SIC: Advancing Precision in Additive Manufacturing TU Berlin, 6th-9th October 2025

Monday 6th October 2025

Time (CEST)	Workshop
13:30-14:00	**Registration & Welcome coffee**
14:00-15:30	**Characterization of advanced materials by traceable X-ray spectrometry,** Dr Burkhard Beckhoff, PTB

Time (CEST)	Workshop
15:30-16:00	**Registration & Welcome coffee**
16:00-17:30	**Dedicated machine tools for Precision AM** Prof. Dr Julian Polte, TU Berlin
	Free evening

Day 1: Tuesday 7th October 2025

08:45 – 09:00	**Welcome address:** John S. Taylor, University of North Carolina at Charlotte, US / Dr. Dirk Oberschmidt, TU Berlin, DE
09:00 – 09:10	**Welcome address:** Vice Dean for Research: Prof. Dr.-Ing. Michael Rethmeier, TU Berlin, DE
09:15 – 09:45 (25+5 mins)	**Keynote 1: Unlocking the Power of Industrial 3D Printing** Dr.-Ing. Tina Schlingmann, EMEA at EOS GmbH Introduced by Dirk Oberschmidt
Chair: John Taylor / Dirk Oberschmidt	**Session 1: Design for manufacturing and precision applications**
09:45 – 10:10 (20+5 mins)	**Session keynote:** Performance of additively manufactured surface ground porous metal aerostatic bearings *Onni Leutonen, Aalto University (AM25117)*
10:10 – 10:25	**Oral 1:** Improving the Inflow and Outflow of Triply Periodic Minimal Surfaces for Additively Manufactured Heat Exchangers *Janek Fasselt Fraunhofer IPK (AM25133)*
10:25 – 10:30	**Discussion**
10:30 – 10:50	**Coffee break and poster viewing**
10:50 – 11:05	**Oral 2:** Additive manufacturing for the repair of gas turbine blades with internal cooling channels: A sealing approach to prevent powder penetration *Tahmineh Naderi, Technische Universität Berlin (AM25136)*
11:05 – 11:20	**Oral 3:** Validation of Melt Pool Prediction in Laser Powder Bed Fusion Using OpenFOAM *Mahmoud Al-Rashidi, University of Leeds (AM25140)*
11:20 – 11:30	**Discussion**

Chair: Liam Blunt	**Session 2: Integrating AM into a holistic manufacturing process**
11:30 – 11:55 (20+5 mins)	**Session keynote:** Improving Surface Finish of Stainless Steel AM Parts using a Remelt Strategy *Liam Blunt, University of Huddersfield (AM25131)*
11:55 – 12:10	**Oral 1**: Recycling of aluminium bronze chips for additive laser directed energy deposition *Michael Rethmeier, TU Berlin (AM25108)*
12:10 – 12:25	**Oral 2**: Robot-based chiseling for the removal of support structures from PBF-LB/M manufactured Haynes 282 *Gero Esser, Fraunhofer Institute for Production Systems and Design Technology IPK (AM25132)*
12:25 – 12:40	**Oral 3:** Post Processing of additive manufactured parts using abrasive magnetorheological fluids *Christian Lahoda, TU Berlin (AM25118)*
12:40 – 12:55	**Discussion**
13:00 – 14:00	**Lunch**
14:00 – 14:30 (25+5 mins)	**Keynote 2: AM in rail: print to drive and get rid of physical warehouses** Stefanie Brickwede, Managing Director at MGA Introduced by Dirk Oberschmidt
Chair: Dirk Oberschmidt	**Session 3: Dimensional accuracy for manufacturing and precision applications**
14:30 – 14:45	**Oral 1**: Enhancing Geometric Accuracy in 2PP through Voxel Geometry-Based CAD Design Adjustments *Eugenia Bosler, TU Berlin (AM25101)*
14:45 – 15:00	**Oral 2:** Comparison of PBF-LB fatigue bar surfaces measured with laser confocal microscopy and X-ray micro CT using both traditional and neural network based reconstructions *Edwin Glaubitz, Colorado School of Mines (AM25102*)
15:00 – 15:15	**Oral 3:** Design of a r-θ Projection Micro Stereolithography System for Large Area Optics Fabrication *Michael Cullinan, The University of Texas at Austin (AM25111)*
15:15 – 15:30	**Discussion**
15:30 – 16:15	**Coffee break and poster viewing**
16:15 – 16:30	**Oral 4:** Comparing high-performance 2PP to competing processes – a take on precision, accuracy and throughput Anna-Maria Fuchsberger, UpNano GmbH (AM25120)
16:30 – 16:45	**Oral 5:** Modeling the Interaction Effects of Laser Powder Bed Fusion Process Variables on Surface Texture to Enable Functional Tolerancing M M Towfiqur Rahman, UNC Charlotte (AM25128)

16:45 – 17:00	**Oral 6:** Directional surface finishing of additively manufactured components by dynamic machining with abrasive non-Newtonian fluids Niklas Maschke,TU Berlin (AM25130)
17:00 – 17:15	**Discussion**
17:30 **18:30**	**Day 1 Close** **Networking dinner (Classic Remise)**

Day 2: Wednesday 8th October 2025

08:30 –09:00 (25+5 mins)	**Keynote 3: Optimizing 3D and 4D printing by two-photon polymerization** Professor Ada-Ioana Bunea, Associate Professor at DTU Nanolab Introduced by John Taylor
Chair: Christian Haase	**Session 4: Process physics, simulation and optimisation**
09:00 – 09:15	**Oral 1:** Low-Energy Laser Powder Bed Fusion of Tin-Bronze Alloys for the Production of Grinding Tools *Duc Anh Khuc, TU Berlin (AM25116)*
09:15 – 09:30	**Oral 2:** Validation and optimization of powder nozzle designs for DED-Machines using coupled CFD-DEM approaches *Sergio Lezama, IWF, TU Berlin (AM25119)*
09:30 – 09:45	**Oral 3:** Powder Spreading and Flow Characterization in Additive Manufacturing: Insights from the NIST Powder Spreading Testbed (PST) *Jesse Redford, NIST (AM25137)*
09:45 – 10:00	**Discussion**
10:00 – 10:30	**Coffee break and poster viewing**
10:30 – 10:45	**Oral 4:** Additive Manufactured, Topology-Optimized Grippers for Collaborative Robotics in Hairpin Stator Prototyping and Assembly *Onur Senyüz, TU Berlin (AM25138)*
10:45 – 11:00	**Oral 5:** Tailoring LPBF Process Strategies for Al_2O_3 Ceramics: From Single Tracks to Cube Fabrication *Geethapriyan Thangamani, Politecnico di Torino (AM25145)*
11:00 – 11:10	**Discussion**
11:15 – 11:45 (25+5 mins)	**Keynote 4: Printing Metal in Space:** **In Orbit Demonstration of 3D Metal Additive Manufacturing** Rob Postema, ESA - European Space Agency Introduced by Liam Blunt
11:45 – 12:15	Lessons learned and future challenges for ESA - Audience interaction with possible solutions to address the challenges
12:15 – 13:30	**Lunch**
13:45 – 15:15	**Laboratory tour of TU Institute of Aeronautics and Astronautics lab tour**
15:15 – 15:45	**Coffee break**

Chair: Dishi Phillips	**Session 5: Poster pitch presentations – (5 mins per poster)**
15:45 – 17:15	**P5.01** Local evaluation of metal laser powder bed fusion layer-related characteristics using a metrological XCT-based methodology *Filippo Zanini, University of Padova (AM25103)* **P5.02** Impact of 3D printed lightweight structures on the surface quality of diamond turned aluminum mirrors, *Felix Zeller, Carl Zeiss Jena GmbH (AM25107*) **P5.04** Optimized Light Source Modelling and Simulation to Match Actual Intensity-Angle Light Profile *Mojtaba Ahmadiehkhanesar, University of Nottingham (AM25124)* **P5.06** Factors affecting measurement of cure depth and excess width for ceramic vat photopolymerization *Nellie Pestian, Colorado School of Mines (AM25129)* **P5.07** Standardisation of Mechanical Testing for Metal AM - Load bearing area determination using surface texture correction for PBF-LB tensile specimens *Theresa Buchenau, Fraunhofer IFAM (Institute for Manufacturing Technology and Advanced Materials) (AM25134)* **P5.08** Comparison of laser powder bed fusion fatigue bar surfaces measured with laser confocal microscopy and X-ray micro CT using both traditional and neural network based reconstructions *Edwin Glaubitz, Colorado School of Mines (AM25143)* **P5.09** Assessing Porosity and Interfacial Bonding in Dual-Metal Additive Manufacturing via Industrial Computed Tomography *Huan Shao, Politecnico di Milano (AM25109)* **P5.10** Benchmarking of Geometric Accuracy in PBF-LB/M: Approach to expand VDI 3405 for AlSi10Mg *Mergim Krasniqi, PTB (AM25113)* **P5.11** Understanding the next layer effect of defects in laser powder bed fusion processing of IN625 *Jesse Redford, NIST (AM25135)* **P5.12** Impact of association criteria specifications on inspection of hole features in laser powder bed fusion *Jesse Redford, NIST (AM25148)* **P5.13** Influence of process parameters on the quality of 316l stainless steel components fabricated by metal Fused Filament Fabrication *Altina Myrtaj, TU Berlin (AM25147)* **P5.14** Sustainable dual-side deposition to mitigate substrate deformation in Directed Energy Deposition (DED) *Neel Kamal Gupta, Institute for Machine Elements, Engineering Design and Manufacturing (IMKF), Technische Universität Freiberg (AM25152)*
17:30 **19:00**	**Day 2 Close – Drinks & Canapes followed by a free evening**

Day 3: Thursday 9th October 2025

09:00 – 09:30 (25+5 mins)	**Keynote 5: Additive manufacturing of pure tungsten lattice structures by laser powder-bed-fusion process for Fusion application** Dr Miguel Zavala-Arredondo, UK Atomic Energy Authority Dr Ahmed S.B. Tawfik, University of Huddersfield Introduced by Jason Fox
Chair: Jaime Berez	**Session 6: Metrology**
09:30 – 09:55 (20+5 mins)	**State-of-the-Art: Calibrations and Experimental Results from Laser-Based Metal Additive Manufacturing Testbeds at NIST** *David C. Deisenroth, NIST, USA*
09:55 – 10:10	**Oral 1:** Improving X-ray CT porosity analysis towards enhanced in-situ monitoring and real-time defect prediction in metal laser powder bed fusion *Nicolò Bonato, University of Padova (AM25104)*
10:10 – 10:25	**Oral 2:** Experimental investigation of the nonlinear response of a research-oriented fringe projection measuring system *Crhistian Raffaelo Baldo, KU Leuven (AM25105)*
10:25 – 10:35	**Discussion**
10:35 – 10:50	**Coffee break and poster viewing**
10:50 – 11:05	**Oral 3:** Dimensional measurement using X-ray Computed Tomography for additive manufacturing in standardization *Anne-Françoise Obaton, LNE (AM25110)*
11:05 – 11:20	**Oral 4:** Real-Time Monitoring of Additive Manufacturing Using Fringe Projection Techniques *Samanta Piano, University of Nottingham (AM25123)*
11:20 – 11:35	**Oral 5:** Monitoring packing density and binder saturation in binder jet 3D printing via fringe projection profilometry *Md Jahangir Alam, University of Pittsburgh (AM25125)*
11:35 – 11:50	**Discussion**
12:00 – 13:10	**Lunch**
Chair: Julian Polte	**Session 7: AM machines and process control**
13:15 – 13:30	**Oral 1:** Hybrid Optimization for Enhanced Process Control in Fused Filament Fabrication of Carbon Fiber Reinforced Polyamide Composites *Amir Abdullah, National University of Sciences and Technology (NUST)* (AM25112) - **online**
13:30 – 13:45	**Oral 2:** A Framework enabling In-Situ Microdosing of Secondary Materials for Spatially Targeted Multi-Material PBF-LB/M process *Sohan Acharya, Institute for Machine Tools, University of Stuttgart (AM25115)*

13:45 – 14:00	**Oral 3:** Analysis and understanding of effective trajectories in LPBF additive manufacturing process: application to skywriting trajectories. *Baptiste Pous-Roc, Université Paris-Saclay, ENS Paris-Saclay (AM25121)*
14:00 – 14:15	**Discussion**
14:15 – 14:30	**Oral 4:** Evaluating the Sensitivity of Optical Tomography and Melt Pool Monitoring Systems to LPBF Process Parameters *Kamel Ettaieb, Framatome (AM25152)*
14:30 – 14:45	**Oral 5:** Deep reinforcement learning (DRL)-based closed-loop control of PinVPP: an initial case study of pillar printing Yiquan Wang, *University of Pittsburgh (*AM25126)
14:45 – 15:00	**Discussion**
15:00 – 15:30	**Closing remarks** John Taylor (University of North Carolina at Charlotte) Liam Blunt (eu**spen**) & Dirk Oberschmidt (TU Berlin - Local Host) Announcement of next events