakwe](#)¹; [Ali Bonakdar](#)²; [Osezua Ibhadode](#)³; Ehsan Toyserkani¹; ¹University of Waterloo; ²University of North Carolina in Charlotte; ³University of Alberta

STUDENT POSTER #050

Simulation and Estimation of Mechanical Properties of Additively Manufactured Metallic Materials
[Prudhvi Raj Pola](#)¹; [Jackson Seiler](#)¹; Ranji Vaidyanathan¹; Prahalad Rao²; Kaustubh Deshmukh²; ¹Oklahoma State University; ²Virginia Tech

STUDENT POSTER #051

A Novel Analytical Technique to Detect Fatigue Crack Initiation in Additively Manufactured Materials
[Ritam Pal](#)¹; Amrita Basak¹; ¹Pennsylvania State University

STUDENT POSTER #052

Empirical Model for Fatigue Life Prediction of Additively Manufactured AISi10Mg
[Lea Strauß](#)¹; ¹University of the Bundeswehr Munich

STUDENT POSTER #053

Ultrasound Field-Assisted 3D Printing of Multi-Functional Mechanical Metamaterials
[Runsheng Hou](#)¹; Bart Raeymaekers¹; ¹Virginia Tech

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STUDENT POSTER #054

Prediction of Melt Pool Characteristics in Laser Powder Bed Fusion (LPBF) using Machine Learning

[Mehran Bagheri](#)¹; Marjan Molavi-Zarandi¹; Ali Bonakdar¹; ¹University of North Carolina at Charlotte

STUDENT POSTER #055

Online Chatter Detection using MTConnect and Inbuilt Sensors

[Shohom Bose-Bandyopadhyay](#)¹; Helen Hu¹; Melissa Foley¹; Thomas Kurfess¹; Kyle Saleeby¹; ¹Georgia Institute of Technology

STUDENT POSTER #056

Investigation on the Correlation between Powder Layer Behavior and Packing Densities of Plasma Atomized Powders

[Seyed Masoud Ashrafizadeh](#)¹; Stephen Yue¹; Mahdi Habibnejad-Korayem²; ¹McGill University; ²GE Additive - AP&C

STUDENT POSTER #057

Scan-Informed Statistical Process Control for Layerwise Monitoring

[Nicole Van Handel](#)¹; Brian Johnstone¹; Alexis Noel²; Maxwell Tannenbaum²; Thomas Kurfess¹; Kyle Saleeby¹; ¹Georgia Institute of Technology; ²Georgia Tech Research Institute

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INDUSTRIAL SECTOR

AVIATION

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

CO-ORGANIZERS:

Cindy Ashforth
Federal Aviation Administration
(FAA), USA

Jim Dobbs
Boeing, USA

Ruaridh Mitchinson
The Manufacturing Technology
Centre, United Kingdom

Stephane Bianco
Airbus, France

Bradley Hughes
GKN Aerospace,
United Kingdom

28TH OCTOBER 2024

< ROOM 301-302 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Bradley Hughes, GKN Aerospace

SESSION CHAIR (PM SESSION):

Cindy Ashforth, Federal Aviation Administration

08:50 AM
REGULAR **Material Allowables for Aerospace - Example Test Programs**
[Doug Hall](#)¹; [Clay Reakes](#)¹; [Chloe Johnson](#)²; [Mariia Stepanova](#)³; ¹Battelle Memorial Institute; ²Elementum 3D; ³Norsk Titanium

09:10 AM
REGULAR **Joint Metal Additive Database Definition (JMADD): Ti-6Al-4V Baseline Qualification and Expansion Activities**
[Neville Kuang Yu Tay](#)¹; ¹Wichita State University - National Institute for Aviation Research (WSU - NIAR)

09:30 AM
INVITED **Performance Based Qualification of AM Parts to Enable Next Generation Motion Control Products**
[Simon Jones](#)¹; ¹Domin

10:00 AM **BREAK**

10:30 AM
INVITED **Equivalence, Further Showing, and all that Jazz**
[Cindy Ashforth](#)¹; ¹Federal Aviation Administration (FAA)

11:00 AM
INVITED **Common Performance-Based Additive Qualification to Accelerate the Expansion of the AM Industrial Base**
[Mark Shaw](#)¹; ¹Wichita State University - National Institute for Aviation Research (WSU - NIAR)

11:30 AM
REGULAR **Data Analytics for Rapid Qualification and Certification of AM Components for Aerospace Applications**
[Narendran Raghavan](#)¹; [Taisia \(Asya\) Lou](#)¹; ¹Boeing

11:50 AM
REGULAR **Leveraging the "Crawl, Walk, Run" Approach in Additive Manufacturing for Advanced Air Mobility**
[Morgan Mader](#)¹; ¹Joby Aviation

12:10 PM **LUNCH**

13:30 PM
INVITED **Moving up the Criticality Ladder for Aircraft Engine Components with Additive Fabrication Solutions**
[Christo Dordlofva](#)¹; [Johan Andersson](#)¹; ¹GKN Aerospace

14:00 PM
INVITED **2024 Revision of the AIA Additive Manufacturing Working Group's Recommended Guidance for Certification of AM Component White Paper**
[Morgan Mader](#)¹; ¹Joby Aviation

14:30 PM
INVITED **Introduction of Ti-6Al-4V AM Wire Direct Energy Technology in Airbus Commercial Aircraft Products**
[Philippe Emile](#)¹; ¹Airbus Commercial Aircraft

15:00 PM **BREAK**

15:30 PM
INVITED **Large Scale AM of Ti6Al4V for Aerospace Application at GKN Aerospace - M&P Perspective**
[Chad Henry](#)¹; [Alphons Antonysamy](#)¹; ¹GKN Aerospace

16:00 PM
INVITED **Digital Direct Production (DDP) for Aircraft Cockpit Interior Components via Direct Light Processing**
[Alexander Morgan](#)¹; [Allyson Cox](#)¹; [Timothy Osborn](#)¹; ¹University of Dayton Research Institute

16:30 PM
REGULAR **Laser Powder Bed Fusion Alloy 718 in Non-Rotating Turbine Engine Hot-End Applications**
[Nathan Bryant](#)¹; [Sushant Jha](#)¹; [Howard Sizek](#)²; [Jessica Orr](#)¹; ¹University of Dayton Research Institute; ²Air Force Life Cycle Management Center

16:50 PM **END OF DAY**

29TH OCTOBER 2024

< ROOM 301-302 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

[Chad Henry](#), GKN Aerospace

SESSION CHAIR (PM SESSION):

[Amit Chatterjee](#), Wohlers Associates

08:50 AM
REGULAR **Industrialisation of AM in Aviation: Current Challenges and Opportunities**
[Desislava Bacheva](#)¹; ¹Airbus

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- 09:10 AM**
REGULAR **Nadcap Program Developments in Additive Manufacturing**
[Richard Freeman](#)¹; ¹Performance Review Institute
- 09:30 AM**
INVITED **Learning to Fly: Reducing Costs through Standards**
[Martin White](#)¹; Mohsen Seifi¹; ¹ASTM International
- 10:00 AM** **BREAK**
- 11:00 AM** ****No Program****
Panel 03 (Defense / Aviation / Space) at Level 02 - Salon Ballroom
- 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 Romano](#)¹; 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 Beretta](#)¹; 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 Maleki](#)¹; 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 Madia](#)¹; Tiago Werner¹; Kai Hilgenberg¹; Thomas Klassen²; Frank Gärtner²; 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 Wardrop](#)¹; [Lennart Tasche](#)¹; ¹DMG MORI Additive Solutions
- 16:20 PM**
REGULAR **Printing and Repair of High Strength Steel via Additive Friction Stir Deposition**
[Michael Eff](#)¹; ¹EWI
- 16:40 PM** **END OF DAY**

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INDUSTRIAL SECTOR

CONSTRUCTION ON EARTH AND BEYOND

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

CO-ORGANIZERS:

Michael Fiske

NASA - Jacobs Space Exploration Group (JSEG), USA

Eric Kreiger

U.S. Army Engineer Research and Development Center - Construction Engineering Research Laboratory, USA

Timothy Wangler

ETH Zürich, Switzerland

Ali Kazemian

Louisiana State University, USA

Vittoria Laghi

University of Bologna, Italy

30TH OCTOBER 2024

< ROOM 212 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Eric Kreiger, U.S. Army ERDC-CERL
Stephan Mansour, Wohlers Associates

SESSION CHAIR (PM SESSION):

Ramona Fayazfar, Ontario Tech University
Stephan Mansour, Wohlers Associates

08:50 AM REGULAR Additively Constructed and Functionally Graded Wall System

[Islam Mantawy](#)¹; [Anthony Mackin](#)¹; Zaid Hanoun¹; Jenna Migliorino¹; Aly Ahmed¹; ¹Rowan University

09:10 AM REGULAR Parametric Study of Pitched-Brick Vault Stability under Microgravity and Seismic Loading

[Peter Manos](#)¹; Anjali Mehrotra²; Marina Konstantatou^{3,4}; 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 Tankova](#)¹; ¹Delft University of Technology

10:00 AM BREAK

10:30 AM INVITED Analysis on the Impact of Metal 3D Printing in Construction

[Vittoria Laghi](#)¹; Alper Kanyilmaz²; Giada Gasparini¹; ¹University of Bologna; ²Politecnico di Milano

11:00 AM INVITED Opportunities for Workforce Development in 3D Concrete Printing

[Zachary Mannheimer](#)¹; ¹Alquist 3D

11:30 AM INVITED Achieving Code Compliance for Additive Construction in Canada

[Carlos Jiménez Miranda](#)¹; [Marcos Silveira](#)¹; ¹Printerra 3DCP

12:00 PM LUNCH

13:30 PM INVITED Project Olympus: Updates and Progress in Additive Manufacturing for Off World Construction

[Katie Koube](#)¹; Thao Nguyen¹; Valerie Svaldi¹; Melodie Yashar¹; Eamon Carrig¹; Evan Jensen¹; ¹ICON

14:00 PM INVITED Microwave Process for Lunar Construction

[Holly Shulman](#)¹; ¹DrHollyShulman

14:30 PM INVITED Advancement of Lunar Geopolymer Concrete via the Utilization of Microwaves

[Aleksandra Radlińska](#)¹; [Sven Bilén](#)¹; 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

[Fabio Caltanissetta](#)¹; Giovanni Avallone¹; ¹Caracol

16:00 PM INVITED Additive Concrete Construction for Residential Applications: Design Methods, Analysis Strategies and Large-Scale Experimental Validations

[Petros Sideris](#)¹; Sumedh Sharma¹; Mohammad Aghajani Delavar¹; Hao Chen¹; Mohamed Eltahlawi¹; ¹Texas A&M University

16:30 PM INVITED Sustainable Construction 3D Printing: Leveraging Quarry By-Products and Particle Packing Concept

[Ali Kazemian](#)¹; [Aranya Paul](#)¹; Carol Friedland¹; Charles Berryman¹; ¹Louisiana State University

17:00 PM END OF DAY

31ST OCTOBER 2024

< ROOM 212 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Vittoria Laghi, University of Bologna
Stephan Mansour, Wohlers Associates

SESSION CHAIR (PM SESSION):

Michael Fiske, NASA - Jacobs Space Exploration Group
Stephan Mansour, Wohlers Associates

08:50 AM REGULAR ~~**CANCELLED**~~ The Critical Role of Material Ageing in Controlling Macroporosity in 3D-Printed Cementitious Structures

~~[Yu \(Richard\) Jiang](#)¹; Abir Al-Tabbaa¹; Ronan Daly¹; ¹University of Cambridge~~

09:10 AM REGULAR ~~**CANCELLED**~~ Interlaboratory Study on Durability Properties of 3D Printed Concrete – RILEM TC-ADC-ILS-DURASHRINK

~~[Timothy Wangler](#)¹; Kim Van Tittelboom²; Yi Zhang²; Lucas Nascimento de Lima⁴; ¹ETH Zürich; ²Ghent University~~

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09:30 AM INVITED	Key Findings by the RILEM Interlaboratory Study on Mechanical Properties of 3D Printed Concrete Shravan Muthukrishnan ¹ ; Viktor Mechtcherine ¹ ; ¹ Dresden University of Technology
10:00 AM	BREAK
10:30 AM INVITED	3D Printing Construction with Raw Earth: Achievements and Challenges Giulio Buscaroli ¹ ; ¹ WASP
11:00 AM INVITED	Printing with Commoditized Ready-Mix Concrete, Why 3D Construction Needs to Capitalize on this Omnipresent Opportunity Matthew Carli ¹ ; Robin Degen ¹ ; ¹ Putzmeister
11:30 AM	LUNCH
13:30 PM INVITED	From Digital Crafting to Digital Manufacturing: Automation and Production for Hybrid 3D Concrete Printing Richard Buswell ¹ ; ¹ Loughborough University
14:00 PM INVITED	Extrudability Window and Offline Test Methods to Predict Buildability of 3D Printing Concrete Yucun Gu ¹ ; Kamal Khayat ¹ ; ¹ Missouri University of Science and Technology
14:30 PM INVITED	Neuromorphic Sensing and Computing Paradigm for Enabling In-Process Monitoring of Additive Manufacturing for Remote Operations David Mascarenas ¹ ; ¹ Los Alamos National Laboratory (LANL)
15:00 PM	BREAK
15:30 PM INVITED	**CANCELLED** 3D Printing a Tower: Experience in Material and Process Development Timothy Wangler¹; ¹ETH Zürich
16:00 PM INVITED	Quality Control of Inline Mixing for Digital Concrete Fabrication Yaxin Tao ¹ ; Timothy Wangler ¹ ; Robert Flatt ¹ ; ¹ ETH Zürich
16:30 PM REGULAR	**CANCELLED** Future of Engineered Construction Javeed Munshi¹; ¹Bechtel
16:50 PM	END OF DAY

01ST NOVEMBER 2024

< ROOM 212 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Michael Fiske, NASA - Jacobs Space Exploration Group
Stephan Mansour, Wohlers Associates

08:50 AM REGULAR	Improvement of Structural Additive Manufacturing by Hybridization with Continuous Fiber Pultruded Thermoplastic Composites Andrew Schanck ¹ ; Zane Dustin ¹ ; ¹ University of Maine - Advanced Structures and Composites Center
09:10 AM REGULAR	Mobile ISO Containerized Field-Manufacturing System for Long-Fiber Reinforced Thermoplastic Composites Noah Pringle ¹ ; Michael Hunter ¹ ; Cody Sheltra ¹ ; ¹ University of Maine - Advanced Structures and Composites Center
09:30 AM INVITED	PCA Roadmap to Carbon Neutrality Aubrey Smading ¹ ; ¹ Portland Cement Association
10:00 AM REGULAR	Additively Manufactured Fuse for Concentric Braced Frame in Seismic Regions Islam Mantawy ¹ ; Hamdy Farhoud ¹ ; ¹ Rowan University
10:20 AM	END OF DAY

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INDUSTRIAL SECTOR

DEFENSE

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

CO-ORGANIZERS:

Adam Hicks

Air Force Research
Laboratory (AFRL),
USA

Prabhjot Singh

RTX, USA

Travis Mayberry

Raytheon Missiles and Defense,
USA

Cynthia Waters

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

29TH OCTOBER 2024

< ROOM 309-311 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Yash Parikh, EOS

SESSION CHAIR (PM SESSION):

Cindy Waters, Naval Surface Warfare Center

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 Aluminum Bronze**

Meysam Haghsheenas¹; 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 Level
02 - Salon Ballroom

12:00 PM

LUNCH

13:30 PM
INVITED

**Techno-Economic Analysis of Metal
Powder Bed AM: Past Roadmap Analysis
and Solutions Workshop Toward Increased
Rate of Adoption**

Brent Stucker¹; David Paredes²; ¹Wohlers
Associates; ²ASTM International

14:00 PM
INVITED

**Feedstock Development for Advanced
Manufacturing at DEVCOM ARL**

Brandon McWilliams¹; U.S. Army Combat
Capabilities Development Command - Army
Research Laboratory (ARL)

14:30 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

14:50 PM
BREAK

15:30 PM
REGULAR

**Utilizing Directed Energy Deposition (DED)
for Department of Defense (DoD) Spares +
Repairs**

Melanie Lang¹; ¹FormAlloy

15:50 PM
REGULAR

**Design of an Additively Manufactured Heat
Exchanger for Military Ground Vehicles**

Daniel Cassar¹; ¹Siemens Energy

16:10 PM
REGULAR

**Deployable Advanced Manufacturing
Systems for Contested Environments in
Defense**

Jeremy Heerdink¹; ¹Snowbird Technologies

16:30 PM
REGULAR

**Development of Copper Cold Spray for the
US Navy**

Timothy Eden¹; Anthony Naccarelli¹; Jennifer
Brennan²; Stephen Sabol²; ¹Pennsylvania
State University - Applied Research
Laboratory (PSU - ARL); ²Naval Nuclear
Laboratory (NNL)

16:50 PM

END OF DAY

30TH OCTOBER 2024

< ROOM 309-311 (LEVEL 03) >

SESSION CHAIR (AM + PM SESSIONS):

Yash Parikh, EOS

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

****CANCELLED**
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

**Efficient AM Qualification: Lessons from
US Navy and America Makes**

Yash Parikh¹; Ankit Saharan¹; ¹EOS

10:00 AM
BREAK

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ICAM 2024 FINAL PROGRAM AGENDA

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- 10:30 AM**
INVITED **NAVAIR Propulsion & Power Metal Additive Applications**
[Christine Myers](#)¹; ¹Naval Air Systems Command (NAVAIR)
- 11:00 AM**
INVITED **Additive Manufacturing the Next Wave, Navy's Efforts to Scale Up**
[Cynthia Waters](#)¹; ¹Naval Surface Warfare Center (NSWC) - Carderock Division
- 11:30 AM**
INVITED **Alliances in Innovation: A Japanese Additive Manufacturing Company's Experience with US Department of Defense**
[Enora Rogers](#)¹; ¹Wohlers Associates
- 12:00 PM** **LUNCH**
- 13:30 PM**
INVITED **Alloy and Process Development for Nickel Superalloys in Additive Manufacturing Beyond PBF-LB**
[Andrew Wessman](#)¹; Jonah Klemm-Toole²; Mohammed Shafae¹; Mohamed Ibrahim¹; Dennis Gilbert¹; ¹University of Arizona; ²Colorado School of Mines
- 14:00 PM**
INVITED **~~**CANCELLED**~~
~~Towards an AI-Enabled Qualified Distributed AM for Point-of-Need Production of Critical Parts to Enable Defense Industrial Base~~**
~~[Omar Fergani](#)¹; Katharina Eissing¹; Dimitri Papazoglou²; John Middendorf²; ¹4000 Kelvin; ²Ohio State University~~
- 14:30 PM**
INVITED **Enhancing International Collaboration using an AM-Framework for Implementation of a Level System for Temporarily Self-Sufficient Systems**
[Sascha Hartig](#)¹; ¹German Navy
- 15:00 PM** **BREAK**
- 15:30 PM**
REGULAR **A Framework for Additively Manufactured Part Qualification and Certification within the Defense Industry**
[Steven Kraft](#)¹; Hector Sandoval¹; ¹Lockheed Martin
- 15:50 PM**
REGULAR **The State of Current Metal AM Qualification Standards and Research Needed to Improve Them**
[Evan Handler](#)¹; ¹Naval Surface Warfare Center (NSWC) - Carderock Division
- 16:10 PM** **END OF DAY**

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INDUSTRIAL SECTOR

ENERGY, MARITIME, AND OIL & GAS

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

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

28TH OCTOBER 2024

< ROOM 213-214 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Ali Bonakdar, University of North Carolina at Charlotte

SESSION CHAIR (PM SESSION):

Carlo De Bernardi, ConocoPhillips

08:50 AM
REGULAR **Developing a Comprehensive AM Ecosystem to Support a Transformation from Small-Scale Production Towards Serial Manufacturing**
[Kevin Yap](#)¹; ¹Bright Laser Technologies

09:10 AM
REGULAR **Recent Advancements in Additive Manufacturing for Commercial Nuclear Power Systems**
[Edward DiLoreto](#)¹; ¹Westinghouse Electric Company

09:30 AM
INVITED **Convergent Manufacturing of Large-Scale Components for Nuclear Applications**
[Soumya Nag](#)¹; [Fred List](#)¹; [Jason Mayeur](#)¹; [Mithulan Paramanathan](#)¹; [Thomas Feldhausen](#)¹; [Luke Meyer](#)¹; [Andrzej Nycz](#)¹; [Brian Jordan](#)¹; [James Haley](#)¹; [Ryan Dehoff](#)¹; ¹Oak Ridge National Laboratory (ORNL)

10:00 AM **BREAK**

10:30 AM
INVITED **Impact of Additive Manufacturing Technologies on Critical Mineral Usage and Waste for Nuclear Structural Materials**
[Isabella van Rooyen](#)¹; [Ankit Roy](#)¹; [Steven Livers](#)¹; [Thomas Hartman](#)¹; [Praveen Thallapally](#)¹; [Chinthaka Silva](#)¹; [Subhashish Meher](#)¹; [Jorge dos Santos](#)¹; [Carolyn Burns](#)¹; [Benjamin Lund](#)¹; ¹Pacific Northwest National Laboratory (PNNL)

11:00 AM
INVITED **Additive Manufacturing of Wear Resistant Materials**
[Dave Waldbillig](#)¹; [Mazyar Ansari](#)¹; ¹InnoTech Alberta

11:30 AM
INVITED **Advanced Manufacturing for Harsh Environments at Idaho National Laboratory**
[Adrian Wagner](#)¹; [Jorgen Rufner](#)¹; [Andrea Jokisaari](#)¹; [Michael McMurtrey](#)¹; [Allen Roach](#)¹; ¹Idaho National Laboratory

12:00 PM **LUNCH**

13:30 PM
INVITED **Joint Industry Project to Realize the Benefits of Decentralized Manufacturing of Highly Regulated Parts in Energy Industry**
[Faisal Iqbal](#)¹; [Sridharan Hariharan](#)²; [Artem Korotygin](#)³; [Abdurhman Issa](#)⁴; ¹Baker Hughes; ²Oqton; ³3D Systems; ⁴NAMI

14:00 PM
REGULAR **Progress in Multi-Material Powder Bed Fusion of Metals**
[Christian Seidel](#)^{1,2}; [Georg Schlick](#)³; [Maja Lehmann](#)³; [Maximilian Bradler](#)³; [Thomas Bareth](#)³; [Max Horn](#)⁴; ¹Munich University of Applied Sciences; ²Wohlers Associates; ³Fraunhofer Institute for Casting, Composite and Processing Technology IGCv; ⁴FIDENTIS

14:20 PM
REGULAR **Deployable Advanced Manufacturing Systems for Oil and Gas Operations in Austere Environments**
[Jeremy Heerdink](#)¹; ¹Snowbird Technologies

14:40 PM
REGULAR **Repair of the Bearing Areas of a Wind Power Main Shaft using Laser Directed Energy Deposition**
[Igor Ortiz](#)¹; [Piera Alvarez](#)¹; [Diego Montoya-Zapata](#)¹; [Francisco Cordovilla](#)²; [José Luis Ocaña Moreno](#)²; [Diego Navamuel](#)³; ¹INZU Group - Ikerlune; ²Technical University of Madrid (UPM); ³IZADI

15:00 PM **BREAK**

15:30 PM
REGULAR **Structural Optimization of Support Structures in LPBF using a Hybrid Lattice-Density Method**
[Enrique Escobar](#)¹; [Timo Heitmann](#)²; [Cynthia Wirth](#)²; [Matthias Vollmer](#)²; [Alexandre Matei](#)¹; [Jiri Drozda](#)¹; [Alexis Faure](#)¹; [Christopher Robinson](#)¹; ¹Ansys; ²Siemens Energy

15:50 PM
REGULAR **Rapid Qualification of Additive Manufacturing Parts using Physics Simulation Model**
[Dongchun Qiao](#)¹; ¹American Bureau of Shipping (ABS)

16:10 PM **END OF DAY**

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29TH OCTOBER 2024
< ROOM 213-214 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Isabella van Rooyen, Pacific Northwest National Laboratory

SESSION CHAIR (PM SESSION):

Mostafa Yakout, University of Alberta

09:10 AM **REGULAR** **Spares & Repairs with Metal & Polymer Additive Manufacturing**
[Ryan Hayford](#)¹; ¹Hayford Consulting

09:30 AM **INVITED** **Assessment of Residual Stress Distribution in Additively Manufactured Components using the Modified Inherent Strain Method and X-Ray Diffraction**
[Marjan Molavi-Zarandi](#)¹; Ali Bonakdar¹; Hossein Mohammadtaheri²; Ramin Sedaghati²; ¹University of North Carolina at Charlotte; ²Concordia University

10:00 AM **BREAK**

10:30 AM **INVITED** **Microstructure and Properties of Solid Phase Additive Manufactured Cu-HEA Builds**
[David Garcia](#)¹; Tianhao Wang¹; Subhashish Meher¹; Jorge dos Santos¹; Isabella van Rooyen¹; ¹Pacific 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](#)¹; Nima Shamsaei¹; ¹Auburn University

11:30 AM **INVITED** **Application of Additive Manufacturing for Supply Chain Resilience and Sustainability in Energy, Marine, and Offshore & Gas**
[Pin Lu](#)¹; Alex Michelson¹; Richard Eberheim¹; ¹Solvus 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](#)¹; [Mostafa Yakout](#)¹; ¹University of Alberta

14:00 PM **REGULAR** **Design, Development and Validation of Additively Manufactured Internally Cooled Industrial Gas Turbine Tip Shoe Component**
[Sudhakar Bollapragada](#)¹; Xiaoqiang Zeng¹; Daniel Ryan¹; Thomas Corbett²; Karen Thole²; ¹Solar Turbines; ²Pennsylvania State University

14:20 PM **REGULAR** **New Developments in Wire Arc DED of Copper Nickel**
[Morris Satin](#)¹; Ben Schaeffer¹; ¹Lincoln Electric

14:40 PM **REGULAR** **Is AM Nice or Niche? The Concerning Gap between Value Proposals of Additive Manufacturing of Spare Parts and Prospective Customers' Perceived Benefits**
[Trond Halvorsen](#)¹; ¹SINTEF Digital

15:00 PM **END OF DAY**

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INDUSTRIAL SECTOR

GROUND TRANSPORTATION AND HEAVY MACHINERY

28TH OCT 2024 (MON)

CO-ORGANIZERS:

Ante Lausic

General Motors, USA

Thierry Marchione

Caterpillar, USA

Simon Pun

Divergent, USA

14:30 PM

INVITED

Advancing Automotive Manufacturing with Metal Binder Jet Technology: Case Studies and Insights

[Mattia Forgiarini](#)¹; Cody Cochran¹; Amy Bray-Cotton¹; ¹Azoth

15:00 PM

END OF DAY

28TH OCTOBER 2024

< ROOM 204-205 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Simon Pun, Divergent

Richard Huff, ASTM International

SESSION CHAIR (PM SESSION):

Thierry Marchione, Caterpillar

09:10 AM **Serial Part Production in Automotive -**

REGULAR **Industrialization Requirements**

[Simon Höges](#)¹; ¹GKN Additive

09:30 AM **Adoption Challenges of AM for Heavy**
INVITED **Equipment Industry**

[Thierry Marchione](#)¹; ¹Caterpillar

10:00 AM **BREAK**

10:30 AM **Qualification of Additively Manufactured**
REGULAR **17-4PH Stainless Steel for Ground Vehicle Applications**

[Brandon Saathoff](#)¹; [Rachael Andrulonis](#)¹; Brady Williams¹; Mark Shaw¹; Matthew Lowney²; ¹Wichita State University - National Institute for Aviation Research (WSU - NIAR); ²U.S. Army Combat Capabilities Development Command - Ground Vehicles Systems Center (GVSC)

10:50 AM **Investigation on Composites Use as**
REGULAR **Substitute for Obsolescent Rail Signaling Products**

[Philippe Kuchly](#)¹; [Pascal De Guio](#)¹; ¹SNCF Réseau

11:10 AM **GEFERTEC 3DMP® Technology**
INVITED **Applications in the Heavy Equipment Industry**

[Colin Clark](#)¹; ¹GEFERTEC

11:40 AM **LUNCH**

13:30 PM **Stack Forging: Cost Effectively Making**
INVITED **Complex Aluminum Parts at Scale**

[Kevin Simon](#)¹; Allison Forsyth¹; ¹Alloy Enterprises

14:00 PM **Magnus Metal's Digital Casting Capability**

INVITED [Ardy Johnson](#)¹; ¹Magnus Metal

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INDUSTRIAL SECTOR

MEDICAL

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

CO-ORGANIZERS:

David Dean
Ohio State University, USA

Laura Gilmour
LG Strategies, USA

Guha Manogharan
Pennsylvania State University, USA

Matthew Di Prima
U.S. Food and Drug Administration (FDA), USA

Ryan Kircher
rms Company, USA

Sean McEligot
Mayo Clinic, USA

30TH OCTOBER 2024
< ROOM 304 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Matthew Di Prima, U.S. Food and Drug Administration

SESSION CHAIR (PM SESSION):

David Dean, Ohio State University

08:50 AM
REGULAR ****CANCELLED****
Additive Manufacturing and Lattice Structures Topology Optimization in Spine Surgery for Lumbar Vertebral Prosthesis
[Hacene Ameddah¹](#); ¹University of Batna 2

09:10 AM
REGULAR **Local Modulation of Stiffness in 3D Printed NiTi Skeletal Fixation Devices**
[David Dean¹](#); [Luis Olivas¹](#); [Agnieszka Chmielewska¹](#); [Stephen Niezgoda¹](#); ¹Ohio State University

09:30 AM
INVITED **Evaluating the Effects of Powder Size Distribution on Additively Manufactured Ti6Al4V for Medical Applications**
[Jérôme Pollak¹](#); [Alek Nelson²](#); [Kaoutar Bensaid¹](#); 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
INVITED ****CANCELLED****
PEKK: An Emerging Biomaterial for Fused Filament Fabrication Additive Manufacturing of Orthopaedic and Spine Implants
[Steven Kurtz¹](#); ¹Drexel University

12:00 PM
LUNCH

13:30 PM
INVITED **Bioprinting: Fact or Fiction?**
[Scott Turner¹](#); [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**
[Phillip Nagel¹](#); [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
END OF DAY

31ST OCTOBER 2024
< ROOM 304 (LEVEL 03) >

SESSION CHAIR (AM SESSION):
Ryan Kircher, rms Company

SESSION CHAIR (PM SESSION):
Laura Gilmour, LG Strategies

08:50 AM
REGULAR ****CANCELLED****
4D Manufacturing: New Materials for Islet Tissue Patches in Cell-Based Diabetes Treatments and Regulatory Implications
[Emily Wilts¹](#); ¹Exponent

09:10 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

09:30 AM
INVITED **The Influence of Biomimetic Structures on Compliance of Medical Implants**
[Matthew Shomper¹](#); ¹Not a Robot Engineering

10:00 AM
BREAK

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10:30 AM
INVITED **X-Ray CT-Based Quality Control for Rapid Quantitative Evaluation of Porous Microstructures and Powder Removal in Additively Manufactured Lattice Structures**
[Pradeep Bhattacharya](#)¹; ¹North Star Imaging

11:00 AM
INVITED **Industrial Acoustic NDT - Flaw Detection and Signature Analysis of Medical Devices**
[Daniel Rodríguez Sanmartín](#)¹; Julian Wright¹; James Watts¹; Alex Brennan¹; Ryan Kircher²; Chad Beamer³; ¹Theta Technologies; ²rms Company; ³Quintus Technologies

11:30 AM
INVITED **Static and Fatigue Interplay Analysis In DMLM: Effect Across Platform, Process Setting and Surface Finish**
[Trey Rodgers](#)¹; Ryan Gruell¹; Sony Manandhar¹; ¹Zimmer Biomet

12:00 PM **LUNCH**

13:30 PM
INVITED **Emerging Applications of AM at the Point of Care**
[Megan Loghry](#)¹; Adam Wentworth¹; Victoria Sears¹; ¹Mayo Clinic

14:00 PM
INVITED **From Scan to Surgery: Manufacturing Considerations for 3D Printed Titanium Implants at the Point-of-Care**
[Amy Alexander](#)¹; Robert Highest¹; ¹Mayo Clinic

14:30 PM
INVITED **The Shift from Prototyping to Mass Customization of Bespoke Medical Devices at the Point-of-Care**
[Diana Hall](#)¹; ¹ActivArmor

15:00 PM **BREAK**

15:30 PM
INVITED **Addressing an Unmet Need: Point-of-Care Titanium 3D Printed Implants at Mayo Clinic**
[Allen Rech](#)¹; ¹Mayo Clinic

16:00 PM
INVITED **Material Handling for Quality Control at Point-of-Care Additive Manufacturing Facilities**
[Peter Liacouras](#)¹; Nicole McMinn¹; Alese Devin¹; ¹Walter Reed National Military Medical Center

16:30 PM
INVITED **Ensuring Quality: Point-of-Care Titanium 3D Printing at Mayo Clinic**
[Sean McEligot](#)¹; ¹Mayo Clinic

17:00 PM
REGULAR **Verification and Validation of Additive Manufacturing at the Point-of-Care**
[Nicole McMinn](#)¹; Alese Devin¹; Peter Liacouras¹; ¹Walter Reed National Military Medical Center

17:20 PM **END OF DAY**

01ST NOVEMBER 2024
< ROOM 304 (LEVEL 03) >

SESSION CHAIR (AM SESSION):
Sean McEligot, Mayo Clinic

08:50 AM
REGULAR **Introduction of Monash Centre for Additive Manufacturing and Recent Progress of Metal 3D Printing in Biomedical Field**
[Yang \(Tony\) Tian](#)¹; Tom Jarvis¹; Aijun Huang¹; ¹Monash Centre for Additive Manufacturing (MCAM)

09:10 AM
REGULAR **Effect of Process Parameters on Microstructure and Properties for the Application of 316L Additively Manufactured Medical Device Components**
[Fabienne Riester](#)¹; Frank Balle²; Kamilla König-Urban¹; Hadi Mozaffari Jovein³; Tamo Bausback¹; Wolfgang Karl¹; ¹KARL STORZ; ²University of Freiburg; ³Furtwangen University

09:30 AM
INVITED **Avoiding Alpha Case Formation in Ti6Al4V Hip Cycles**
[Andrew Cassese](#)¹; [Chad Beamer](#)¹; ¹Quintus Technologies

10:00 AM **BREAK**

10:30 AM
INVITED **Infection-Resistant Alloy Design for Load-Bearing Implants using Additive Manufacturing**
[Amit Bandyopadhyay](#)¹; ¹Washington State University

11:00 AM
INVITED **Novel Hybrid Biofabrication: Chaotic Sheet Printing and Out-of-Plane Melt Electrowriting of Microvasculature**
[David Dean](#)¹; Ryan Hooper¹; Javier Vazquez-Armendariz¹; Ciro Rodriguez²; ¹Ohio State University; ²Tecnológico de Monterrey (Tec)

11:30 AM
INVITED **Estimating the Potential Impact of Additive Manufacturing Material Variability on Medical Device Performance**
[Daniel Porter](#)¹; Matthew Di Prima¹; ¹U.S. Food and Drug Administration (FDA)

12:00 PM **END OF DAY**

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INDUSTRIAL SECTOR

SPACE

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

CO-ORGANIZERS:

Tim Berry
JetZero, USA

Andrew Norman
European Space Agency,
The Netherlands

John Vickers
NASA, USA

Christo Dordlofva
GKN Aerospace, Sweden

Rick Russell
The Barnes Global Advisors,
USA

30TH OCTOBER 2024
< ROOM 204-205 (LEVEL 02) >

SESSION CHAIR (PM SESSION):

John Vickers, NASA

14:00 PM
INVITED **Maturation and Hot-Fire Testing of Extreme Environment Additively Manufactured Alloys for Rocket Engine Applications**
[Paul Gradl](#)¹; [Darren Tinker](#)¹; [Timothy Smith](#)²; [Christopher Kantzos](#)²; ¹NASA - Marshall Space Flight Center (MSFC); ²NASA - Glenn Research Center (GRC)

14:30 PM
INVITED **Assessment of On Demand In-Space Metal Additive Manufacturing in a Habitable Environment**
[Aaron McCandless](#)¹; [Lauren Ednie](#)¹; [Martin White](#)¹; [Mahdi Jamshid](#)¹; [Mohsen Seifi](#)¹; ¹ASTM International

15:00 PM **BREAK**

15:30 PM
REGULAR **Tensile Behavior of Additively Manufactured GRX-810 Alloy at Various Temperatures**
[Alireza Jam](#)¹; [Timothy Smith](#)²; [Christopher Kantzos](#)²; [Paul Gradl](#)³; [Shuai Shao](#)¹; [Nima Shamsaei](#)¹; ¹Auburn University; ²NASA - Glenn Research Center (GRC); ³NASA - Marshall Space Flight Center (MSFC)

15:50 PM
REGULAR **Tensile and Fatigue Behaviors of Additively Manufactured Haynes 282: From Cryogenic to Elevated Temperatures**
[Shuai Shao](#)¹; [Nabeel Ahmad](#)¹; [Paul Gradl](#)²; [Nima Shamsaei](#)¹; ¹Auburn University; ²NASA - Marshall Space Flight Center (MSFC)

16:10 PM
REGULAR **Exploring the Impact of Various Surface Treatments on the Fatigue Behavior of Additively Manufactured Haynes 282**
[Erfan Maleki](#)¹; [Nabeel Ahmad](#)¹; [Paul Gradl](#)²; [Shuai Shao](#)¹; [Nima Shamsaei](#)¹; ¹Auburn University - National Center for Additive Manufacturing Excellence (NCAME); ²NASA - Marshall Space Flight Center (MSFC)

16:30 PM **END OF DAY**

31ST OCTOBER 2024

< ROOM 204-205 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Christo Dordlofva, GKN Aerospace

SESSION CHAIR (PM SESSION):

Rick Russell, The Barnes Global Advisors

08:50 AM
REGULAR **Computational Design to Experimental Validation of a Novel AM Steel for Space Application**
[Yu Lin](#)¹; [Amit Behera](#)¹; 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 Tucker](#)¹; [Alexander Oster](#)²; [Markus Bambach](#)¹; ¹ETH Zürich; 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 Hatch](#)¹; [Shahrooz Nafisi](#)¹; [Myles Keefer](#)¹; [Guha Manogharan](#)²; [Jacklyn Griffis](#)²; ¹Rocket Lab; ²Pennsylvania State University

10:00 AM **BREAK**

10:30 AM
INVITED **COSM Electron Beam Metal Lithography (EBML), A Paradigm Shift in Performance, Versatility, and In-Situ Inspection for Large Metal Fabrication**
[Kate Nabours](#)¹; [Richard Comunale](#)²; [John Ivory](#)²; [Brian Bassett](#)²; [Ray Hill](#)²; [Tom Greene](#)²; [Jason Albright](#)²; ¹Northrop Grumman; ²COSM Advanced Manufacturing Systems

11:00 AM
INVITED **America Makes AM for Space Propulsion Roadmap**
[Brandon Ribic](#)^{1,2}; ¹National Center for Defense Manufacturing and Machining (NCDMM); ²America Makes

11:30 AM
INVITED **NASA Spaceflight Certification of Additive Manufacturing of Nb C103 Refractory for Mission Critical Space Propulsion Systems**
[Youping Gao](#)¹; [Ryan Fahsbender](#)²; ¹Casttheon; ²Sierra Space

12:00 PM **LUNCH**

13:30 PM
INVITED **Multifunctional Additively Manufactured Lattice Structure Designs for Thermal and Mechanical Enhancement of Liquid Rocket Engine Injector Face Plates**
[Maximilian Strixner](#)¹; ¹The Exploration Company

14:00 PM
INVITED **Design, Print, Test, Iterate. Transitioning from Development to Flight Aerospace Hardware with AM**
[Thomas Pomorski](#)¹; ¹Ursa Major

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14:30 PM
INVITED **15 Years of Additive Manufacturing Space Propulsion at Aerojet Rocketdyne, Trials of Implementation for Flight Worthiness**
[Alan Fung](#)¹; Daniel Matejczyk¹; Bryan Webb¹;
¹Aerojet Rocketdyne

15:00 PM **BREAK**

15:30 PM
REGULAR **Profilometry-Based Indentation Plastometry (PIP) for Space Applications**
[Thomas Southern](#)¹; Jimmy Campbell¹;
¹Plastometrex

15:50 PM
REGULAR **Niobium Alloy C-103 for High-Performance Space Applications - First Results with using Cold Spray Additive Manufacturing - CSAM**
[Markus Brotsack](#)¹; Ján Kondás¹; Reeti Singh¹;
¹Impact Innovations

16:10 PM
REGULAR **Material Selection and Process Development for Additive Manufactured Space Optical Instruments**
[Walter Zimbeck](#)¹; Zach Post¹; Bill Swartz¹; Benjamin Stewart¹; Floris van Kempen²; Gerard Otter²; Steven Storck¹; ¹Johns Hopkins University - Applied Physics Laboratory (JHU - APL); ²Netherlands Organization for Applied Scientific Research (TNO)

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](#)¹; Andrew Glendening¹; ¹NASA

16:50 PM **END OF DAY**

01ST NOVEMBER 2024

< ROOM 204-205 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Rick Russell, The Barnes Global Advisors

08:50 AM
REGULAR **Development of 3D Printed RF Filters for Space Applications**
[Sunil Acharya](#)¹; Robert Smith²; Christopher Robinson¹; ¹Ansys; ²Optisys

09:10 AM
REGULAR **Process Planning for Large-Scale Wire Arc Additive Manufacturing and its Application on the Deposition of a Scaled Propellant Tank**
[Sakufu Ko](#)¹; Shigeru Aoki¹; Keita Terashima²;
¹Shimizu Corporation - Institute of Technology;
²Japan Aerospace Exploration Agency (JAXA)

09:30 AM
INVITED **Breaking Boundaries: Intelligent Testing for Space Giants - Advancing AM Beyond Specs**
[Humna Khan](#)¹; ¹ASTRO Mechanical Testing Laboratory

10:00 AM **END OF DAY**

Note: This agenda features a list of the accepted presentations for ICAM 2024 and their **final** allocated timeslots. The program line-up for each symposium is as per the order reflected (subjected to no-shows and/or last-minute withdrawals). Do contact us at icam@astm.org if you need more information.

ICAM 2024 FINAL PROGRAM AGENDA

Updated as of 04th November 2024

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VALUE CHAIN

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

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

CO-ORGANIZERS:

Thomas Broderick
Federal Aviation Administration
(FAA), USA

Nik Hrabe
NIST, USA

Christopher Ledford
Oak Ridge National Laboratory
(ORNL), USA

Cory Cunningham
Boeing, USA

Tim Lantzsch
Fraunhofer ILT,
Germany

Elena López
Fraunhofer IWS,
Germany

28TH OCTOBER 2024

< ROOM 208-209 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Christopher Ledford, Oak Ridge National Laboratory

SESSION CHAIR (PM SESSION):

Nik Hrabe, NIST

08:50 AM
REGULAR **Siemens Energy Part Qualification Process**
Tad Steinberg¹; ¹Siemens Energy

09:10 AM
REGULAR **Boeing Baseline Delta Qualification Program**
Mohammadreza Nematollahi¹; Paul Wilson¹;
¹Boeing Research & Technology

09:30 AM
INVITED **Parameter, Post-Processing Sensitivities, and Qualification Approach of Laser Powder Bed Fusion Hydrogen Resistant Alloy NASA HR-1**
Colton Katsarelis¹; Poshou Chen²; William Medders¹; Rachel Bardsley¹; Brady Kimbrel¹; Paul Gradl¹; ¹NASA - Marshall Space Flight Center (MSFC); ²Jacobs

10:00 AM **BREAK**

10:30 AM
INVITED **Use of Traditional Qualification Methods and Results, of Certified Wire-DED AM Material, to Enable Rapid Qualification of Same, Similar, and Like Part and Geometric Families**
Philip Riegler¹; ¹Norsk Titanium

11:00 AM
INVITED **Qualifying Water Cavitation Abrasive Surface Finishing for Postprocessing of Components Produced by Powder Bed Fusion**
Dwayne Arola¹; **Dan Sanders¹**; **Mamidala Ramulu¹**; Rohin Petram¹; Conall Wisdom¹; Alex Montelione¹; Cole Nouwens¹; Angelina Martinez¹; Marquiz Silvestre¹; ¹University of Washington

11:30 AM
REGULAR **New Levels of Process Robustness for Repeatability and Part Qualification in L-PBF**
Corey Wardrop¹; Lennart Tasche¹; ¹DMG MORI Additive Solutions

11:50 AM
REGULAR **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 Deshmukj¹; Yuri Plotnikov²; Kyle Snyder²; John Sions²; ¹Virginia Tech; ²Commonwealth Center for Advanced Manufacturing (CCAM)

12:10 PM **LUNCH**

13:30 PM
INVITED **No Lack of Data: Handling Large L-PBF Monitoring Data Sets for Qualification**
Philip Sperling¹; ¹Interspectral

14:00 PM
INVITED **Qualification Methods and Post-Processing for High-Aspect-Ratio Extra Fine Feature LPBF Parts**
Jason Jyi Sheuan Ten¹; Junwei Tan¹; Hang Li Seet¹; Mui Ling Sharon Nai¹; ¹A*STAR - Singapore Institute of Manufacturing Technology (SIMTech)

14:30 PM
INVITED **~~**CANCELLED**~~ Qualifying Machine Learning Models for Use in Data-Driven Manufacturing Qualifications**
Aaron Stebner¹; ¹Georgia Institute of Technology

15:00 PM **BREAK**

15:30 PM
INVITED **Qualification of New Materials and Processes for Additive Manufacturing**
Jeremy Iten¹; Chloe Johnson¹; ¹Elementum 3D

16:00 PM
INVITED **Development - Certification - Postprocessing: An Innovation View of Advanced Additive Manufacturing Methods**
Markus Langer¹; ¹toolcraft

16:30 PM
REGULAR **The Goal Oriented Qualification of AM Parts & Processes**
Gregor Reischle¹; ¹Qualified AM GmbH

16:50 PM
REGULAR **Accelerating AM Standards Development with Partnerships and Roadmaps**
Christine Bernat¹; John Martin¹; ¹ANSI; ²America Makes

17:10 PM **END OF DAY**

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29TH OCTOBER 2024

< ROOM 208-209 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Elena López, Fraunhofer IWS

08:50 AM
REGULAR **Leveraging HIP as a Productivity Tool for AM Metallic Components**
James Shipley¹; Chad Beamer¹; Andrew Cassese¹; Ryan Fishel²; ¹Quintus Technologies; ²3D Systems

09:10 AM
REGULAR **Beyond the Printer: How Tailored Metal Powder and Modern HIP Technology are Expanding the Use Case for AM C18150 (CuCrZr)**
Chad Beamer¹; Eleonora Bettini²; Andrew Cassese¹; ¹Quintus Technologies; ²Sandvik Additive Manufacturing

09:30 AM
INVITED **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**
Francisco Medina¹; Diego Ariza^{1,2}; Kurtis Watanabe^{1,2}; ¹University of Texas at El Paso; ²W.M Keck Center for 3D Innovation

10:00 AM **BREAK**

10:30 AM
INVITED **Latest Developments in HIP and High-Pressure Heat Treatment for Additive Manufacturing**
Chad Beamer¹; Andrew Cassese¹; ¹Quintus Technologies

11:00 AM
REGULAR **Advanced HIP Solutions - Expanding Possibilities for AM Applications**
Oscar Martinez¹; ¹Bodycote

11:20 AM
REGULAR **High Throughput Screening Methods in Alloy and Process Development of AM Aluminum**
Andrew Wessman¹; Marcus Lam¹; Carla Colon¹; ¹University of Arizona

11:40 AM
REGULAR **Maximizing Machining Processes Efficiency of Ni Superalloys with Ceramic Cutting Tools**
Tiago Silva¹; Vitor Sousa¹; Abílio Jesus²; Daniel Figueiredo³; Ana Reis²; ¹INEGI – Institute of Science and Innovation in Mechanical and Industrial Engineering; ²University of Porto; ³Palbit

12:00 PM **END OF DAY**

30TH OCTOBER 2024

< ROOM 208-209 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Christopher Ledford, Oak Ridge National Laboratory

SESSION CHAIR (PM SESSION):

Nik Hrabe, NIST

09:10 AM
REGULAR **Cavitation Water Jet Peening (CWJP) for Cleaning Debris & Powder, Blowing Away Support Structure and Fatigue Life Improvement of AM Ti Parts**
Daniel Sanders¹; ¹Sugino Machine

09:30 AM
INVITED **Support Structure Removal via Chemically Assisted Post-Processing and Associated Fatigue Performance of Powder Bed Fusion Components**
Justin Michaud¹; Agustin Diaz¹; Patrick McFadden¹; ¹REM Surface Engineering

10:00 AM **BREAK**

10:30 AM
INVITED **Chemical and Chemical-Mechanical Polishing, Coating, and Testing of Additive Manufactured C103, Mo, and W**
Brandon Colón¹; Fernando Reyes Tirado²; Agustin Diaz³; Joshua Boykin³; Patrick McFadden³; ¹University of Puerto Rico at Mayagüez; ²NASA - Marshall Space Flight Center (MSFC); ³REM Surface Engineering

11:00 AM
INVITED **Selection of Finishing Processes for Enhanced Surface Quality of Metal Additive Manufactured Components: A Comprehensive Analysis**
Jose Outeiro¹; Ahmed Razin¹; ¹University of North Carolina at Charlotte

11:30 AM
INVITED **Melt Pool and Microstructure Manipulation with the Aid of Ultrasound-Assisted Energy Coupling in Laser-Based DED**
Frank Brückner¹; Jacob-Florian Mätje¹; Conrad Samuel¹; Leonie Gerd¹; Jörg Kaspar¹; Mirko Riede¹; Elena López¹; Christoph Leyens¹; ¹Fraunhofer Institute for Material and Beam Technology IWS

12:00 PM **LUNCH**

13:30 PM
INVITED **Additive Manufacturing Certification Program to Address Industry Needs**
Scott Klavon¹; ¹ASTM International

14:00 PM
REGULAR **Applying Profilometry-Based Indentation Plastometry (PIP) for the Generation of DED-Arc Material Allowables**
Marcus Ng¹; Harry Thompson¹; Jimmy Campbell²; Thomas Southern²; ¹DEEP; ²Plastometrex

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14:20 PM
REGULAR **High-Throughput Creep Testing for Accelerated Process Development and Optimization**
[Austin Whitt](#)¹; Christopher Kantzos¹; Timothy Smith¹; ¹NASA - Glenn Research Center (GRC)

14:40 PM
REGULAR **Hybrid Manufacturing through PBF-LB/M 3D Micro Scarf Adhesive Joints Made of AISi10Mg and Ti64**
[Michael Ascher](#)¹; Ralf Späth¹; ¹University of the Bundeswehr Munich

15:00 PM **BREAK**

15:30 PM
INVITED **Beyond Structure - Enabling 21st Century Products through the 3D Deposition of Functional Materials**
[Geoffrey Rivers](#)¹; Richard Hague¹; ¹University of Nottingham

16:00 PM
INVITED **Applying ICME to AM with Integrated Modeling and Simulation**
[Tanner Kirk](#)¹; Jiadong Gong¹; ¹QuesTek Innovations

16:30 PM
REGULAR **Rapid AM Parameter Set Development and Alloy Optimization using ICMD® Materials Design Software**
[Gary Whelan](#)¹; Kerem Taskin¹; ¹QuesTek Innovations

16:50 PM
REGULAR **~~**CANCELLED**~~
Sustainable Grinding Approach Towards Enhanced Properties of Additively Manufactured SS316L Stainless Steel Components**
[Varun Sharma](#)¹; Aswani Kumar Singh¹; R Durga Prasad Reddy¹; ¹Indian Institute of Technology Roorkee

17:10 PM **END OF DAY**

31ST OCTOBER 2024

< ROOM 208-209 (LEVEL 02) >

SESSION CHAIR (AM SESSION):
Thomas Broderick, Federal Aviation Administration

SESSION CHAIR (PM SESSION):
Elena López, Fraunhofer IWS

08:50 AM
REGULAR **Development of Magnesium Additive Manufacturing for Aerospace Applications**
[Marc de Smit](#)¹; Maria Montero-Sistiaga¹; Tim Koenis¹; ¹Royal NLR - Netherlands Aerospace Centre

09:10 AM
REGULAR **GRX-810: A 3D Printable Alloy Designed for Extreme Environments**
[Austin Whitt](#)¹; Timothy Smith¹; Christopher Kantzos¹; Paul Gradl²; Milan Heczko³; Aaron Thompson¹; Timothy Gabb¹; Michael Mills³; ¹NASA - Glenn Research Center (GRC); ²NASA - Marshall Space Flight Center (MSFC); ³Ohio State University

09:30 AM
INVITED **Alleviating Critical Mineral Supply Chain Challenges via Additive Manufacturing of Cobalt-Free Maraging Steels**
[Alec Saville](#)¹; Jake Benzing¹; Cassidy Allen²; Joseph Aroh¹; Fan Zhang¹; Nicholas Derimow¹; Kil-Won Moon¹; Jason Holm¹; Nik Hrabe¹; Jordan Weaver¹; Tilman Seifert³; Michael Hirtler³; ¹NIST; ²University of Colorado Boulder; ³voestalpine BÖHLER Edelstahl

10:00 AM **BREAK**

10:30 AM
INVITED **Mitigation Strategies for Process Escapes in Additive Manufacturing**
[Alberto Bordin](#)¹; Martin White¹; Aaron McCandless¹; Mohsen Seifi¹; ¹ASTM International

11:00 AM
INVITED **Approaches to Accelerate Adoption of Aluminum Laser Powder Bed Fusion Components Through a Better Alloy Solution - Constellium Ahead**
[Ravi Shahani](#)¹; ¹Constellium

11:30 AM
REGULAR **Understanding Challenges in Utilising Multiple and Novel Laser in PBF-LB for Production**
[Alex Hardaker](#)¹; ¹The Manufacturing Technology Centre (MTC)

11:50 AM
REGULAR **~~**CANCELLED**~~
Magnetorheological Finishing of Additively Manufactured Co-Cr Alloy for Biomedical Applications**
[Varun Sharma](#)¹; Kunal Arora¹; Saurabh Singh Rathore¹; ¹Indian Institute of Technology Roorkee

12:10 PM **LUNCH**

13:30 PM
INVITED **The Physical Metallurgy of Titanium Through an Additive Manufacturing Lens**
[Nicholas Derimow](#)¹; Jake Benzing¹; Alec Saville¹; Nik Hrabe¹; ¹NIST

14:00 PM
REGULAR **The Use of Chemical Additives in a Green Electrolyte for the Post Processing of AM Metals**
[Mary Louise Gucik](#)¹; ¹Sandia National Laboratories

14:20 PM
REGULAR **Chemically-Assisted Powder Declogging of Metal AM Microchannels**
[Joshua Boykin](#)¹; Agustin Diaz¹; Justin Michaud¹; Patrick McFadden¹; ¹REM Surface Engineering

14:40 PM
REGULAR **Assessing the Impact of Simultaneous Powder Recoating and Laser Scanning on Metallurgical Properties of LPBF Samples and In-Situ Measurement of Process Spectral Emissions**
[Kevin Brigden](#)¹; ¹Renishaw

15:00 PM **BREAK**

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ICAM 2024 FINAL PROGRAM AGENDA

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- 15:30 PM INVITED** **Spatiotemporal Laser Beam Modification for Improved Process Control in Laser Powder Bed Fusion**
[Thejaswi Tumkur¹](#); ¹Lawrence Livermore National Laboratory (LLNL)
- 16:00 PM INVITED** **Characterization of Gas Flow Patterns in the EOS M290**
[Troy Haworth¹](#); [Aaron Abeyta²](#); Dwayne Arola²; Ashley Jones¹; ¹Boeing; ²University of Washington
- 16:30 PM REGULAR** **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**
[Siegfried Bähr¹](#); ¹Technical University of Munich - Institute for Machine Tools and Industrial Management (iwb)
- 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

< ROOM 208-209 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Thomas Broderick, Federal Aviation Administration

- 08:50 AM REGULAR** **Cold Spray Additive Manufacturing as a Novel Manufacturing Process**
[Steven Camilleri^{1,2}](#); [Krishnan Kannoorpatti²](#); ¹SPEE3D; ²Charles Darwin University
- 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** **Neutron Phase and Internal Stresses Characterization in Metal Additive Manufacturing: From 3D Mapping to Real-Time Evolution**
[Sandra Cabeza Sanchez¹](#); ¹Institut Laue-Langevin (ILL)
- 10:00 AM** **BREAK**
- 10:30 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

- 11:00 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
- 11:30 AM** **END OF DAY**

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VALUE CHAIN

DESIGN

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

CO-ORGANIZERS:

Dhruv Bhate
Arizona State University,
USA

David Rosen
A*STAR-IHPC / SIMTech,
Singapore

Timothy Simpson
Pennsylvania State
University, USA

Andrew Thompson
Northrop Grumman, USA

29TH OCTOBER 2024
< ROOM 204-205 (LEVEL 02) >

SESSION CHAIR (AM SESSION):
Dhruv Bhate, Arizona State University

SESSION CHAIR (PM SESSION):
Andrew Thompson, Northrop Grumman

09:00 AM
INVITED **Meso-Structural Design Elements in the Bee's Honeycomb: Implications for Bio-Inspired Design for Additive Manufacturing**
[Dhruv Bhate](#)¹; [Jacqueline Lehner](#)¹; [Cahit Ozturk](#)¹; [Clint Penick](#)²; [Nikhilesh Chawla](#)³;
¹Arizona State University; ²Auburn University; ³Purdue University

09:30 AM
INVITED **Machine Learning Aided Designs for Additive Manufacturing**
[Ajit Panesar](#)¹; ¹Imperial College London

10:00 AM
BREAK

10:30 AM
INVITED **Design for 4D Printing**
[David Rosen](#)¹; ¹A*STAR - IHPC / SIMTech

11:00 AM
INVITED **Machine Learning Based Design for Multimaterial 4D Printing**
[H. Jerry Qi](#)¹; ¹Georgia Institute of Technology

11:30 AM
INVITED **Physics-Driven Generative Design to Fully Exploit the Benefits of Additive Manufacturing**
[Thomas Rees](#)¹; [Takafumi Sasaki](#)²; [Marco Pietropaoli](#)¹; [Enrico Gallino](#)²; ¹ToffeeX; ²Ricoh 3D

12:00 PM
LUNCH

13:30 PM
INVITED **The Next Stage of Design for Additive Manufacturing - Supporting Multifunctional Design**
[Yaoyao Fiona Zhao](#)¹; ¹McGill University

14:00 PM
INVITED **Geometric Datasets for Additive Manufacturing**
[Elissa Ross](#)¹; ¹Metafold 3D

14:30 PM
INVITED **Revolutionizing Mechanical Design: Bridging the Gap between Traditional CAD/CAE and AM**
[Todd McDevitt](#)¹; ¹nTopology

15:00 PM
END OF DAY

30TH OCTOBER 2024
< ROOM 204-205 (LEVEL 02) >

SESSION CHAIR (AM SESSION):
David Rosen, A*STAR - IHPC / SIMTech

08:50 AM
REGULAR **Redesign of a Brake Support for Additive Manufacturing: An Industrial Case Study on the Digital Supply Chain**
[Michael Tucker](#)¹; [Gautier de Montmarin](#)²; [Olivier Chandran](#)²; [Markus Bambach](#)¹; ¹ETH Zürich; ²BOBST

09:10 AM
REGULAR **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](#)¹; [Daniel Ryan](#)¹; [Bryan Quay](#)¹; [Brandon Killian](#)¹; ¹Solar Turbines

09:30 AM
INVITED **Use of AM in Patient Specific Orthopedic Device Design**
[Nathan Evans](#)¹; ¹restor3d

10:00 AM
BREAK

10:30 AM
INVITED **Orthopedic Implant Design - Clinical Requirements to Final Device**
[Jesse Unger](#)¹; ¹Alphatec Spine (ATEC)

11:00 AM
REGULAR **Challenges and Opportunities in Designing Stimulus-Responsive Architected Materials with High Work Capacity**
[Saketh Dasika](#)¹; [Pablo Zavattieri](#)¹; ¹Purdue University

11:20 AM
END OF DAY

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VALUE CHAIN

DIRECTED ENERGY DEPOSITION

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

CO-ORGANIZERS:

Frank Brückner
Fraunhofer IWS, Germany

Carl Hauser
Wohlers Associates,
United Kingdom

Misael Pimentel
National Manufacturing
Institute Scotland (NMIS),
United Kingdom

Paul Gradl
NASA - Marshall Space Flight
Center (MSFC), USA

Filomeno Martina
WAAM3D, United Kingdom

Baily Thomas
Boeing, USA

29TH OCTOBER 2024

< ROOM 208-209 (LEVEL 02) >

SESSION CHAIR (PM SESSION):

Paul Gradl, NASA - Marshall Space Flight Center

13:30 PM
INVITED

****CANCELLED****

Printing of High Temperature Nickel Alloys via the L-PBF & L-DED Processes
[Conner Cleek](#)¹; [Baily Thomas](#)¹; [Jim Dobbs](#)²; [Daniel Driemeyer](#)¹; [Ali Yousefiani](#)¹; [Dana Smith](#)¹; ¹Boeing

14:00 PM
REGULAR

Characterization of Inconel 718 and Inconel 625 Cladding using Laser Powder Directed Energy Deposition
[Francisco Medina](#)¹; [Diego Ariza](#)^{1, 2}; [Kurtis Watanabe](#)^{1, 2}; ¹University of Texas at El Paso; ²W.M Keck Center for 3D Innovation

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](#)¹; [Angela Veiga](#)¹; [Nerea Burgos](#)¹; [Mustafa Megahed](#)²; [Giselle Ramirez](#)³; [Nuria Cuadrado](#)⁴; ¹Ceit Research Center; ²ESI Group; ³Universitat Politècnica de Catalunya · BarcelonaTech (UPC); ⁴Eurecat

14:40 PM
REGULAR

High-Temperature Mechanical Properties in Nickel-Based Alloy 718 Deposits Made Through Wire-Arc DED Process
[Yukinori Yamamoto](#)¹; [Andres Marquez Rossy](#)¹; [Andrzej Nycz](#)¹; [Luke Meyer](#)¹; [Riley Wallace](#)¹; [William Carter](#)¹; [Ben Schaeffer](#)²; [Badri Narayanan](#)²; ¹Oak Ridge National Laboratory (ORNL); ²Lincoln Electric

15:00 PM
BREAK

15:30 PM
INVITED

Allowables Generation for Ti-6Al-4V via the L-DED Process
[Baily Thomas](#)¹; [Jim Dobbs](#)¹; [Andrew Steevens](#)¹; [Zachary Whitman](#)¹; [Conner Cleek](#)¹; [Dana Smith](#)¹; ¹Boeing

16:00 PM
REGULAR

Compositional Design of Ferritic P91 and Austenitic 347H Graded Joints Manufactured with Directed Energy Deposition
[Selda Nayir](#)¹; [Rangasayee Kannan](#)¹; [Sebastien Dryepondt](#)¹; [Peeyush Nandwana](#)¹; ¹Oak Ridge National Laboratory (ORNL)

16:20 PM
REGULAR

Finite Element Analysis of Direct Energy Deposition Repair on Impeller Part: Thermal and Mechanical Predictions
[Jos Vroon](#)¹; ¹Royal NLR - Netherlands Aerospace Centre

16:40 PM
END OF DAY

30TH OCTOBER 2024

< ROOM 206-207 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Frank Brückner, Fraunhofer IWS

SESSION CHAIR (PM SESSION):

Josh Barras, TWI

08:50 AM
REGULAR

Cold Metal Transfer (CMT) Wire-Arc Additive Manufacturing (WAAM) within a High Vacuum Environment
[Ilana Lu](#)¹; [Craig Habeck](#)²; [Michael Terry](#)¹; [Jonathan Bonebrake](#)¹; ¹NASA - Marshall Space Flight Center (MSFC); ²NASA - Jacobs Space Exploration Group (JSEG)

09:10 AM
REGULAR

Laser-Blown Powder DED of Large Aluminum Parts for Space Industry Applications
[Bhaskar Dutta](#)¹; [William Evans](#)²; [Jeff Robertson](#)³; ¹DM3D Technology; ²NASA - Marshall Space Flight Center (MSFC); ³Hexagon Manufacturing Intelligence

09:30 AM
INVITED

DED-Arc Manufactured Pressure Vessels for Subsea Applications: Pathways to Certification and Safety for Human Occupancy
[Harry Thompson](#)¹; [Tom Allison](#)¹; ¹DEEP

10:00 AM
BREAK

11:00 AM
****No Program****
Panel 05 (Large Format AM) at Level 02 - Salon Ballroom

12:00 PM
LUNCH

13:30 PM
INVITED

A Process, System, and Component Independent Qualification Approach for DED AM
[Stewart Williams](#)^{1, 2}; [Filomeno Martina](#)¹; [Jialuo Ding](#)¹; ¹WAAM3D; ²Cranfield University

14:00 PM
REGULAR

Leveraging Big Data for Closed Loop Control in DED
[Zachary Gray](#)¹; ¹Siemens

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ICAM 2024 FINAL PROGRAM AGENDA

Updated as of 04th November 2024

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- 14:20 PM**
REGULAR **Enhancing Performance with Directed Energy Deposition (DED)**
[Melanie Lang](#)¹; ¹FormAlloy
- 14:40 PM**
REGULAR **Is Laser DED a Better Alternative to Arc Welding Repair of Rails and Turnouts in the Railway Sector?**
[Angela Veiga](#)¹; Maria Florencia Schiopetto¹; Sergio Ausejo¹; Josu Lopez¹; Iñigo Perez¹; Itziar Ruiz¹; Borja Rodriguez¹; ¹Ceit Research Center
- 15:00 PM** **BREAK**
- 15:30 PM**
INVITED **Applying Profilometry-Based Indentation Plastometry (PIP) for Acceleration of DED-Arc Optimisation**
[Marcus Ng](#)¹; Harry Thompson¹; Baikhati Elok Satiti²; Wei Ya³; Aditya Rajesh³; Marcel Hermans²; ¹DEEP; ²Delft University of Technology; ³RAMLAB
- 16:00 PM**
INVITED **Deploying DED-Arc for the Production of Large-Scale Ship Components**
[Chris Dunn](#)¹; [Misaël Pimentel](#)²; ¹Malin Group; ²National Manufacturing Institute Scotland (NMIS)
- 16:30 PM**
INVITED **Advancements in Additive Manufacturing: Exploring the Potential of 3D Dynamic Material Deposition in Aerospace and Rocket Propulsion Applications**
[Simone Maffia](#)¹; Tobias Stittgen¹; ¹Ponticon
- 17:00 PM** **END OF DAY**

31ST OCTOBER 2024

< ROOM 206-207 (LEVEL 02) >

SESSION CHAIR (AM SESSION):
Stewart Williams, Cranfield University

SESSION CHAIR (PM SESSION):
Misaël Pimentel, National Manufacturing Institute Scotland

- 08:50 AM**
REGULAR **Optimizing Metal DED for Larger Areas with Improved Physics & Economics**
[Jason Jones](#)¹; ¹Hybrid Manufacturing Technologies
- 09:10 AM**
REGULAR **On the Repair of Steel Parts with a Robotized Directed Energy Deposition System for the Nuclear Industry**
[Cédric Georges](#)¹; Norberto Jimenez¹; Yves Derrienic²; Rami El Dakdouki²; Xavier Pitoiset²; ¹CRM Group; ²Westinghouse Electric Company
- 09:30 AM**
INVITED **Automation of Directed Energy Deposition as Repair Technology - A Case Study on the Repair of High Strength Aluminum Alloys**
[Cory Jamieson](#)¹; Jayme Keist¹; Amarendra (A.K.) Rai²; Douglas Wolfe¹; ¹Pennsylvania State University - Applied Research Laboratory (PSU - ARL); ²UES

- 10:00 AM** **BREAK**
- 10:30 AM**
INVITED **Machine Learning Enhanced Development of Functionally Graded Materials Enabled by Directed Energy Deposition**
[Alexander Kitt](#)¹; Cameron Carter¹; Luke Mohr¹; Chen Shen²; Shenyang Huang²; Lang Yuan³; ¹EWI; ²GE Aerospace Research; ³University of South Carolina
- 11:00 AM**
INVITED **Encoding Value into Wire Plus Arc Additive Manufacture through In-Process Non-Destructive Testing**
[Gareth Pierce](#)¹; [Misaël Pimentel](#)²; Charles MacLeod¹; Theodosia Stratoudaki¹; Ehsan Mohseni¹; Randika Vithanage¹; Yashar Javadi¹; Stephen Fitzpatrick²; Anthony Gachagan¹; ¹University of Strathclyde; ²National Manufacturing Institute Scotland (NMIS)
- 11:30 AM**
INVITED **Tensile and Fatigue Characterization of Ti6Al4V Manufactured by DED-LB/M and Influence of Sample-Substrate Interface and Surface Roughness on Fatigue Strength**
[Elena López](#)¹; Francesco Bruzzo¹; Anne-Katrin Leopold¹; Mirko Riede¹; Marko Baertl²; Bjoern Hinze²; Frank Brückner¹; ¹Fraunhofer Institute for Material and Beam Technology IWS; ²Rolls-Royce
- 12:00 PM** **LUNCH**
- 13:30 PM**
INVITED **Innovative Metal Feeding Approaches for Laser Additive Manufacturing**
[Alexander Kaplan](#)¹; ¹Luleå University of Technology
- 14:00 PM**
REGULAR **Bringing Powder into Focus**
[Josh Barras](#)¹; Jhonattan Gutjahr¹; ¹TWI
- 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](#)¹; [Alexandre Cachinhasky](#)¹; [Mikhail Anisimov](#)¹; Jan Siwak¹; ¹Baker Hughes
- 14:40 PM**
REGULAR **Study of Salt Bath Nitrocarburizing of Wire Arc Directly Deposited Grade 630 Martensitic Stainless Steel**
[Wei Tang](#)¹; Yukinori Yamamoto¹; Andrzej Nycz¹; Peeyush Nandwana¹; Derek Vaughan¹; Luke Meyer¹; Chris Masuo¹; Michael Resnick²; Courtney Pape²; ¹Oak Ridge National Laboratory (ORNL); ²HEF
- 15:00 PM** **BREAK**

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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](#)¹; [Eric Brizes](#)²; 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](#)¹; [Talha Cakmak](#)¹; [Florian
Pixner](#)²; [Christian Forstner](#)³; 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](#)¹; [Anthony Reynolds](#)²; [Poshou Chen](#)³;
[Patrick Salvail](#)^{3, 4}; [Paul Northrop](#)⁵; [Matt
Medders](#)¹; ¹NASA - Marshall Space Flight
Center (MSFC); ²University of South Carolina;
³NASA - Jacobs Space Exploration Group
(JSEG); ⁴Bevilacqua Research Corporation;
⁵CFD Research Corporation

16:40 PM
REGULAR **DED Procedure Qualification: Approaches
and Codes**
[Edward Peterson](#)¹; ¹Laser Welding Solutions

17:00 PM **END OF DAY**

01ST NOVEMBER 2024

< ROOM 206-207 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Carl Hauser, Wohlers Associates

08:50 AM
REGULAR **Innovative DED-LB System for the
Development of Customized Metallic Alloys
and Thermoplastics**
[Stefan Böhm](#)¹; [Florian Stredak](#)¹; [Niklas
Sommer](#)¹; [Andre Bauer](#)¹; [Malte Vollmer](#)¹;
[Alexander Liehr](#)¹; [Thomas Niendorf](#)¹;
¹University Kassel

09:10 AM
REGULAR **EHLA - A High Speed Revolution**
[Josh Barras](#)¹; ¹TWI

09:30 AM
REGULAR **Effects of In-Situ Monitoring Feedback and
Controls for DED Part Performance**
[Tyson Gregory](#)¹; ¹Nidec Machine Tool
America

09:50 AM **END OF DAY**

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VALUE CHAIN

ENVIRONMENTAL AND CORROSION

31ST OCT 2024 (THU)

CO-ORGANIZERS:

Jiadong Gong

QuesTek Innovations, USA

Michael Melia

Sandia National Laboratories, USA

Nicole Tailleart

U.S. Naval Research Laboratory (NRL), USA

Rajeev Gupta

North Carolina State University, USA

Matt Sanders

Stress Engineering Services, USA

31ST OCTOBER 2024
< ROOM 305 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Matt Sanders, Stress Engineering Services
Nicole Tailleart, U.S. Naval Research Laboratory

SESSION CHAIR (PM SESSION):

Michael Melia, Sandia National Laboratories

09:00 AM INVITED	Exploiting Corrosion Phenomena to Simplify the Post-Processing of Powder Bed Fusion Printed Metal Components Owen Hildreth ¹ ; ¹ Colorado School of Mines
09:30 AM INVITED	Critical Pitting Temperature Comparison of Additively Manufactured (AM) and Wrought 316L Stainless Steel in Marine Service Suresh Divi ¹ ; ¹ Stress Engineering Services
10:00 AM	BREAK
10:30 AM INVITED	Advanced Characterization of Microstructural Defects in Additively Manufactured Metals and Implications on Performance David Sprouster ¹ ; ¹ Stony Brook University
11:00 AM INVITED	Rapid Screening of Additively Manufactured Metals for Marine Service Environments Raymond Santucci ¹ ; Christine Sanders ¹ ; Nicole Tailleart ¹ ; Sheri Stanke ² ; ¹ U.S. Naval Research Laboratory (NRL); ² Excet
11:30 AM INVITED	Composition and Microstructure Impact on Active and Transpassive Corrosion of Additively Manufactured 316L Robert Kelly ¹ ; Timothy Montoya ¹ ; Duane Macatangay ¹ ; ¹ University of Virginia
12:00 PM	LUNCH

13:30 PM INVITED	A Multi-Modal Approach to Understanding Crevice Corrosion of AM316 Carlos Hangarter ¹ ; Dillon Watring ² ; Scott Olig ¹ ; Patrick Callahan ¹ ; Andrew Geltmacher ¹ ; Nicole Tailleart ¹ ; ¹ U.S. Naval Research Laboratory's (NRL); ² National Science Foundation
14:00 PM INVITED	Employing Machine Learning to Accelerate High Temperature Corrosion-Resistant Materials Design Yu Lin ¹ ; Noriaki Arai ¹ ; Zhi Liang ¹ ; Thomas Kozmel ¹ ; Jiadong Gong ¹ ; David Poerschke ² ; ¹ QuesTek Innovations; ² University of Minnesota
14:30 PM INVITED	Relating Microstructure to Environmental Degradation in Al-Mg Alloys Josh Kacher ¹ ; ¹ Georgia Institute of Technology
15:00 PM	BREAK
15:30 PM INVITED	Corrosion Behavior of Additively Manufactured Refractory-Based Alloys Michael Melia ¹ ; Mary Louise Gucik ¹ ; Kasandra Escarcega ¹ ; Andrew Kustas ¹ ; Erin Barrick ¹ ; Tyler LeBrun ¹ ; ¹ Sandia National Laboratories
16:00 PM INVITED	Correlating Corrosion Behavior with Process Parameters through Advanced Microstructural Characterization Marwan Khraisheh ¹ ; ¹ Hamad Bin Khalifa University
16:30 PM REGULAR	Evaluation of Material Behavior in Hydrogen Environment by Developing an Integrable Test Chamber for Energy Applications Alexander Koch ¹ ; Lars Gerdes ¹ ; Kai Donnerbauer ¹ ; Matthias von Pavel ¹ ; Frank Walther ¹ ; ¹ TU Dortmund University
16:50 PM	END OF DAY

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VALUE CHAIN

FATIGUE AND FRACTURE

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

CO-ORGANIZERS:

Stefano Beretta
Politecnico di Milano,
Italy

Jutima Simsiriwong
University of North Florida,
USA

Zachary Whitman
Boeing Commercial Airplanes,
USA

Thomas Niendorf
University of Kassel,
Germany

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

30TH OCTOBER 2024

< ROOM 301-302 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Thomas Niendorf, University of Kassel
Jutima Simisiriwong, University of North Florida

SESSION CHAIR (PM SESSION):

Stefano Beretta, Politecnico di Milano
Alberto Bordin, ASTM International

08:50 AM
REGULAR **Fatigue of Lattice Structures: Geometric Analysis, Fatigue Testing, and Multiaxial Stress Analysis**
[Reza Molaei](#)¹; [Mohammad Amjadi](#)²; Krista Dyer¹; Minh Tran²; Shuai Shao¹; Nima Shamsaei¹; ¹Auburn University - National Center for Additive Manufacturing Excellence (NCAME); ²Arkansas Tech University

09:10 AM
REGULAR **A Novel Method to Forecast the Fatigue Behavior of Stress Concentration Features in Additive Manufacturing Components**
[Armando Coro](#)¹; ¹ITP Aero

09:30 AM
INVITED **When is a "Defect" Critical? Surface, Sub-Surface, Geometric and Microstructure Effects in Laser Powder Bed Fusion**
[Joy Gockel](#)¹; ¹Colorado School of Mines

10:00 AM **BREAK**

10:30 AM
INVITED **Post-Processing Strategies to Improve Fatigue and Fracture Properties of Net-Shape Titanium Parts**
[Jake Benzing](#)¹; Orion Kafka¹; Nicholas Derimow¹; Nik Hrabel¹; Sara Randall²; Julius Bonini²; Chad Beamer³; Ryan Fishel⁴; ¹NIST; ²Lucideon; ³Quintus Technologies; ⁴3D Systems

11:00 AM
INVITED **~~**CANCELLED**~~**
~~HIP Process Effects on Static/Fatigue Properties for Ti-6Al-4V Fabricated via L-DED-AM~~
~~[Dana Smith](#)¹; Bailey Thomas¹; Zachary Whitman¹; Jim Dobbs¹; Andrew Steevens¹; Conner Cleek¹; ¹Boeing~~

11:30 AM
INVITED **Criticality of Volumetric Defects on the Fatigue Behavior of Additive Manufactured Ti-6Al-4V**
[Sajith Soman](#)¹; Muztahid Muhammad¹; Mohammad Salman Yasin¹; Shuai Shao¹; Nima Shamsaei¹; ¹Auburn University

12:00 PM **LUNCH**

13:30 PM
INVITED **Influence of AM-Typical Microstructural Features on the Fatigue Behavior of AISI 316L and AISi10Mg**
[Tilmann Beck](#)¹; 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 Niendorf](#)¹; ¹University of Kassel

14:30 PM
INVITED **Qualification of Additively Manufactured Ti6Al4V ELI Lattice Structures for Permanent Medical Implants by Innovative Research Approach**
[Frank Walther](#)¹; Sebastian Stammkötter¹; Mirko Teschke¹; Alexander Koch¹; ¹TU Dortmund 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 Coro](#)¹; ¹ITP Aero

16:00 PM
REGULAR **Analysis of Ti64 Manufactured by L-PBF with Net-Shape and Chemically Milled Surface Conditions**
[Stefano Beretta](#)¹; Luca Patriarca¹; Tatiana Risposi¹; Daniel Perghem¹; Lorenzo Rusnati¹; ¹Politecnico di Milano

16:20 PM
REGULAR **Assessing Fatigue of Aluminum Laser Powder Bed Fusion Components with Non-Machined Surfaces - Application to High Performance AA8A61 Al-Zr-Fe Rapid Solidification Alloy**
[Ravi Shahani](#)¹; [Luca Patriarca](#)²; Erembert Nizery¹; Lorenzo Rusnati²; Stefano Beretta²; ¹Constellium; ²Politecnico di Milano

16:40 PM
REGULAR **Predicting Fatigue Life Due to Surface Roughness from Additive Manufacturing Process**
[Xueyong \(Kevin\) Qu](#)¹; Leland Shimizu¹; Warren Nadvornick¹; Jacob Rome¹; Alex De La Cruz²; Cristian Banuelos²; Francisco Medina²; ¹The Aerospace Corporation; ²University of Texas at El Paso

17:00 PM **END OF DAY**

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31ST OCTOBER 2024
< ROOM 301-302 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Jutima Simisiriwong, University of North Florida
Alberto Bordin, ASTM International

SESSION CHAIR (PM SESSION):

Thomas Niendorf, University of Kassel
Stefano Beretta, Politecnico di Milano

09:10 AM
REGULAR **Fatigue Performance and DADT Certification of Powder-Bed Additively-Manufactured Ti-6Al-4V: Defect Assessments, EIDS Distributions, and Inspection Limits**
[Patrick Golden](#)¹; Matthew Krug¹; Sushant Jha²; Luke Sheridan¹; Reji John¹; Bryce Jolley¹; ¹Air Force Research Laboratory (AFRL); ²University of Dayton Research Institute

09:30 AM
INVITED **Discussion of Fatigue Limits of PBF-LB Materials Based on Short Fatigue Crack Behavior**
[Karl Michael Krämer](#)¹; Timo Brune¹; Christian Kontermann¹; Christoph Schweizer²; Matthias Oechsner¹; ¹Technical University of Darmstadt; ²Fraunhofer Institute for Mechanics of Materials IWM

10:00 AM
BREAK

10:30 AM
INVITED **Recent Advancements in Fatigue Design of Additively Manufactured Metamaterials**
[Simone Murchio](#)¹; Filippo Berto¹; Raffaele De Biasi²; Gianluca Zappini³; Marcello Laurenti¹; Matteo Benedetti²; ¹Sapienza University of Rome; ²University of Trento; ³Lincotek Medical

11:00 AM
INVITED **Sensitivity of AM Anomaly Distributions to AM Anomaly Measurements**
[James Sobotka](#)¹; Erin DeCarlo¹; Michael Enright¹; ¹Southwest Research Institute (SwRI)

11:30 AM
REGULAR **Synergistic Effects of Notch and Volumetric Defects on Fatigue Performance of Additive Manufactured Parts**
[Jonathan Pegues](#)¹; Arun Poudela¹; Matthew Kelly²; Shuai Shao¹; Nima Shamsaei¹; ¹Auburn University; ²U.S. Army Combat Capabilities Development Command - Ground Vehicles Systems Center (GVSC)

11:50 AM
LUNCH

13:30 PM
INVITED **Fretting Fatigue of Additively Manufactured Metals: A Review**
[Ali Fatemi](#)¹; Samira Ghadar¹; Nam Phan²; ¹University of Memphis; ²Naval Air Systems Command (NAVAIR)

14:00 PM
REGULAR **A Universal Effect of Defect Model for Various Engineering Alloys Made with Laser Powder Bed Fusion**
[Emiel Amsterdam](#)¹; Wessel Wits¹; Maria Montero-Sistiaga¹; Marc de Smit¹; ¹Royal NLR - Netherlands Aerospace Centre

14:20 PM
REGULAR **High Temperature Fatigue and Fracture Behavior of AM IN718 Analysis using Machine Learning Feature Importance**
[Richard Neu](#)¹; [Alexander Caputo](#)¹; Xiayun Zhao²; Haolin Zhang²; ¹Georgia Institute of Technology; ²University of Pittsburgh

14:40 PM
BREAK

15:30 PM
INVITED **Fatigue Behavior of Laser Powder Bed Fused Stainless Steels: Effect of Stress Gradient**
[Jutima Simisiriwong](#)¹; Nima Shamsaei²; ¹University of North Florida; ²Auburn University

16:00 PM
INVITED **Fatigue Life Computation Based on Surface and Near-Surface Defect Distributions in Powder Bed Fusion Manufactured Ti-6Al-4V**
[Viktor Sandell](#)¹; [Sushovan Roychowdhury](#)¹; Thomas Hansson¹; Mats Delin¹; Pia Åkerfeldt²; Marta-Lena Antti²; ¹GKN Aerospace; ²Luleå University of Technology

16:30 PM
INVITED **What are Fatigue Allowables? - Considerations for AM and Lessons Learned from "Conventional" Material Systems**
[Michael Gorelik](#)¹; ¹Federal Aviation Administration (FAA)

17:00 PM
END OF DAY

01ST NOVEMBER 2024
< ROOM 301-302 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Jutima Simisiriwong, University of North Florida
Thomas Niendorf, University of Kassel

08:50 AM
REGULAR **Experimental and Numerical Investigation on the Fatigue Behavior of Defect-Afflicted Additive Manufactured Titanium Alloys**
[Leonhard Stampa](#)^{1, 2}; Fabian Günther^{1, 2}; Stefan Pilz³; Jörg Bretschneider²; Markus Wagner²; Markus Kästner¹; Anett Gebert³; Martina Zimmermann^{1, 2}; ¹Dresden University of Technology; ²Fraunhofer Institute for Material and Beam Technology IWS; ³Leibniz Institute for Solid State and Materials Research

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- 09:10 AM**
REGULAR **Effect of Material Variables on Minimum Fatigue Life of Additively Manufactured Nickel Alloy 718**
[Sushant Jha](#)¹; Nathan Bryant¹; Howard Sizek²; Jessica Orr¹; ¹University of Dayton Research Institute; ²Air Force Life Cycle Management Center
- 09:30 AM**
INVITED **Fatigue Evaluation of AISi10Mg using Fractography and CT Scans**
[Jazib Hassan](#)¹; [Abdullah Azam](#)¹; Farsad Forghani²; ¹Boeing; ²Alloyed
- 10:00 AM**
INVITED **Fatigue and Fracture of Additively Manufactured Ti6Al4V**
[Christopher Faraj](#)¹; DeeAnn Deles-Stagner¹; Zachary Whitman¹; ¹Boeing
- 10:30 AM** **END OF DAY**

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VALUE CHAIN

FEEDSTOCK CHARACTERIZATION, SPECIFICATION, AND REUSE

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

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 OCTOBER 2024

< ROOM 212 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Roger Pelletier, National Research Council Canada
Ronald Aman, Amaero

SESSION CHAIR (PM SESSION):

Frédéric Marion, GE Additive - AP&C
Amir Nobari, Tekna

08:50 AM
REGULAR **Novel Single Step Process for
Manufacturing ELI Titanium Alloy Spherical
Powders from Recycled Feedstock**
[Sunil Badwe](#)¹; [Matthew Charles](#)¹; ¹Continuum
Powders

09:10 AM
REGULAR **Valorization of Titanium Ti-6Al-4V Scrap
into High Added Value Powders for
Manufacturing Technologies**
[Marine Jean-Baptiste](#)¹; [Salvatore Pillitteri](#)²;
[Cédric Georges](#)¹; [Anders Bæk Hjermitslev](#)³;
¹CRM Group; ²Granutools; ³Danish
Technological Institute

09:30 AM
INVITED **Improving Powder Flowability
Measurements using Reference Materials
Adapted for AM**
[Roger Pelletier](#)¹; [Cindy Charbonneau](#)¹; [Louis-
Philippe Lefebvre](#)¹; [Anatolie Timercan](#)¹; [Jean-
François Archambault](#)²; [Olivier Bergeron](#)²;
¹National Research Council Canada (NRC
Canada); ²GE Additive - AP&C

10:00 AM **BREAK**

10:30 AM
INVITED **Characterization of Powder Surfaces
through Triboelectric Charging**
[Mathieu Brochu](#)¹; [Emilio Galindo](#)¹; [Ali Alagha](#)¹;
[Eileen Espiritu](#)¹; [Mathilde Rossier](#)¹; [Pierre
Hudon](#)¹; ¹McGill University

11:00 AM
INVITED **Spreadability of AM Powder: Investigating
the Impact of Recoating Conditions and
Powders Characteristics**
[Anatolie Timercan](#)¹; [Roger Pelletier](#)¹; [Masoud
Ashrafizadeh](#)²; [Olivier Gaboriaux](#)³; [Bruno
Blais](#)³; [Louis-Philippe Lefebvre](#)¹; [David
Melançon](#)³; ¹National Research Council
Canada (NRC Canada); ²McGill University;
³Polytechnique Montréal

11:30 AM
REGULAR **Spreadability Prediction for Metallic
Powders: Latest Developments**
[Filip Francqui](#)¹; [Aurélien Neveu](#)¹; [Laurent
Weiss](#)²; [Pascal Laheurte](#)²; [Geoffroy Lumay](#)³;
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**
[Vipin Tondare](#)¹; [Justin Whiting](#)²; [Adam Pinter](#)¹;
[Shawn Moylan](#)¹; [Aurélien Neveu](#)³; [Filip
Francqui](#)³; 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 Nobari](#)¹; [Jérôme Pollak](#)¹; ¹Tekna

14:00 PM
INVITED **Expanded Ti6Al4V Powder Size
Distribution and Laser Powder Bed Fusion
Processed Enhancements**
[Mikael Schuisky](#)¹; [Mary Kate Johnston](#)¹; [Paul
Davies](#)¹; [Faraz Deirmina](#)¹; ¹Sandvik Additive
Manufacturing

14:30 PM
INVITED **The Impact of Powder Feedstock on
Carbon Footprint of the Additive
Manufacturing Process Chain**
[Martin Dopler](#)¹; [Anna Koell](#)¹; ¹Metalpine

15:00 PM **BREAK**

15:30 PM
INVITED **Improved Feedstock Powder
Characteristics to Accelerate Additive
Manufacturing Deployment**
[Iver Anderson](#)¹; [Jordan Tiarks](#)¹; [David Byrd](#)¹;
[Trevor Riedemann](#)¹; [Ross Anderson](#)¹; ¹Ames
National Laboratory

16:00 PM
INVITED **~~**CANCELLED**~~
Characterization and Testing of Metal
Powders**
~~[Matthew Sozio](#)¹; [Edward Horderick](#)¹; [David
Scannapieco](#)¹; [Ronald Aman](#)²; ¹NSL
Analytical; ²Amaero~~

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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 Ten](#)¹; Jiazhao Huang¹; Duy Nghia Luu¹; Andrew Nathaniels¹; Haris Taufik¹; 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 Keenan](#)¹; Ellen Williams¹; Jonathan Putman¹; Jeffrey Williams¹; ¹Exum Instruments

17:10 PM **END OF DAY**

29TH OCTOBER 2024
< ROOM 212 (LEVEL 02) >

SESSION CHAIR (AM SESSION):
Ronald Aman, Amaero
Roger Pelletier, National Research Council Canada

SESSION CHAIR (PM SESSION):
Amir Nobari, Tekna
Frédéric Marion, GE Additive - AP&C

08:50 AM
REGULAR **Achieving High-Productivity in Laser Powder Bed Fusion via Enhanced AlSi10Mg Powders**
[Sabina Kumar](#)¹; ¹Eaton

09:10 AM
REGULAR **Recyclability of Ni-Base Powder and its Effect on Microstructure and High Cycle Fatigue of LPBF Components**
[Alber Sadek](#)¹; ¹EWI

09:30 AM
INVITED **Harnessing Ar + H₂ Plasma for Decontamination and Direct Oxide Reduction**
[Alexandre Bois-Brochu](#)¹; Elena Rosemarie Ulate Kolitsky¹; Sébastien Germain Careau¹; ¹Québec Metallurgy Centre (CMQ)

10:00 AM **BREAK**

10:30 AM
INVITED **Feedstock Re-Use and Additively Manufactured Medical Devices: The FDA Perspective**
[Matthew Di Prima](#)¹; Daniel Porter¹; ¹U.S. Food and Drug Administration (FDA)

11:00 AM
INVITED **Investigations into the Powder Lifecycle of Ti6Al4V in Medical Device PBF-L Manufacturing**
[Ryan Kircher](#)¹; [Nik Hrabe](#)²; ¹rms Company; ²NIST

11:30 AM
INVITED **Influence of Ti-6Al-4V Powder Oxygen Homogeneity on Properties of L-PBF Parts: Addition of “Out-of-Specification” Powders**
[Frédéric Marion](#)¹; ¹GE Additive - AP&C

12:00 PM **LUNCH**

13:30 PM
INVITED **Contamination in Additive Powder Feedstock**
[Paul Wilson](#)¹; Jérôme Pollak²; ¹Boeing Research & Technology; ²Tekna

14:00 PM
INVITED **Investigating the Influence of Powder Age on Microstructure and Mechanical Properties of LPBF Alloy 625**
[Matthew Rowson](#)¹; ¹Rolls-Royce

14:30 PM
REGULAR **Understanding the Effects of Powder Feedstock Heterogeneity on the L-PBF Process**
[Jordan Weaver](#)¹; Aniruddha Das¹; Nicholas Derimow¹; Nik Hrabe¹; ¹NIST

14:50 PM **BREAK**

15:30 PM
INVITED **Standardization Challenges in Small-Scale Metal Powder Production for R&D in Additive Manufacturing via Ultrasonic Atomization**
[Bartosz Moronczyk](#)¹; Łukasz Żrodowski¹; Steven Adler²; Tomasz Choma¹; Jakub Ciftci¹; ¹AMAZEMET; ²A3DM

16:00 PM
INVITED **Pushing the Boundaries in Additive Manufacturing of Al Alloys: Material Candidates for High-Performance Applications**
[Priyanshu Bajaj](#)¹; Andreas Pelz¹; ¹m4p material solutions

16:30 PM
INVITED **Efficient Production of High Temperature Shape Memory Alloy Powder**
[Christopher Ledford](#)¹; ¹Oak Ridge National Laboratory (ORNL)

17:00 PM **END OF DAY**

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ICAM 2024 FINAL PROGRAM AGENDA

Updated as of 04th November 2024

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VALUE CHAIN

IN-SITU MONITORING AND IN-PROCESS CONTROL

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

CO-ORGANIZERS:

Jack Beuth
Carnegie Mellon
University, USA

Ajay Krishnan
EWI, USA

Edward (Ted) Reutzel
Pennsylvania State
University, USA

Ulrich Kleinhans
EOS, Germany

Erin Lanigan
The Barnes Global Advisors,
USA

Zackary Snow
Oak Ridge National Laboratory
(ORNL), USA

30TH OCTOBER 2024
< ROOM 213-214 (LEVEL 02) >

SESSION CHAIR (AM + PM SESSIONS):

Zackary Snow, Oak Ridge National Laboratory

08:50 AM
REGULAR 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
[Haolin Liu](#)¹; Levent Burak Kara¹; Anthony Rollett¹; Jack Beuth¹; Christian Gobert¹; Kevin Ferguson¹; Hongrui Chen¹; Brandon Abranovic¹; ¹Carnegie Mellon University

09:10 AM
REGULAR Two-Color Thermal Imaging Applied to E-Beam Spot Melt Process Mapping
[Jack Beuth](#)¹; Alexander Myers¹; William Frieden¹; Jonathan Malen¹; Sneha Narra¹; ¹Carnegie Mellon University

09:30 AM
INVITED Understanding Acceptance Limits for LPBF In Process Monitoring
[Thomas Jones](#)¹; ¹Rolls-Royce Submarines

10:00 AM
BREAK

10:30 AM
INVITED Empowering Additive Manufacturing Qualification through In-Situ Process Monitoring
[Michael Heiden](#)¹; ¹Sandia National Laboratories

11:00 AM
INVITED Towards Real-Time Certification of AM Parts with In Situ Inspection
[Niall O'Dowd](#)¹; ¹Phase3D

11:30 AM
INVITED Putting In-Process Monitoring to Work: Towards Real-Time Digital Quality Assurance
[Paul Hooper](#)¹; ¹Imperial College London

12:00 PM
LUNCH

13:30 PM
INVITED Electrochemical Additive Manufacturing, High-Resolution 3D Metal Printing with Pixel Scale In-Situ Inspection and Closed-Loop Monitoring
[Ian Winfield](#)¹; Tim Ouradnik¹; Kareem Shaik¹; ¹Fabric8Labs

14:00 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 Molotnikov](#)^{1,2,3}; Marten Jurg³; ¹Royal Melbourne Institute of Technology (RMIT University); ²RMIT Centre for Additive Manufacturing (RCAM); ³Additive Assurance

14:30 PM
INVITED Multi-Modal Sensor and AI for Defect Detection in Laser Powder Bed Fusion Process
[Shuchi Khurana](#)¹; Petros Apostolou¹; Eduardo Miramontes¹; ¹Addiguru

15:00 PM
BREAK

15:30 PM
INVITED In Situ Monitoring and Closed-Loop Control of Laser, Powder Blown Directed Energy Deposition using a Coaxial Photodiode Array
[Samantha Webster](#)¹; Jihoon Jeong²; James Zuback¹; Alberto Castro³; Lars Jacquemetton³; Shuheng Liao⁴; Julian Rocher⁵; Kornel Ehmann⁵; Jian Cao⁵; ¹NIST; ²Texas A&M University; ³Sigma Additive Solutions; ⁴Massachusetts Institute of Technology; ⁵Northwestern University

16:00 PM
INVITED Applications for In-Situ Imaging of Strain and Temperature via Stereo-DIC in DED
[James Haley](#)¹; Callan Herberger¹; Bruno Turcksin¹; Vincent Paquit¹; Alexander Plotkowski¹; Stephen DeWitt¹; ¹Oak Ridge National Laboratory (ORNL)

16:30 PM
INVITED Thermal Imaging with Off-the-Shelf Color Cameras Yields New Insights to Melt Pool Physics in AM Processes
[Jonathan Malen](#)¹; Jack Beuth¹; Sneha Narra¹; Alexander Myers¹; Guadalupe Quirarte¹; Gala Solis¹; ¹Carnegie Mellon University

17:00 PM
END OF DAY

31ST OCTOBER 2024
< ROOM 213-214 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Erin Lanigan, The Barnes Global Advisors

SESSION CHAIR (PM SESSION):

Edward (Ted) Reutzel, Pennsylvania State University

08:50 AM
REGULAR Integration of Feedback and Feedforward Control in Laser Powder Bed Fusion
[Rongxuan Wang](#)¹; ¹Auburn University

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ICAM 2024 FINAL PROGRAM AGENDA

Updated as of 04th November 2024

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09:10 AM
REGULAR In Process Monitoring of PBF AM by Fringe Projection Method
[Ryuichi Narita](#)¹; ¹Mitsubishi Heavy Industries

09:30 AM
INVITED Integration of Track-by-Track, High-Resolution In-Situ Monitoring for the Entire Part, Near-Real-Time Process Control, and Multi-Scale Modeling for the Laser Powder Bed Fusion Process
[Anil Chaudhary](#)¹; Alex Istrate¹; ¹Applied Optimization

10:00 AM **BREAK**

10:30 AM
INVITED Data Fusion for In-Situ Sensor-Based Flaw Detection and Property Prediction
[Luke Scime](#)¹; Zackary Snow¹; William Halsey¹; Vincent Paquit¹; ¹Oak Ridge National Laboratory (ORNL)

11:00 AM
INVITED A Data-Driven, Context-First Approach to In Situ Flaw Predictions for Additive Manufacturing
[Zackary Snow](#)¹; Luke Scime¹; William Halsey¹; Amir Ziabari¹; Chase Joslin¹; Vincent Paquit¹; ¹Oak Ridge National Laboratory (ORNL)

11:30 AM
INVITED Bringing Data Analytics and Machine Learning to the Forefront of Additive Manufacturing - Opportunities and Challenges
[Jan Petrich](#)¹; Edward (Ted) Reutzel¹; ¹Pennsylvania State University - Applied Research Laboratory (PSU - ARL)

12:00 PM **LUNCH**

13:30 PM
INVITED Bolstering Process Monitoring with Machine Monitoring: Keeping an Eye on AM Machine Performance
[Jaime Berez](#)¹; ¹University of North Carolina at Charlotte

14:00 PM
REGULAR Exploring the Real-Time Feedback Control for Laser Powder Bed Fusion Additive Manufacturing
[Ho Yeung](#)¹; ¹NIST

14:20 PM
REGULAR Non-Contact Measurement of Powder Bed Density using Temperature Response
[Nathan Crane](#)¹; Shu Wang¹; ¹Brigham Young University

14:40 PM
REGULAR Thermal Conduction Error Due to Thermocouple Attachment in LPBF Processes
[Alexandra Vest](#)¹; Antoinette Maniatty²; ¹U.S. Army Combat Capabilities Development Command - Weapons and Software Engineering Center (WSEC) Benét Laboratories; ²Rensselaer Polytechnic Institute

15:00 PM **BREAK**

15:30 PM
INVITED Enhancing Monitoring in Laser Powder Bed Fusion (LPBF) Processes using Electromagnetic Sensors
[Bernard Revaz](#)¹; ¹AMiQuam

16:00 PM
INVITED Accelerated Materials Development and Qualification using In-Situ Monitoring and X-CT
[Behrang Poorganji](#)¹; Koki Takeshita²; Shinji Ishibashi²; Erika Ono²; Takeyuki Mizutani²; ¹Nikon AM Synergy ; ²Nikon

16:30 PM
INVITED Evaluation of In Situ Monitoring Approaches by Comparison to X-Ray CT Data
[Nicholas Calta](#)¹; Sanam Gorgannejad¹; Michael Juhasz¹; Ziheng Wu¹; Ethan Sprague¹; Gabe Guss¹; Justin Patridge¹; Steven Hoover¹; ¹Lawrence Livermore National Laboratory (LLNL)

17:00 PM **END OF DAY**

01ST NOVEMBER 2024

< ROOM 213-214 (LEVEL 02) >

SESSION CHAIR (AM SESSION):
Erin Lanigan, The Barnes Global Advisors

08:50 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 Anilius](#)¹; Grzegorz Dudzik¹; Krzysztof Abramski¹; ¹Wroclaw University of Science and Technology

09:10 AM
REGULAR Embedding Sensors to Create a Smart Build Plate
[Jason Riley](#)¹; Mark Norfolk¹; ¹Fabrisonic

09:30 AM
INVITED In-Situ Data Mining, Monitoring and Control in Additive Manufacturing: What's Next
[Bianca Maria Colosimo](#)¹; ¹Politecnico di Milano

10:00 AM **BREAK**

10:30 AM
INVITED Process Monitoring for Feed-Forward Control in Metal Additive Manufacturing
[Manyalibo Matthews](#)¹; ¹Lawrence Livermore National Laboratory (LLNL)

11:00 AM
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 Craig](#)¹; Abdalla Nassar²; Edward (Ted) Reutzel³; William Frazier⁴; ¹Stratronics; ²John Deere; ³Pennsylvania State University - Applied Research Laboratory (PSU - ARL); ⁴Pilgrim Consulting

11:20 AM **END OF DAY**

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ICAM 2024 FINAL PROGRAM AGENDA

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VALUE CHAIN

MICROSTRUCTURAL AND MECHANICAL BEHAVIOR

28TH OCT 2024 (MON) – 30TH OCT 2024 (WED)

CO-ORGANIZERS:

Allison Beese
Pennsylvania State
University, USA

Amanda Cruchley
The Manufacturing Technology
Centre, United Kingdom

Jonathan Pegues
Auburn University - National
Center for Additive
Manufacturing Excellence, USA

Jimmy Campbell
Plastometrex,
United Kingdom

Joy Gockel
Colorado School of
Mines, USA

Swee Leong Sing
National University of
Singapore, Singapore

28TH OCTOBER 2024

< ROOM 210-211 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Jonathan Pegues, Auburn University - NCAME
Joy Gockel, Colorado School of Mines

SESSION CHAIR (PM SESSION):

Joy Gockel, Colorado School of Mines
Alberto Bordin, ASTM International

08:50 AM
REGULAR **Development of Novel Refractory Metals to Improve Additive Manufacture Printability and Material Properties**
[Carly Romnes](#)¹; Toren Hobbs¹; Fernando Reyes Tirado¹; Omar Mireles²; ¹NASA - Marshall Space Flight Center (MSFC); ²Los Alamos National Laboratory (LANL)

09:10 AM
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 Johnson¹; Adam Polizzi¹; Derek Harris¹; ¹Elementum 3D

09:30 AM
INVITED **Novel Processes and Materials for Metal Additive Manufacturing**
[Andrew Kustas](#)¹; ¹Sandia National Laboratories

10:00 AM **BREAK**

10:30 AM
INVITED **Linking Process Signals, Microstructure, and Mechanical Properties in Laser Powder Bed Fusion of Ti-6Al-4V**
[Allison Beese](#)¹; ¹Pennsylvania State University

11:00 AM
INVITED **Heat Treatment Effects on Creep, Tensile, and Microstructural Behavior of Additively Manufactured Titanium Alloys**
[Jessica Buckner](#)¹; Jay Carroll¹; Stephen Spiak¹; Austin Olivier¹; Zachary Casias¹; Brett Roper¹; ¹Sandia National Laboratories

11:30 AM
REGULAR **Microstructure and Defect Sensitive Fatigue and Damage Tolerance Models for Additively Manufactured Structures**
[Frank Walther](#)¹; Alexander Koch¹; Sebastian Stammkötter¹; Jochen Tenkamp¹; ¹TU Dortmund University

11:50 AM
REGULAR **Probing the Process Window Boundaries in Powder Bed Fusion-Laser Beam: Highlighting Inherent Process Nuances**
[Sneha Narra](#)¹; [Justin Miner](#)¹; William Frieden Templeton¹; Shawn Hinnebusch²; Seth Strayer²; Albert To²; Anthony Rollett¹; Jack Beuth¹; ¹Carnegie Mellon University; ²University of Pittsburgh

12:10 PM **LUNCH**

13:30 PM
INVITED **Microstructure and Mechanical Properties of High Strength 3D Printing Aluminum Matrix Composites**
[Che-Nan Kuo](#)¹; ¹National Sun Yat-Sen University

14:00 PM
INVITED **Uncovering Dislocation-Precipitate Interactions During Cyclic Loading of Wire Arc Additive Manufactured Nickel-Aluminum-Bronze**
[Aeriel Murphy-Leonard](#)¹; ¹Ohio State University

14:30 PM **BREAK**

15:30 PM
INVITED **Effects of Chemical Polishing, Chemical-Mechanical Polishing, and Hot Isostatic Pressing on Metal-Based Powder Bed Fusion Specimens Printed With and Without Contour**
[Agustin Diaz](#)¹; Joshua Boykin¹; Patrick McFadden¹; Eric Wendt¹; ¹REM Surface Engineering

16:00 PM
INVITED **Progress in Gradient Boundary Condition Creep Testing**
[Calvin Stewart](#)¹; Artur Ulsenheimer¹; Christo Boudreault¹; ¹Ohio State University

16:30 PM
REGULAR **Residual Stress Modeling of LPBF IN-718**
[Alexandra Vest](#)¹; ¹U.S. Army Combat Capabilities Development Command - Weapons and Software Engineering Center (WSEC) Benét Laboratories

16:50 PM **END OF DAY**

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ICAM 2024 FINAL PROGRAM AGENDA

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29TH OCTOBER 2024
< ROOM 210-211 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Allison Beese, Pennsylvania State University
Swee Leong Sing, National University of Singapore

SESSION CHAIR (PM SESSION):

Jonathan Pegues, Auburn University - NCAME
Alberto Bordin, ASTM International

08:50 AM
REGULAR **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 Arriluzea¹; Saul Martin¹; Lorena Lozada¹; Iñigo Iturriza¹; Miguel Ampudia²; Oscar Meabe³; Ruben Garcia³;
¹Ceit Technology Center; ²Aenium; ³Hiperbaric

09:10 AM
REGULAR **Crack Susceptibility Study of As-Built Haynes 282 during L-DED Additive Manufacturing**
[Rosa Pineda Huitron](#)¹; ¹GKN Aerospace

09:30 AM
INVITED **Microstructural Evaluation of the Creep Behavior in L-PBF Ni-Based Superalloys**
[Chantal Sudbrack](#)¹; ¹National 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 Gao²; Robert Hayes³; Steve Combs³; ¹Auburn University - National Center for Additive Manufacturing Excellence (NCAME); ²Castheon; ³Metals Technology

11:00 AM
INVITED **Measurements of Multi-Material Laser Powder Bed Fusion GRCo-42 and Ni718 Interface Strength**
[Ryan Fishel](#)¹; Thomas Southern²; Jeff Shaffer¹; Ryan Overdorff¹; Guha Manogharan³; Safa Khodabakhsh¹; ¹3D Systems; ²Plastometrex; ³Pennsylvania State University

11:30 AM
REGULAR **Directed Energy Deposition of Inconel 625 - GRCo42 Alloys**
[Somayeh Pasebani](#)¹; Jakub Preis¹; Stephanie Lawson¹; 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 Pegues²; LaRico Treadwell¹; Michael Abere¹; ¹Sandia National Laboratories; ²Auburn University - National Center for Additive Manufacturing Excellence (NCAME)

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; ¹Fortius Metals

14:00 PM
INVITED **Additive Manufacturing of Aluminium Alloys and Composites by Powder Bed Fusion**
[Swee Leong Sing](#)¹; ¹National University of Singapore (NUS)

14:30 PM
INVITED **~~**CANCELLED**~~ Microstructure Control for Damage Prevention during Metal Additive Manufacturing**
[Zhongji Sun](#)¹; ¹A*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 Adegoke¹; Håkan Brodin¹; Sebastian Piegert¹; ¹Siemens Energy

16:00 PM
REGULAR **Understanding the Consequence of Build Pauses in PBF-LB**
[Alex Hardaker](#)¹; Ruairidh Mitchinson¹; ¹The Manufacturing Technology Centre (MTC)

16:20 PM
REGULAR **Microstructure and Mechanical Evaluation of 17-4PH Stainless Steel Manufactured via LPBF with Roller Recoating Technology**
[Lucas Becker](#)¹; ¹AddUp

16:40 PM **END OF DAY**

30TH OCTOBER 2024
< ROOM 210-211 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Allison Beese, Pennsylvania State University
Alberto Bordin, ASTM International

SESSION CHAIR (PM SESSION):

Swee Leong Sing, National University of Singapore
Alberto Bordin, ASTM International

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**
[Lucas Becker](#)¹; [Amir Nobari](#)²; Swathi Vunnam¹; ¹AddUp; ²Tekna

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ICAM 2024 FINAL PROGRAM AGENDA

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09:10 AM REGULAR	Systematic Control of PBF-L Ti-6Al-4V Microstructure and Mechanical Properties Nicholas Derimow ¹ ; Jake Benzing ¹ ; Ping Lu ² ; Chad Beamer ³ ; Ryan Fishel ⁴ ; Frank DelRio ² ; Nik Hrabe ¹ ; ¹ NIST; ² Sandia National Laboratories; ³ Quintus Technologies; ⁴ 3D Systems	14:40 PM REGULAR	**CANCELLED** Structural Analysis and Characterization of Cu Alloys Fabricated by Laser Powder Bed Fusion Ramin Rahmani-Ahranjani ^{1,2} ; ¹ Centro de Interface Tecnológico Industrial (CiTin); ² Instituto Politécnico de Viana do Castelo (IPVC)
09:30 AM INVITED	Fatigue Behavior of Novel PBF-L Ti-6Al-4V High Pressure Heat Treatments Nik Hrabe ¹ ; Nicholas Derimow ¹ ; Jake Benzing ¹ ; Newell Moser ¹ ; Orion Kafka ¹ ; Chad Beamer ² ; Ryan Fishel ³ ; Chris Hadley ⁴ ; Mahesh Waje ⁴ ; ¹ NIST; ² Quintus Technologies; ³ 3D Systems; ⁴ Lynntech	15:00 PM BREAK	
10:00 AM BREAK		15:30 PM INVITED	Tensile Testing of Additively Manufactured Material - A Study of Geometry, Size and Instrumentation Effects Tony Fry ¹ ; Maria Lodeiro ¹ ; Peter Woolliams ¹ ; Cameron Breheny ² ; ¹ National Physical Laboratory (NPL); ² HiETA Technologies
10:30 AM INVITED	**CANCELLED** Controlling AM Microstructures through In-Situ Laser Annealing and Rapid Post-Processing Optimization Kaila Bertsch ¹ ; Connor Rietema ¹ ; Jennifer Glerum ¹ ; John Reehling ¹ ; William Smith ¹ ; ¹ Lawrence Livermore National Laboratory (LLNL)	16:00 PM INVITED	Comparative Study and Discussion of Mechanical Testing Methods for Metal Additive Manufacturing Products Junbeom Kwon ¹ ; ¹ Korea Institute of Materials Science (KIMS)
11:00 AM INVITED	Machine Learning for Next Generation Additively Manufactured Structural Alloys in Extreme Environments S. Mohadeseh Taheri-Mousavi ¹ ; ¹ Carnegie Mellon University	16:30 PM INVITED	Deterministic Microstructure over Disparate Geometric Features via Programmatically Defined Process Parameters Steve Walton ¹ ; ¹ Dyndrite
11:30 AM INVITED	Evaluation of Mechanical Performance as Indicated by Lightweight In-Situ Monitoring Sensor Modalities in Laser Powder Bed Fusion Metal Additive Manufacturing Ben Brown ¹ ; Cody Lough ¹ ; Jon Zettwoch ¹ ; ¹ Kansas City National Security Campus	17:00 PM END OF DAY	
12:00 PM LUNCH			
13:30 PM INVITED	Variable Mechanical Properties in Additively Manufactured Components using Profilometry-Based Indentation Plastometry (PIP) Henry Begg ¹ ; Tony Fry ² ; Jimmy Campbell ¹ ; Ravi Aswathanarayanaswamy ³ ; Jed Robinson-Wall ³ ; Benjamin Haigh ³ ; Thomas Southern ¹ ; ¹ Plastometrex; ² National Physical Laboratory (NPL); ³ Renishaw		
14:00 PM REGULAR	Profilometry-Based Indentation Plastometry for High-throughput Testing of Additive Manufactured Metals and Composites Tanaji Paul ¹ ; Tyler Dolmetsch ¹ ; Sohail Mohammed ¹ ; Denny John ¹ ; Anil Lama ¹ ; Blanca Palacios ¹ ; Arvind Agarwal ¹ ; ¹ Florida International University		
14:20 PM REGULAR	A Framework for Developing Printability Maps for LPBF of AISI316L Stainless Steel Marwan Khraisheh ¹ ; ¹ Hamad Bin Khalifa University		

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ICAM 2024 FINAL PROGRAM AGENDA

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VALUE CHAIN

NON-DESTRUCTIVE EVALUATION AND INSPECTION

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

CO-ORGANIZERS:

Anton du Plessis
Stellenbosch University, South
Africa / Comet Technologies
Canada, Canada

Patrick Howard
GE Aerospace, USA

Philip Riegler
Norsk Titanium, USA

Ben Dutton
The Manufacturing
Technology Centre,
United Kingdom

Felix Kim
NIST, USA

28TH OCTOBER 2024

< ROOM 304 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Patrick Howard, GE Aerospace

SESSION CHAIR (PM SESSION):

Philip Riegler, Norsk Titanium

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](#); ¹AMiquam

09:30 AM
INVITED **Inline Nondestructive Evaluation and Process Control during Laser Power Directed Energy Deposition**
[Hoon Sohn¹](#); [Kiyoon Yi¹](#); [Subin Shin¹](#); [Seokjin Shin²](#); [Jihyun Jang²](#); ¹Korea Advanced Institute of Science and Technology (KAIST); ²InssTek

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**
[Steve Butler¹](#); [Julian Wright¹](#); [James Watts¹](#); [Daniel Rodríguez 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**
[Jim Colovos¹](#); [Sevilla Sunetchiieva¹](#); 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**
[Daniel Rodríguez Sanmartín¹](#); [James Watts¹](#); [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 Tawfick²](#); [William King²](#); ¹University of Maryland; ²University of Illinois Urbana-Champaign; ³University of Michigan

15:00 PM **BREAK**

16:00 PM ****No Program****
Panel 02 (Inspection) at Level 02 - Salon Ballroom

17:00 PM **END OF DAY**

29TH OCTOBER 2024

< ROOM 304 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Eric Burke, NASA - Langley Research Center

SESSION CHAIR (PM SESSION):

Ben Dutton, The Manufacturing Technology Centre

08:50 AM
REGULAR **Super-Resolution Algorithms for Application in X-Ray Computed Tomography of AM Parts**
[Amir Ziabari¹](#); [Haley Duba-Sullivan¹](#); [Obaidullah Rahman¹](#); [Aniket Pramanik¹](#); [Singanallur Venkatakrishnan¹](#); ¹Oak Ridge National Laboratory (ORNL)

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ICAM 2024 FINAL PROGRAM AGENDA

Updated as of 04th November 2024

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09:10 AM REGULAR	Development of Representative Quality Indicators (RQIs) Metrics to Validate Computed Tomography (CT) Capability for Additively Manufactured Parts Jonathan Moorman ¹ ; Ryan Mooers ¹ ; John Brausch ¹ ; ¹ Air Force Research Laboratory (AFRL)	14:30 PM INVITED	Quantitative Surface Quality Evaluation by X-Ray Computed Tomography Tatiana Mishurova ¹ ; Tobias Fritsch ¹ ; Giovanni Bruno ¹ ; ¹ Bundesanstalt für Materialforschung und -prüfung (BAM)
09:30 AM INVITED	NASA's Office Safety Mission Assurance Efforts to Improve Non-Destructive Evaluation Methods for Additive Manufacturing and In-Space Inspection Eric Burke ¹ ; ¹ NASA	15:00 PM BREAK	
10:00 AM BREAK		15:30 PM INVITED	Cryo-Ultrasonic Testing of Complex Shape Components Francesco Simonetti ¹ ; ¹ University of Cincinnati
10:30 AM INVITED	Overcoming Challenges in Inspecting Additively-Manufactured Parts Don Roth ¹ ; ¹ Wohlers Associates	16:00 PM INVITED	Probability of Detection of Volumetric Defects in Additively Manufactured Metallic Materials Alireza Jam ¹ ; Shaharyar Baig ¹ ; Shuai Shao ¹ ; Nima Shamsaei ¹ ; ¹ Auburn University
11:00 AM INVITED	Comparison of Three Measurement Modalities for 3D Characterization of Manufactured Features and Process-Induced Porosity in Additively Manufactured Titanium Alloy Parts Bryce Jolley ¹ ; Michael Uchic ¹ ; Andrew Townsend ² ; Nikola Draganic ² ; Chen Yee ² ; Daniel Sparkman ¹ ; Michael Chapman ³ ; ¹ Air Force Research Laboratory (AFRL); ² Lawrence Livermore National Laboratory (LLNL); ³ BlueHalo	16:30 PM REGULAR	Synchrotron-Based In Situ / Operando Characterization Capabilities at NSLS-II Zhongshu Ren ¹ ; ¹ Brookhaven National Laboratory
11:30 AM REGULAR	Dual X-Ray CT-Aided Classification of Melt Pool Boundaries and Flaws in Crept AM Parts Obaidullah Rahman ¹ ; Jovid Rakhmonov ¹ ; Sumit Bahl ¹ ; Curtis Frederick ² ; Amit Shyam ¹ ; Ryan Dehoff ¹ ; Alex Plotkowski ¹ ; Amir Ziabari ¹ ; ¹ Oak Ridge National Laboratory (ORNL); ² ZEISS Industrial Metrology	16:50 PM REGULAR	Fatigue-Based Surface Roughness Analysis: A Novel Methodology and Practical Insights Armando Coro ¹ ; Mikel González ^{2,3} ; Silvia Martínez ^{2,3} ; ¹ ITP Aero; ² Aeronautics Advanced Manufacturing Center (CFAA); ³ University of the Basque Country (UPV/EHU)
11:50 AM REGULAR	A Comparative Study of Non-Destructive Evaluation Techniques: Ultrasonic Testing, X-Ray Computed Tomography, and Large-Field-of-View Synchrotron Tomography Amir Ziabari ¹ ; Gianni Pisa ² ; Obaidullah Rahman ¹ ; Curtis Frederick ³ ; Paul Brackman ³ ; Ravi Shahani ² ; George Panourgias ² ; Herve Stoppiglia ² ; Guillermo Requena ⁴ ; Elodie Boller ⁵ ; Katrin Bugelnig ⁴ ; ¹ Oak Ridge National Laboratory (ORNL); ² Constellium; ³ ZEISS Industrial Metrology; ⁴ German Aerospace Center (DLR); ⁵ European Synchrotron Radiation Facility	17:10 PM END OF DAY	
12:10 PM LUNCH			
13:30 PM INVITED	Practice for Computed Tomographic Examination of Additive Manufactured Parts Thomas Maeder ¹ ; ¹ Boeing		
14:00 PM INVITED	Monitoring Quality of a CT Scanning System for Production Hardware Ben Connors ¹ ; Kyle Stoll ¹ ; ¹ Nikon Metrology		

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VALUE CHAIN

SINTER-BASED TECHNOLOGIES

29TH OCT 2024 (TUE) – 31ST OCT 2024 (THU)

CO-ORGANIZERS:

Animesh Bose
AMfgLabs, USA

Amy Elliott
Oak Ridge National
Laboratory (ORNL),
USA

Paul Prichard
Oak Ridge National
Laboratory (ORNL),
USA

Efrain Carreño-Morelli
University of Applied Sciences
and Arts Western Switzerland
(HES-SO), Switzerland

Simon Höges
GKN Additive, Germany

Benoit Verquin
Cetim - French Technical Center
for Mechanical Industries, France

29TH OCTOBER 2024

< ROOM 313-314 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Amy Elliot, Oak Ridge National Laboratory

SESSION CHAIR (PM SESSION):

Paul Prichard, Oak Ridge National Laboratory
Richard Huff, ASTM International

09:10 AM
REGULAR **Optimizing NiTi Alloys via Binder Jetting: Advancements and Applications**
[Mohammad Pourshams¹](#); [Nasrin Taheri Andani¹](#); Mohammad Elahinia¹; Behrang Poorganji¹; Timothée Cullaz¹; ¹University of Toledo

09:30 AM
INVITED **Applications and Progress in Use of Additive Manufacturing for Ceramic Nuclear Fuels**
[Andrew Nelson¹](#); Jacob Gorton¹; Patrick Snarr¹; Corson Cramer¹; Christian Petrie¹; ¹Oak Ridge National Laboratory (ORNL)

10:00 AM **BREAK**

10:30 AM
INVITED **Additive Screen Printing: Industrialized AM Technology for Powdered Metals, Ceramics, and Beyond**
[Eric Bert¹](#); ¹Exentis

11:00 AM
INVITED **Select Case Studies on Material Extrusion and Vat Photopolymerization Based Metal AM Processes**
[Animesh Bose¹](#); ¹AMfgLabs

11:30 AM
REGULAR **Emerging Sinter Based AM Technologies for High Frequency Parts for 5G, 6G and Beyond**
[Thomas Studnitzky¹](#); Thomas Weißgärber¹; Kay Reuter¹; Chongliang Zhong¹; Jakob Scheibler¹; ¹Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM

11:50 AM **LUNCH**

13:30 PM
INVITED **An Experimentally-Validated Multiphysics, Fluid-Particle Interaction Modeling Framework for Binder Jet 3D Printing**
[C. Fred Higgs, III¹](#); ¹Rice University

14:00 PM
REGULAR **Towards Understanding Powder Structure Evolution during Binder Jet Printing**
[Nathan Crane¹](#); Jacob Lawrence¹; Madilyn Lawrence¹; Colton Inkley²; ¹Brigham Young University; ²Merit Medical

14:20 PM
REGULAR **Streamlining Metal Binder Jetting Production with CNC Depowdering**
[Ross Adams¹](#); ¹Markforged

14:40 PM
REGULAR **Metal Powders for Sinter-Based Technologies**
[Rohit Reddy¹](#); Tibor Gyorfí¹; ¹Endeavor 3D

15:00 PM **BREAK**

15:30 PM
INVITED **HP Metal Jet S100: Adoption to Production Solution**
[Brett Harris¹](#); Rocío Muñoz Moreno¹; ¹HP

16:00 PM
INVITED **Streamlining Material Development for Sinter Based AM of Metals and Ceramics**
[Ben Arnold¹](#); ¹Tritone Technologies

16:30 PM
INVITED **A Review of Binders and their Importance for Bind and Sinter Additive Manufacturing**
[Dustin Gilmer¹](#); Amy Elliott²; Tomonori Saito²; ¹University of Tennessee Space Institute; ²Oak Ridge National Laboratory (ORNL)

17:00 PM **END OF DAY**

30TH OCTOBER 2024

< ROOM 313-314 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Animesh Bose, AMfgLabs

SESSION CHAIR (PM SESSION):

Simon Höges, GKN Additive

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 Bernardo²; 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 Fayazfar¹](#); ¹Ontario Tech University

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ICAM 2024 FINAL PROGRAM AGENDA

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09:30 AM INVITED	NextGen-AM - Emerging Sinter-Based Additive Manufacturing Technologies for Sustainable Innovations Thomas Weißgärber ¹ ; ¹ Fraunhofer 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 Takafumi Sasaki ¹ ; Daichi Yamaguchi ¹ ; ¹ Ricoh
11:00 AM INVITED	Advancements in Sintering and Distortion for Mass Production of Binder Jet Aluminum 6061 Nicholas Murphy ¹ ; ¹ Kymera International
11:30 AM	LUNCH
13:30 PM INVITED	Improving Geometric Accuracy in Sintering-Based Manufacturing via Numerical Modeling and Simulation Basil Paudel ¹ ; Zack Francis ¹ ; Chong Teng ¹ ; Albert To ² ; ¹ Ansys; ² University of Pittsburgh
14:00 PM REGULAR	Simulation and Experimental Validation of Sintered 316L Pipe Tee Connectors Printed by Binder Jetting Additive Manufacturing Eugene Olevsky ¹ ; Elisa Torresani ¹ ; Alberto Cabo Rios ² ; Thomas Grippi ¹ ; Andrii Maksymenko ¹ ; Marco Zago ³ ; Ilaria Cristofolini ³ ; ¹ San Diego State University; ² Chalmers University of Technology; ³ University of Trento
14:20 PM REGULAR	Designing Distortion Compensation and Setters of Binder Jet-Printed Parts Andreas Vlahinos ¹ ; Sunil Acharya ² ; ¹ Advanced Engineering Solutions; ² Ansys
14:40 PM REGULAR	Vacuum Debinding and Sintering Aerospace Parts Built by Bound Metal Deposition Calvin Stewart ¹ ; Britton DeGarmo ¹ ; ¹ Ohio State University
15:00 PM	BREAK
15:30 PM INVITED	Principles for Success with Sinter-Based Metal AM Stefan Joens ¹ ; ¹ DSH Technologies
16:00 PM INVITED	Challenges and Approach to Turn Binder Jet from Prototype into Mass Production Jinjie Shi ¹ ; Eric Johnson ¹ ; Vinaya Manvatkar ¹ ; Sabina Kumar ¹ ; Casey Miles ¹ ; ¹ Eaton
16:30 PM	END OF DAY

31ST OCTOBER 2024

< ROOM 313-314 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Benoit Verquin, Cetim
Richard Huff, ASTM International

SESSION CHAIR (PM SESSION):

Efrain Carreño-Morelli, University of Applied Sciences and Arts Western Switzerland

08:50 AM REGULAR	Multi-Material Additive Manufacturing for Sinterable Materials Amy Elliott ¹ ; ¹ Oak Ridge National Laboratory (ORNL)
09:10 AM REGULAR	Additive Manufacturing and Spark Plasma Sintering: Fabrication of Powder Components for Advanced Applications Eugene Olevsky ¹ ; Elisa Torresani ¹ ; Thomas Grippi ¹ ; Maricruz Carrillo ¹ ; Chris Haines ² ; Darold Martin ² ; ¹ San Diego State University; ² U.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 Matthew Guile ¹ ; Mattia Forgiarini ¹ ; Michael Pires ² ; Mari-Therese Burton ² ; Chad Beamer ³ ; Wojciech Misiolek ² ; ¹ Azoth; ² Lehigh University; ³ Quintus Technologies
10:00 AM	BREAK
10:30 AM INVITED	Use of Binder Jetting for Reactor Plant Components Jonathan Hendry ¹ ; ¹ Rolls-Royce Submarines
11:00 AM INVITED	Binder Jetting of High Alloyed Steels - Advancement in Tooling Simon Höges ¹ ; ¹ GKN Additive
11:30 AM	LUNCH
13:30 PM INVITED	The Power of ColdMetalFusion Christian Fischer ¹ ; ¹ Headmade Materials
14:00 PM REGULAR	Recent Advances in the Biomedical Field with the Lithography-Based Metal Manufacturing Process György Harakály ¹ ; ¹ Incus
14:20 PM REGULAR	Key Considerations in Mass Production of Precision Metal Components through Sinter-Based AM Mukund Nagaraj ¹ ; ¹ INDO-MIM
14:40 PM REGULAR	Production-Ready Metal Binder Jetting through Precision Machine Designed Printer Ross Adams ¹ ; ¹ Markforged
15:00 PM	BREAK

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- 15:30 PM** **Sinter-Based Additive Manufacturing of Copper**
INVITED [Mahmood Shirooyeh](#)¹; ¹3DEO
- 16:00 PM** **Two Heat Treatable Copper Alloys for AM: C18150 and C18000**
INVITED [Miranda Moschel Vader](#)¹; ¹Kymera International
- 16:30 PM** **END OF DAY**

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ICAM 2024 FINAL PROGRAM AGENDA

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VALUE CHAIN

SUSTAINABILITY AND ECONOMICS

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

CO-ORGANIZERS:

Ramona Fayazfar
Ontario Tech University, Canada

Marius Lakomec
EOS, Germany

Sherri Monroe
Additive Manufacturer Green
Trade Association (AMGTA), USA

Behrang Poorganji
Nikon AM Synergy,
USA

28TH OCTOBER 2024
< ROOM 305 (LEVEL 03) >

SESSION CHAIR (PM SESSION):
Marius Lakomec, EOS

- 13:30 PM**
INVITED Sustainable Materials for Additive Manufacturing
[Krysten Minnici](#)¹; ¹Arkema
- 14:00 PM**
REGULAR Digital Collaboration for Supply Chain Optimization through Additive Manufacturing
[Christopher Robinson](#)¹; [Alexandre Matei](#)¹; [David Bourbonnais](#)¹; [Pieter Ruijsenaars](#)²; [Tom Cornthwaite](#)²; ¹Ansys; ²DiManEx
- 14:20 PM**
REGULAR Scaling Metal Additive: A Path to Optimizing the Value Chain
[Chris Prue](#)¹; ¹CP Additive & Consulting
- 14:40 PM**
REGULAR Can Additive Manufacturing Help Sustainability without Damaging Profitability?
[Evan Roux](#)¹; ¹aPriori Technologies
- 15:00 PM**
BREAK
- 15:30 PM**
INVITED Material Extrusion Additive Manufacturing as a Tool for Polymer Recycling at the Point of Need
[Patrick Ferrell](#)¹; [Samantha Snabes](#)¹; ¹re:3D
- 16:00 PM**
REGULAR Enhancing Sustainable Infrastructure with 3D Printing: 1Print's Approach to Technological Innovation and Strategic Partnerships
[Montale Tuen](#)¹; [Fredrik Wannius](#)²; ¹University of Miami; ²1Print
- 16:20 PM**
END OF DAY

29TH OCTOBER 2024

< ROOM 305 (LEVEL 03) >

SESSION CHAIR (AM SESSION):
Sherri Monroe, AMGTA

SESSION CHAIR (PM SESSION):
Pascal De Guio, SNCF Réseau

- 09:10 AM**
REGULAR Additive Manufacturing: A Key Sustainability Driver in Aerospace
[Taisia \(Asya\) Lou](#)¹; [Arun Muley](#)¹; [Gracio Lobo](#)¹; ¹Boeing
- 09:30 AM**
INVITED From Waste to Eco-Construction: Low-Carbon Materials Driving 3D Printing Construction Toward a Sustainable Future
[Ramona Fayazfar](#)¹; ¹Ontario Tech University
- 10:00 AM**
BREAK
- 10:30 AM**
INVITED Definition and Application of AM Specific Production KPIs to Compare Performance Relevant Attributes with Conventional Productions Processes
[Marius Lakomec](#)¹; ¹EOS
- 11:00 AM**
INVITED Optimising AM Processes for Minimising CO2 Emissions and Manufacturing Costs
[Huba Hörömpöly](#)¹; ¹Gravity Pull Systems
- 11:30 AM**
INVITED European Perspective on AM Market Development
[Christian Seidel](#)¹; ¹Wohlers Associates
- 12:00 PM**
LUNCH
- 13:30 PM**
INVITED The Economies of Powder Production
[Caitlin Oswald](#)¹; ¹Carpenter Additive
- 14:00 PM**
INVITED Powder and Process Optimization for Sustainable Additive Manufacturing (POSAM)
[Brian Fisher](#)¹; [Hannah Budinoff](#)²; [Scot Thompson](#)³; ¹RTX Technology Research Center; ²University of Arizona; ³6K Additive
- 14:30 PM**
INVITED The Environmental Impact that Powder Manufacturing Processes Can Have on an LCA
[Brian Morrison](#)¹; ¹6K Additive
- 15:00 PM**
BREAK
- 15:30 PM**
REGULAR A Rigorous Life Cycle Assessment Framework for Disruptive Manufacturing of Maritime Spare Parts via Additive and Conventional Manufacturing Methods
[Trond Halvorsen](#)¹; [Kamal Azrague](#)¹; [Afaf Saai](#)¹; [Håkon Ellekjær](#)²; ¹SINTEF; ²Pelagus 3D

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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 Vidal¹; ¹SNCF 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 Walther¹; ¹TU Dortmund University

16:30 PM **END OF DAY**

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NON-METALLIC MATERIALS

CERAMICS

28TH OCT 2024 (MON)

CO-ORGANIZERS:

Shawn Allan

Lithoz, USA

Jason Jones

Moog, USA

Sadaf Sobhani

Cornell University, USA

Brandon Cox

Honeywell, USA

Russell Maier

NIST, USA

28TH OCTOBER 2024
< ROOM 305 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Shawn Allan, Lithoz

-
- | | |
|-----------------------------------|--|
| 08:50 AM
REGULAR | Multi-Oxide Direct Ink Writing and Co-Sintering for Duplex Ceramic Nuclear Fuel Applications
Patrick Snarr ¹ ; Corson Cramer ¹ ; Beth Armstrong ¹ ; Derek Haas ² ; Joseph Beaman ² ; Christian Petrie ¹ ; Andrew Nelson ¹ ; ¹ Oak Ridge National Laboratory (ORNL); ² University of Texas at Austin |
| 09:10 AM
REGULAR | Comparative Rheological Assessment of Ceramic Ink Printability: Capillary vs. Rotational Techniques in Direct Ink Writing
Russell Maier ¹ ; Lynnora Grant ¹ ; Ran Tao ¹ ; Stian Romberg ¹ ; Benjamin Dolata ¹ ; ¹ NIST |
| 09:30 AM
INVITED | Ceramic Additively Manufactured (AM) Piezoelectric Acoustic Transducers
Casey Corrado ¹ ; Justin Tufariello ¹ ; Barry Robinson ² ; Shawn Allan ³ ; Alex Angilella ¹ ; Brian Pazol ² ; ¹ MITRE; ² MSI Transducer; ³ Lithoz |
| 10:00 AM | BREAK |
| 10:30 AM
INVITED | Advanced Alumina and Silicon Carbide Fabrication using Laser Induced Slip Casting
Corson Cramer ¹ ; ¹ Oak Ridge National Laboratory (ORNL) |
| 11:00 AM
REGULAR | Microwave 3D Lunar Building
Holly Shulman ¹ ; ¹ DrHollyShulman |
| 11:20 AM
REGULAR | Additive Manufacturing of Ceramics; Laser Scan Strategies and How They Influence Alumina Printed Parts
Brigid Mullany ¹ ; Sarah-Margaret Andrews ¹ ; Angela Allen ¹ ; Taylor Barrett ¹ ; Tien Herd ¹ ; ¹ University of North Carolina at Charlotte |
| 11:40 AM | END OF DAY |

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NON-METALLIC MATERIALS

POLYMERS

30TH OCT 2024 (WED)

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

30TH OCTOBER 2024
< ROOM 305 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Callie Higgins, NIST
Jessica Hemond, TE Connectivity

SESSION CHAIR (PM SESSION):

Thomas Fabian, Blue Sky Polymer Consulting
Jessica Hemond, TE Connectivity

08:50 AM
REGULAR **Mechanical and Physical Properties of Carbon-PEKK Composite 3D-Printed on an EOS P810**
[Lexus Brosh](#)¹; [Nathan Bryant](#)¹; Thad Kacsandy¹; Jessica Orr¹; Alec Schalo¹; Christopher Buck¹; ¹University of Dayton Research Institute

09:10 AM
REGULAR **Characterizing the Quasi-Static Lap-Shear Response of Hybrid GFRTP/LSAM Composite Panel Bond Interfaces**
[Audrey Laffely](#)¹; Camerin Seigars¹; ¹University of Maine - Advanced Structures and Composites Center

09:30 AM
INVITED **Characterization of Materials for Vat Photopolymerization through UV-DSC and DMA**
[Ye Wang](#)¹; Jessica Hemond¹; ¹TE Connectivity

10:00 AM **BREAK**

10:30 AM
INVITED **Updates in Vat Photopolymerization Standardization Efforts: Where We Are Now and Where We Are Going**
[Callie Higgins](#)¹; ¹NIST

11:00 AM
INVITED **Developing Scalable Solutions for AM Production using Vat Photopolymerization**
[Phillip Nagel](#)¹; ¹3D Systems

11:30 AM
REGULAR **Fatigue Behaviour of 3D-Printed Plain and Fiber Reinforced Thermoplastics; Including the Effects of Frequency, Infill Pattern, Infill Density, and Layer Height**
[Mohammad Amjadi](#)¹; Brayden May¹; ¹Arkansas Tech University

11:50 AM **LUNCH**

13:30 PM
INVITED **Why Tune for Part Quality?**
[Mike Bosveld](#)¹; ¹Stratasys

14:00 PM
REGULAR **Composite Materials Handbook (CMH-17) Volume 7 on Non-Metallic Additive Manufacturing**
[Michelle Man](#)¹; ¹Wichita State University - National Institute for Aviation Research (WSU - NIAR)

14:20 PM
REGULAR **Sustainable Production of Large Casting Patterns using Large Format Additive Manufacturing (LFAM)**
[Arthur Prior](#)¹; Edward Cant¹; ¹The Manufacturing Technology Centre (MTC)

14:40 PM **BREAK**

15:30 PM
INVITED **Voxel Mechanics and Geometry in Vat Photopolymerization**
[Jason Killgore](#)¹; ¹NIST

16:00 PM
REGULAR **Analysis of PA12 Relevance as a Substitute for Obsolescent Bakelite Products**
[Pascal De Guio](#)¹; [Philippe Kuchly](#)¹; Veronique Vidal¹; ¹SNCF Réseau

16:20 PM **END OF DAY**

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INDUSTRY 4.0

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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

CO-ORGANIZERS:

Shaw Feng
NIST, USA

Simon McCaldin
Authentise, United Kingdom

Jia (Peter) Liu
Auburn University, USA

Luke Scime
Oak Ridge National
Laboratory (ORNL), USA

31ST OCTOBER 2024

< ROOM 210-211 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Simon McCaldin, Authentise

SESSION CHAIR (PM SESSION):

Jia (Peter) Liu, Auburn University

08:50 AM
REGULAR **Harnessing Generative AI for Intelligent Engineering and Manufacturing: Lessons Learned and Future Directions**
[Simon McCaldin](#)¹; Erica Vlahinos¹;
¹Authentise

09:10 AM
REGULAR **Explainable AI for Defect Detection Analysis in Laser Powder Bed Fusion**
[Sebastian Larsen](#)¹; Paul Hooper¹; ¹Imperial College London

09:30 AM
INVITED **Multimodal Process Monitoring Data Fusion for Enhanced Pore Identification during Laser Powder Bed Fusion**
[Sanam Gorgannejad](#)¹; ¹Lawrence Livermore National Laboratory (LLNL)

10:00 AM **BREAK**

10:30 AM
INVITED **Physics-Informed and Data-Driven Digital Twinning for Fusion-Based Metal Additive Manufacturing**
[Tuğrul Özel](#)¹; ¹Rutgers University-New Brunswick

11:00 AM
INVITED **~~**CANCELLED**~~ Diffusion and Transformer Modeling for Additive Manufacturing Digital Twins**
[Hyunwoong Ko](#)¹; [Fatomeh Elhambakhsh](#)¹; [Suk Ki Lee](#)¹; ¹Arizona State University

11:30 AM
REGULAR **Process Parameter Optimization using Topological Methods**
[Michael Sprayberry](#)¹; Amir Ziabari¹; ¹Oak Ridge National Laboratory (ORNL)

11:50 AM **LUNCH**

13:30 PM
INVITED **Machine Learning Applied to Understanding the Melt Pool Spatter Problem in AM**
[Jack Beuth](#)¹; Nicholas O'Brien¹; Christian Gobert¹; Satbir Singh¹; ¹Carnegie Mellon University

14:00 PM
INVITED **Nondestructive Fatigue Life Prediction for Additively Manufactured Parts through a Multimodal Transfer Learning Framework**
[Jia \(Peter\) Liu](#)¹; Shuai Shao¹; Nima Shamsaei¹; ¹Auburn University

14:30 PM
INVITED **Machine Learning for In-Situ Additive Manufacturing**
[Anthony Garland](#)¹; Jesse Adamczyk¹; Matthew McKinney¹; Michael Heiden¹; Dan Bolintineanu¹; ¹Sandia National Laboratories

15:00 PM **BREAK**

15:30 PM
INVITED **Machine Learning for Smart and Ethical Manufacturing**
[Hongyue Sun](#)¹; ¹University of Georgia

16:00 PM
REGULAR **The Human - Machine Workforce. Where Do We Go from Here?**
[Cecelia Wren](#)¹; ¹Claire Technologies

16:20 PM
REGULAR **Intelligent Feed Forward Optimization of LPBF Input Parameters: Exploring Training, Models & Results**
[Gabe Guss](#)¹; ¹Lawrence Livermore National Laboratory (LLNL)

16:40 PM
REGULAR **Inverse Generation of Metamaterial using Graph Neural Network**
[Ajit Panesar](#)¹; Jier Wang¹; ¹Imperial College London

17:00 PM **END OF DAY**

01ST NOVEMBER 2024

< ROOM 210-211 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

Luke Scime, Oak Ridge National Laboratory

08:50 AM
REGULAR **First Time Right: The Contribution of Laser Toolpath in Laser Powder Bed Fusion**
[Sébastien Lani](#)¹; [Huba Horompoly](#)²;
¹Switzerland Innovation Park Biel/Bienne;
²Gravity Pull Systems

09:10 AM
REGULAR **AI in AM Production Workflows: Leveraging Automated Defect Recognition in Real-Time and Post-Build Inspections to Reduce Production Costs**
[Amar Patel](#)¹; [Rohan Buntval](#)¹; ¹Baker Hughes

09:30 AM
INVITED **Breaking the Data Barrier: Physics-Informed Machine Learning for Metal Additive Manufacturing**
[Azadeh Haghighi](#)¹; Meysam Faegh¹;
¹University of Illinois Chicago

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10:00 AM **BREAK**

10:30 AM **The Importance of Reliable AI Model**
REGULAR **Inference in Real-Time Monitoring and**
 Issue Detection of Additive Manufacturing
 Processes
 Petros Apostolou¹; Robert Bray¹; Shuchi
 Khurana¹; ¹Addiguru

10:50 AM **Harnessing the Power of AI and LLMs in**
REGULAR **Revolutionizing Manufacturing, Design,**
 and Standards Application
 Mark Burhop¹; Tim Bell¹; ¹Sciath aiM Forge

11:10 AM **END OF DAY**

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INDUSTRY 4.0

DATA MANAGEMENT

30TH OCTOBER 2024 (WED)

CO-ORGANIZERS:

Peter Coutts
Pennsylvania State University, USA

James Fonda
Boeing, USA

Yan Lu
NIST, USA

Mike Vasquez
3Degrees, USA

30TH OCTOBER 2024
< ROOM 303 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Mike Vasquez, 3Degrees

SESSION CHAIR (PM SESSION):

Yan Lu, NIST

09:00 AM
INVITED AM Data Quality Management for Successful Digital Twin Implementations
Yan Lu¹; ¹NIST

09:30 AM
INVITED Navigating the Complexities of Constructing an Additive Manufacturing Database from Diverse Data Sources
Peter Coutts¹; ¹Pennsylvania State University - Applied Research Laboratory (PSU - ARL)

10:00 AM
BREAK

10:30 AM
INVITED Navigating Exponential Growth: Automating Data Management for Efficiency and Compliance
Alex Benham¹; ¹Dyndrite

11:00 AM
INVITED Using Effective AM Data Management to Make Meaningful Engineering Decisions
Mike Vasquez¹; ¹3Degrees

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; ¹Baker Hughes

11:50 AM
REGULAR Data Driven Quality Assurance of the AM Process
Marius Lakomic¹; ¹EOS

12:10 PM
LUNCH

13:30 PM
INVITED Additive Manufacturing Data Management for ML: Case Studies, Challenges, and Next Steps
Marco Musto¹; James Saal¹; ¹Citrine Informatics

14:00 PM
INVITED Moving From a Development to a Production Mindset in AM Data Management
Matthew Scott¹; James Fonda¹; ¹Boeing

14:30 PM
INVITED Challenges in Producing, Curating, and Sharing Large Multimodal, Multi-Institutional Data Sets for Additive Manufacturing
Shengyen Li¹; Lyle Levine¹; Brandon Lane¹; Gerard Lemson²; Jai Won Kim²; Gretchen Greene¹; ¹NIST; 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; ¹Naval 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; ¹Renishaw

16:30 PM
INVITED Digital Twin Playground for Additive Manufacturing Applications
Maciej Zawodniok¹; Steven Thompson¹; ¹Missouri University of Science and Technology

17:00 PM
INVITED Accelerating Qualification: Unveiling the Power of Digital Infrastructure
Gregor Reischle¹; ¹Qualified AM GmbH

17:30 PM
END OF DAY

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INDUSTRY 4.0

MODELING, SIMULATION, AND DIGITAL TWINS

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

CO-ORGANIZERS:

Nicholas Mulé

Boeing, USA

James Sobotka

Southwest Research
Institute (SwRI), USA

Wei Xiong

University of Pittsburgh, USA

Shuai Shao

Auburn University, USA

Soheil Soghrati

Ohio State University, USA

28TH OCTOBER 2024

< ROOM 206-207 (LEVEL 02) >

SESSION CHAIR (AM + PM SESSIONS):

Shuai Shao, Auburn University

Soheil Soghrati, Ohio State University

09:00 AM
INVITED **Digital Qualification of LPBF Components**
[Abdullah Azam](#)¹; [Jazib Hassan](#)¹; [Farsad Forghani](#)²; [Lukas Jiranek](#)¹; ¹Boeing; ²Alloyed

09:30 AM
INVITED **Rapid Qualification of Additively Manufactured Parts: Building the Digital Thread between Computed Tomography and Structural Analysis**
[Steven Kraft](#)¹; ¹Lockheed Martin

10:00 AM
BREAK

10:30 AM
INVITED **Model-Assisted Qualification for AM: Practical Examples and Future Directions**
[Brendan Croom](#)¹; [Michael Presley](#)¹; [David Furrer](#)²; [Morgana Trexler](#)¹; [Anthony Rollett](#)³; [Somnath Ghosh](#)¹; ¹Johns Hopkins University; ²Pratt & Whitney; ³Carnegie Mellon University

11:00 AM
REGULAR **Qualification and Optimization of Laser Powder Bed Fusion (LPBF) Parts through Simulation**
[Alaa Olleak](#)¹; ¹Ansys

11:20 AM
REGULAR **Using Microstructure-Sensitive Modeling to Accelerate Qualification of Fatigue Critical AM Alloys**
[Gary Whelan](#)¹; ¹QuesTek Innovations

11:40 AM
REGULAR **A Multiscale Simulation Framework for Optimizing the Shot-Peening Process using Reduced Order Modeling**
[Satish Kumar Meenakshisundaram](#)¹; [Sunil Acharya](#)¹; [Ahmad Haghnegahdar](#)¹; ¹Ansys

12:00 PM
LUNCH

13:30 PM
INVITED **Advancing Computational Tools for Additive Manufacturing**
[Timothy Poe](#)¹; [Mallory James](#)¹; ¹NASA - Marshall Space Flight Center (MSFC)

14:00 PM
REGULAR **New Developments for Probabilistic Modelling of Complex Parts**
[Stefano Beretta](#)¹; ¹Politecnico di Milano

14:20 PM
REGULAR **Influence of Volumetric Defect's Geometry on Fatigue Crack Initiation of Additively Manufactured Materials**
[Sajith Soman](#)¹; [Mohammad Aquib Anis](#)¹; [Shuai Shao](#)¹; [Nima Shamsaei](#)¹; ¹Auburn University

14:40 PM
REGULAR **Computational Model and Experimental Calibration for Densification, Shape Distortion and Geometry Compensation during Sintering of Metal Binder Jetting**
[Sabina Kumar](#)¹; [Karthik Rajan Venkatesan](#)¹; [Logan Ware](#)¹; [Jinjie Shi](#)¹; [Eric Johnson](#)¹; [Niloofar Sanaei](#)¹; ¹Eaton

15:00 PM
BREAK

15:30 PM
REGULAR **Melting and Solidification Simulation Combining Virtual Powder Bed and CFD Simulation for Laser Powder Bed Fusion Process**
[Takashi Maeshima](#)¹; [Hideaki Ikehata](#)¹; [Tsuyoshi Mizutani](#)²; [Mio Ban](#)³; [Tsubasa Kobayashi](#)³; ¹Toyota Central R&D Labs; ²DENSO; ³ AISIN

15:50 PM
REGULAR **Development and Numerical Optimization of Variable Process Parameters in Laser Powder Bed Fusion of Magnesium**
[Tim Koenis](#)¹; [Maria Montero-Sistiaga](#)¹; [Marc de Smit](#)¹; [Yang Yang](#)²; [Can Ayas](#)²; ¹Royal NLR - Netherlands Aerospace Centre; ²Delft University of Technology

16:10 PM
INVITED **~~**CANCELLED**~~**
~~First Principles Design of Hybrid Autonomous Manufacturing Processes~~
~~[Glenn Daehn](#)¹; [Jian Cao](#)²; [John Lewandowski](#)³; [Tony Schmitz](#)⁴; [Jag Sankar](#)⁵; [Michael Groeber](#)¹; [Brian Thurston](#)¹; [Steve Niezgoda](#)¹; ¹Ohio State University; ²Northwestern University; ³Case Western Reserve University; ⁴University of Tennessee, Knoxville; ⁵North Carolina Agricultural and Technical State University~~

16:40 PM
END OF DAY

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29TH OCTOBER 2024
< ROOM 206-207 (LEVEL 02) >

SESSION CHAIR (AM SESSION):

James Sobotka, Southwest Research Institute
Soheil Soghrati, Ohio State University

SESSION CHAIR (PM SESSION):

Shuai Shao, Auburn University
James Sobotka, Southwest Research Institute

08:50 AM
REGULAR **Integrated Pre-Build Process Planning Toolbox for Cold Spray Additive Manufacturing**
[Elizabeth Chang-Davidson](#)¹; Akshay Vaidya¹; Mann Patel¹; Ozan Özdemir¹; Sinan Müftü¹; ¹Northeastern University

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 Basak](#)¹; 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 Khairallah](#)¹; [Gabe Guss](#)¹; 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 Jackman](#)¹; ¹Flow Science

11:00 AM
REGULAR **Investigating the Impact of Multiple Stress Raisers on the Fatigue Performance of Laser Powder Bed Fusion Additive Manufacturing Components**
[Enrique Escobar](#)¹; Armando Coro²; Sascha Hell¹; Hrushikesh Mapari¹; Patrick Herberich¹; Santiago Mañé²; ¹Ansys; ²ITP Aero

11:20 AM
REGULAR **Compressive Behavior and Failure Mode Prediction of Additively Manufactured LPBF Inconel 718 Lattice Structures**
[Hend Alqaydi](#)¹; Fengbo Han¹; Kapil Krishnan¹; Lewis Kindleyside¹; Nesma Aboulkhaire¹; ¹Technology Innovation Institute

11:40 AM
REGULAR **Advancing Large-Format Additive Manufacturing (LFAM) through Physics-Based Computational Modeling**
[Harsh Baid](#)¹; [Gene Eidelman](#)²; [Eli Rogers](#)²; Mallikharjun Marrey¹; Saratchandra Kundurthi¹; ¹AlphaSTAR; ²Azure Printed Homes

12:00 PM **LUNCH**

13:30 PM
INVITED **Automated Microstructure Reconstruction, Mesh Generation, and AI-Driven Algorithms for Modeling Materials with Complex Microstructures**
[Soheil Soghrati](#)¹; Balavignesh Vemparala¹; Salil Pai¹; Kartik Kashyap¹; Pengfei Zhang¹; ¹Ohio State University

14:00 PM
INVITED **Deep Artificial Intelligence vs. Pragmatic Artificial Intelligence vs. Digital Twins - Physics-Based Pathways for Accelerated Qualification of Additive Manufacturing**
[Prahallad Rao](#)¹; ¹Virginia Tech

14:30 PM
REGULAR **Digital Twins to Deliver Unprecedented Process Control for Additive Manufacturing**
[An-Tsun \(Robin\) Wei](#)¹; Cory Duvall¹; Hui Wang²; Lei (Rachel) Chen¹; Daniel Mosher¹; Jun Zeng¹; ¹HP; ²Florida A&M University - Florida State University (FAMU-FSU) College of Engineering

14:50 PM
REGULAR **Additive Manufacturing Process Parameter Design for Variable Component Geometries using Reinforcement Learning**
[Elham Mirkoohi](#)¹; ¹Auburn University

15:10 PM **END OF DAY**

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INDUSTRY 4.0

ROBOTICS AND AUTOMATION

31ST OCT 2024 (THU)

CO-ORGANIZERS:

Azadeh Haghighi
University of Illinois
Chicago, USA

Matthew Robinson
Southwest Research Institute
(SwRI), USA

Sina Sareh
Royal College of Art,
United Kingdom

Milton Walker
Intel, USA

31ST OCTOBER 2024

< ROOM 303 (LEVEL 03) >

SESSION CHAIR (PM SESSION):

Azadeh Haghighi, University of Illinois Chicago
Matthew Robinson, Southwest Research Institute

13:30 PM
INVITED **Real-Time Predictions of Distortion and Residual Stress Resulting from Weld Sequences using ML Algorithms**
[Matthew Robinson](#)¹; ¹Southwest Research Institute (SwRI)

14:00 PM
REGULAR **Exploring Novel Solutions for Enhanced Mechanical Performance and Efficiency in Robotic Additive Manufacturing**
[Azadeh Haghighi](#)¹; [Suyog Ghungrad](#)¹;
¹University of Illinois Chicago

14:20 PM
REGULAR **Robots for Additive Automation**
[Guy Brown](#)¹; [Kaleigh Mota](#)¹; ¹Ai Build

14:40 PM
REGULAR **Updates on Standards for Robotic Bin Picking Applications**
[Kamel Saidi](#)¹; [Prem Rachakonda](#)¹; [Marek Franaszek](#)¹; [Helen Qiao](#)¹; [Armin Khatoonabadi](#)²; [David Dechow](#)³; ¹NIST; ²Apera AI; ³Machine Vision Source

15:00 PM **BREAK**

15:30 PM
INVITED **How AI Enabled Robots and Tools can Enable your Material Removal and Finishing Processes**
[Michael Haas](#)¹; ¹FerRobotics

16:00 PM
INVITED **Automated Robotic Wire Arc Additive Manufacturing (WAAM) with Integrated Sensing**
[John Wen](#)¹; [Honglu He](#)¹; [Chen-Lung Lu](#)¹; [Jinhan Ren](#)¹; [Joni Chandra Dhar](#)¹; [Glenn Saunders](#)¹; [John Wason](#)¹; [Johnson Samuel](#)¹; [Agung Julius](#)¹; ¹Rensselaer Polytechnic Institute

16:30 PM **END OF DAY**

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INDUSTRY 4.0

SECURITY ASPECTS

29TH OCT 2024 (TUE)

CO-ORGANIZERS:

Chris Adkins
Materialise, USA

Jason Daniels
Integrity Training Consulting, USA

Joshua Lubell
NIST, USA

Mark Yampolskiy
Auburn University, USA

29TH OCTOBER 2024
< ROOM 303 (LEVEL 03) >

SESSION CHAIR (AM SESSION):

Mark Yampolskiy, Auburn University
Chris Adkins, Materialise

SESSION CHAIR (PM SESSION):

Mark Yampolskiy, Auburn University
Joshua Lubell, NIST

09:00 AM
INVITED **Approaches for Securely Scaling Additive Manufacturing**
[Victor Gerdes](#)¹; ¹Stratasys

09:30 AM
INVITED **Implementing a Cyber Security Certification for the Additive Manufacturing Process**
[Alan Sukert](#)¹; 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 Maasberg](#)¹; Leslie Butler²; Ian Taylor³; ¹United States Naval Academy (USNA); ²Louisiana State University; ³SIMBA Chain

11:00 AM
INVITED **Trustworthy Cyber-Physical Manufacturing via Physics-Aware and AI-Powered Security**
[Saman Zonouz](#)¹; 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 Gibbons](#)¹; [Joshua Lubell](#)¹; ¹NIST

12:00 PM
LUNCH

13:30 PM
INVITED **Nadcap Developments in Counterfeit Avoidance**
[Richard Freeman](#)¹; ¹Performance Review Institute

14:00 PM
INVITED **Additive Manufacturing and the Production of Firearms and Machineguns**
[William Ryan](#)¹; ¹Department of Justice

14:30 PM
INVITED **~~AM & AI: Risks and Opportunities Assessment for Intellectual and Technical Property Protection~~**
~~[Jérémie Farret](#)¹; Zbigniew Sagan²; Elham Soleymani¹; ¹Mind in a Box; ²Advanced Track & Trace~~

15:00 PM
BREAK

15:30 PM
INVITED **A Secure and Distributed Production Model for the Scale and Quality of Additive Manufacturing**
[Nicholas Mulé](#)¹; Wentao Fu¹; ¹Boeing

16:00 PM
INVITED **The Security-Quality Nexus for Distributed Manufacturing**
[Sharon Flank](#)¹; ¹InfraTrac

16:30 PM
INVITED **Empowering Distributed AM with SECURE PRINT**
[Zvi Stachel](#)¹; ¹Assembrix

17:00 PM
END OF DAY

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KEYNOTES & PANEL DISCUSSIONS SALON BALLROOM (LEVEL 02)

28TH OCT 2024 (MON)

08:00 AM
KEYNOTE 01
AVIATION

ADVANCES IN ADDITIVE MANUFACTURING ENABLING SCALE, QUALITY, AND POSITIVE SUSTAINABILITY TRADES

KEYNOTE SPEAKER:
Melissa Orme, Boeing

11:00 AM
PANEL 01
INDUSTRY 4.0

ACCELERATING INDUSTRY 4.0 ADOPTION

MODERATOR:
Venkat Vedula,
RTX

PANELISTS:

- George Barnych, Manufacturing Technology Deployment Group
- Jason Bridges, Lockheed Martin
- Mark Burhop, Sciath aiM Forge
- James Sobotka, Southwest Research Institute

16:00 PM
PANEL 02
INSPECTION

INSPECTION CAPABILITIES, GAPS, AND REQUIREMENTS

MODERATOR:
Brian Fisher,
RTX Technology
Research Center

PANELISTS:

- Thomas Broderick, Federal Aviation Administration
- Patrick Howard, GE Aerospace
- Brandon Lane, NIST
- Luke Scime, Oak Ridge National Laboratory
- Douglas Wells, NASA - Marshall Space Flight Center

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KEYNOTES & PANEL DISCUSSIONS SALON BALLROOM (LEVEL 02)

29TH OCT 2024 (TUE)

08:00 AM
KEYNOTE 02
AVIATION

CHALLENGES AND OPPORTUNITIES FOR BUILDING A RESILIENT AEROSPACE ADDITIVE MANUFACTURING SUPPLY CHAIN

KEYNOTE SPEAKER:

David Bond, GKN Aerospace

11:00 AM
PANEL 03
*DEFENSE /
AVIATION / SPACE*

ROCKET MANUFACTURING - AVIATION/DEFENSE/SPACE: IS IT GONNA BE A LONG, LONG TIME BEFORE WE SEE INDUSTRY SCALE UP?

MODERATOR:

Martin White,
ASTM International

PANELISTS:

- Cindy Ashforth, Federal Aviation Administration
- Paul Gradl, NASA - Marshall Space Flight Center
- Sascha Hartig, German Navy
- Behrang Poorganji, Nikon AM Synergy
- Brandon Ribic, National Center for Defense Manufacturing and Machining

16:00 PM
PANEL 04
MEDICAL

ENABLING POINT OF CARE MANUFACTURING

MODERATOR:

Ryan Kircher,
rms Company

PANELISTS:

- David Dean, Ohio State University
- Matthew Di Prima, U.S. Food and Drug Administration
- Laura Gilmour, LG Strategies
- Sean McEligot, Mayo Clinic
- Nicole McMinn, Walter Reed National Military Medical Center

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KEYNOTES & PANEL DISCUSSIONS SALON BALLROOM (LEVEL 02)

30TH OCT 2024 (WED)

08:00 AM
KEYNOTE 03
ECONOMICS

A REALISTIC VIEW OF THE FUTURE OF AM

KEYNOTE SPEAKER:

Terry Wohlers, Wohlers Associates

11:00 AM
PANEL 05
LARGE FORMAT AM

GO BIG OR GO HOME: DEVELOPMENTS IN LARGE-SCALE ADDITIVE

MODERATOR:

Paul Gradl,
NASA - Marshall
Space Flight Center

PANELISTS:

- Alan Fung, Aerojet Rocketdyne
- Carl Hauser, Wohlers Associates
- Matthew Kelly, U.S. Army CCDC-GVSC
- Elena López, Fraunhofer IWS
- Louise Slade, DEEP

16:00 PM
PANEL 06
STANDARDS

15 YEARS OF ADDITIVE STANDARDIZATION

MODERATOR:

Brent Stucker,
Wohlers Associates

PANELISTS:

- Jesse Boyer, Pratt & Whitney
- Shane Collins, Wohlers Associates
- Carl Dekker, Met-L-Flo
- David Rosen, A*STAR - IHPC / SIMTech
- Christian Seidel, Wohlers Associates

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KEYNOTES & PANEL DISCUSSIONS SALON BALLROOM (LEVEL 02)

31ST OCT 2024 (THU)

08:00 AM
KEYNOTE 04
MEDICAL

MAKING HEALTHCARE BETTER: HOW AM IS HELPING STRYKER TO DEVELOP INNOVATIVE SOLUTIONS TO UNMET CUSTOMER NEEDS

KEYNOTE SPEAKER:

Naomi Murray, Stryker AMagine® Institute

11:00 AM
PANEL 07
ECONOMICS

AM ECONOMICS AND BUSINESS MODELS: THE ROLE OF GOVERNMENT AND PRIVATE SECTOR

MODERATOR:

Terry Wohlers,
Wohlers Associates

PANELISTS:

- Andrés Blanco, LM Ventures
- Rey Chu, PADT / Oryx Additive
- Neal Orringer, ASTRO America
- Tad Steinberg, Siemens Energy

16:00 PM
PANEL 08
QUALIFICATION & CERTIFICATION

CHARTING THE COURSE: THE FUTURE OF QUALIFICATION AND CERTIFICATION FOR AM IN AEROSPACE

MODERATOR:

Jesse Boyer,
Pratt & Whitney

PANELISTS:

- Desi Bacheva, Airbus
- Colton Katsarelis, NASA - Marshall Space Flight Center
- Morgan Mader, Joby Aviation
- Yash Parikh, EOS
- Cindy Waters, Naval Surface Warfare Center - Carderock Division

Note: This agenda features a list of the accepted presentations for ICAM 2024 and their **final** allocated timeslots. The program line-up for each symposium is as per the order reflected (subjected to no-shows and/or last-minute withdrawals). Do contact us at icam@astm.org if you need more information.

ICAM 2024 FINAL PROGRAM AGENDA

Updated as of 04th November 2024

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KEYNOTES & PANEL DISCUSSIONS SALON BALLROOM (LEVEL 02)

01ST NOV 2024 (FRI)

08:00 AM
KEYNOTE 05
DEFENSE

DOD PERSPECTIVE ON ADVANCED MANUFACTURING
KEYNOTE SPEAKER:
Aprille Ericsson, U.S. Department of Defense

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