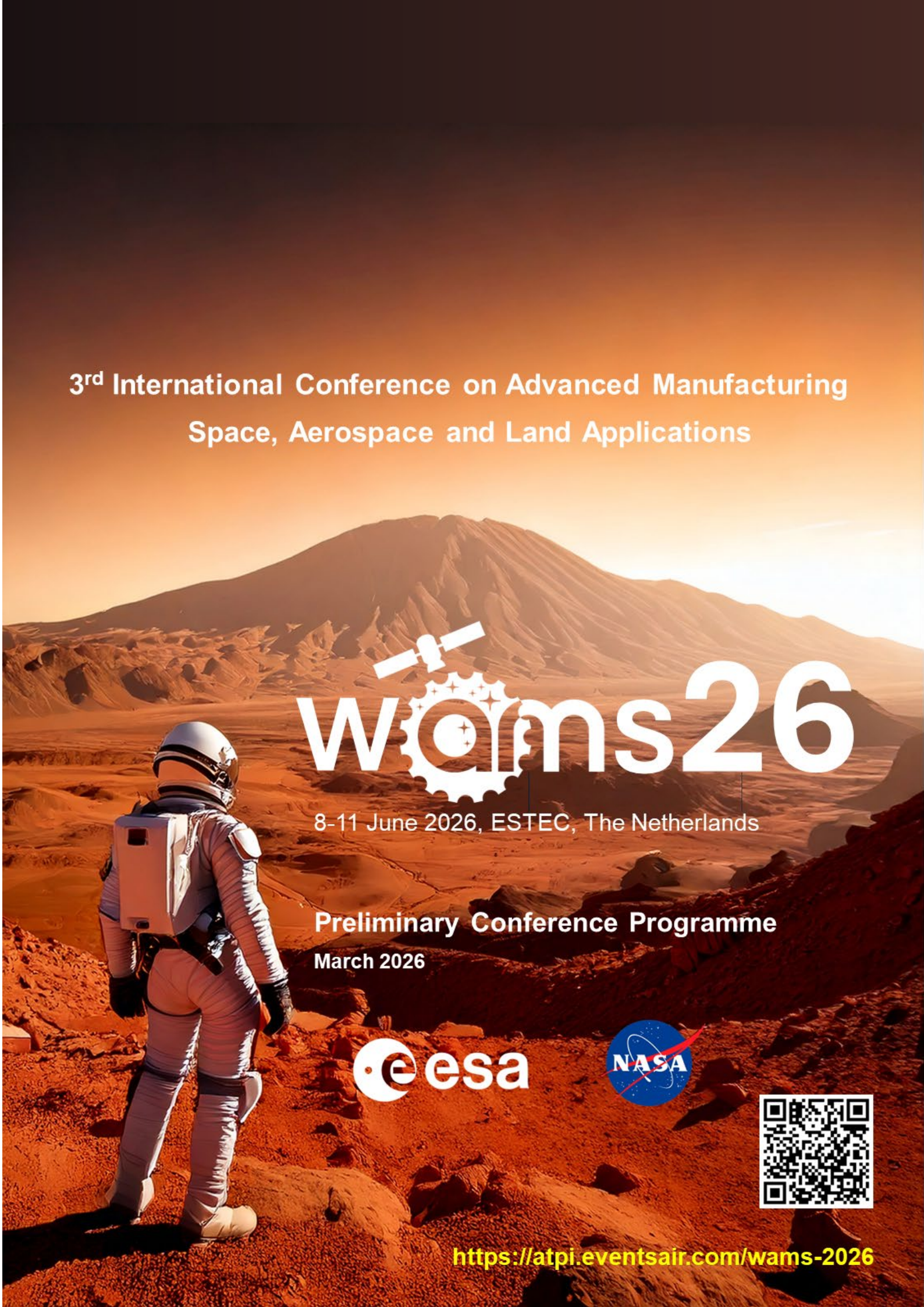
3rd International Conference on Advanced Manufacturing Space, Aerospace and Land Applications



wams26

8-11 June 2026, ESTEC, The Netherlands

Preliminary Conference Programme

March 2026

esa

NASA

https://atpi.eventsair.com/wams-2026

Programme Overview

Monday 8th June 2026

Room A	Room B	Room C	Room D	Room E
Conference Registration				
LIGHT LUNCH AND REFRESHMENTS				
CONFERENCE WELCOME				
COFFEE BREAK				
IN SPACE MANUFACTURING ISRU REGOLITH BASED MANUFACTURING 1	ADDITIVE MANUFACTURING PROCESS MONITORING & IN SITU	ADDITIVE MANUFACTURING MULTI MATERIALS AM 1	ELECTRONIC ASSEMBLY PRINTED ELECTRONICS	WELDING AND JOINING FRCTION STIR WELDING
WELCOME RECEPTION BARBEQUE - ZEEMAUW NOORDWIJK AN ZEE				

Tuesday 9th June 2026

Room A	Room B	Room C	Room D	Room E
IN SPACE MANUFACTURING ISRU REGOLITH BASED MANUFACTURING 2	ADDITIVE MANUFACTURING POWDER FEEDSTOCK AND REUSE	ADDITIVE MANUFACTURING MULTI MATERIAL AM 2	ELECTRONIC ASSEMBLY MISCELANEOUS PROCESSING	WELDING AND JOINING FRICTION BASED PROCESSING
COFFEE BREAK				
IN SPACE MANUFACTURING ISRU REGOLITH BASED MANUFACTURING 3	ADDITIVE MANUFACTURING STANDARDISATION AND QUALIFICATION	ADDITIVE MANUFACTURING ADVANCED MATERIALS	SMART / DIGITAL MODEL BASED ENGINEERING	WELDING AND JOINING MISCELANEOUS PROCESSES
LUNCH				
KEYNOTE PRESENTATION: Airbus / Cranfield University / ESA - Metal additive manufacturing on orbit – A Journey Towards a World First				
IN SPACE MANUFACTURING BIO PRINTING IN SPACE	ADDITIVE MANUFACTURING LATEST METAL AM DEVELOPMENT	ADDITIVE MANUFACTURING POST PROCESSING and FINISHING	SMART / DIGITAL DIGITAL TWINS	COMPOSITES COMPOSITE STRUCTURES
COFFEE BREAK				
IN SPACE MANUFACTURING ISRU REGOLITH BASED MANUFACTURING 4	ADDITIVE MANUFACTURING AM FOR SPACE PROPULSION 1	ADDITIVE MANUFACTURING ALLOY DEVELOPMENT / NOVEL ALLOYS 1	SMART / DIGITAL ACCELERATED PRODUCTION	COMPOSITES MATERIALS DEVELOPMENT
POSTER SESSION				

Notes:

1) **This is only a preliminary programme and is subject to change. Please check the conference website for the latest updates**
2) **No manuscripts are expected for this conference, just presentations**

Programme Overview

Wednesday 10th June 2026

Room A	Room B	Room C	Room D	Room E
TECHNOLOGY TRANSFER				
COFFEE BREAK				
TECHNOOGY TRANSFER (Continued)				
LUNCH				
IN SPACE MANUFACTURING PROCESS MONITORING AND VERIFICATION	ADDITIVE MANUFACTURING AM FOR SPACE PROPULSION 2	ADDITIVE MANUFACTURING ALLOY DEVELOPMENT / NOVEL ALLOYS 2	SMART / DIGITAL AI ASSISTED MANUFACTURING	COMPOSITES CERAMIC BASED COMPOSITES
COFFEE BREAK				
IN SPACE MANUFACTURING METAL AM, WELDING, CUTTING AND REPAIR 1	ADDITIVE MANUFACTURING TESTING AND DEFECT ASSESSMENT	ADDITIVE MANUFACTURING HYBRID MANUFACTURING	SMART / DIGITAL DATA MANAGEMENT AND PROCESSING	COMPOSITES RAPID MANUFACTURING
CONFERENCE DINNER - MADURODAM				

Thursday 11th June 2026

Room A	Room B	Room C	Room D	Room E
IN SPACE MANUFACTURING METAL AM, WELDING, CUTTING AND REPAIR 2	ADDITIVE MANUFACTURING THERMAL MANAGEMENT / HEAT TRANSFER	ADDITIVE MANUFACTURING WAAM AND WIRE	ADDITIVE MANUFACTURING OPTICAL & MECHANICAL APPLICATIONS	COMPOSITES THERMOPLASTIC COMPOSITES
COFFEE BREAK				
IN SPACE MANUFACTURING METAL AM, WELDING, CUTTING AND REPAIR 3	ADDITIVE MANUFACTURING SPACE MECHANISMS	ADDITIVE MANUFACTURING COMPOSITES	ADDITIVE MANUFACTURING LARGE STRUCTURES AND SCALE UP	COMPOSITES DESIGN AND MANUFACTURING
LUNCH				
KEYNOTE PRESENTATION: Zack Cordero (MIT): Expanding the Performance–Life Frontier of Reusable Rocket Engines				
IN SPACE MANUFACTURING IN SPACE MANUFACTURING OF POLYMERS	ADDITIVE MANUFACTURING RF & EMBEDDED SENSORS	ADDITIVE MANUFACTURING EXPLORATION	ADDITIVE MANUFACTURING MECHANICAL PERFORMANCE	SURFACE ENGINEERING RADIATION SHIELDING
COFFEE BREAK				
IN SPACE MANUFACTURING MISCELLANEOUS PROCESSES	ADDITIVE MANUFACTURING COLD SPRAY	ADDITIVE MANUFACTURING POLYMER AM & 4D PRINTING	ADDITIVE MANUFACTURING PREFORMANCE MODELLING	SURFACE ENGINEERING FUNCTIONAL SURFACES AND COATINGS
CONFERENCE CLOSURE				

Notes:

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Date: Monday 8th June 2026 **Time: PM1**

Room: A

Theme: Conference Welcome and Keynotes

Coffee Break

Date: Monday 8th June 2026 **Time: PM2**

Room: A

Theme: In Space Manufacturing

Topic: ISRU Regolith Based Manufacturing 1

68 Refractory high-entropy alloys and hybrid additive routes for metallurgy in lunar mare, highlands and KREEP terranes

Siddhartha Yash Kovid, *Bimo Tech Sp. Z O. O., Poland*

242 Physical and chemical characterisation of reduced lunar highland regolith simulant for laser powder bed fusion and directed energy deposition

Christopher Ogunlesi, *European Space Agency, France*

20 Direct and indirect fibre integration strategies for lunar regolith-based manufacturing

Miranda Fateri, *Hoschschule Aalen, Germany*

34 Understanding the 3D printing process using regolith-derived materials to construct durable and sustainable infrastructure for future human habitats on extraterrestrial sites

Pavlos Stephanou, *Cyprus University of Technology, Cyprus*

Evening: Welcome Reception Barbeque, Zeemauw, Noordwijk aan Zee

Date: Monday 8th June 2026 **Time: PM2**

Room: B

Theme: Additive Manufacturing

Topic: Process Monitoring

45 From monitoring to qualification: A custom imaging architecture for porosity detection in metal additive manufacturing

Matteo Bugatti, *Politecnico Di Milano, Italy*

56 Development of in line non-destructive inspection techniques for advanced manufacturing

Nicolas Nutal, *CRM Group, Belgium*

158 Development of in-line NDI techniques for advanced manufacturing (DED)

Ian Nicholson, *Twi Ltd, United Kingdom*

126 Advanced qualification and certification strategies using in situ process monitoring and computational material methods

Rick Russell, *The Barnes Global Advisors, United States*

Evening: Welcome Reception Barbeque, Zeemauw, Noordwijk aan Zee

Date: Monday 8th June 2026 **Time: PM2**

Room: C

Theme: Additive Manufacturing

Topic: Multi Materials 1

55 Advancements in multi-material powder bed fusion for space applications

Constantin Jugert, *Fraunhofer IGCV, Germany*

99 Multi-material laser beam melting for space components

Sebastian Soller, *ArianeGroup, France*

110 Advancing multi-material additive manufacturing (AM) for space applications

Savya Sachi, *Thermo-calc Solutions AB, Sweden*

122 Bridging materials and manufacturing: DED as a platform for advanced MMCS and FGMs
Eleonora Santecchia, *Universitá Politecnica delle Marche, Italy*

Evening: Welcome Reception Barbeque, Zeemauw, Noordwijk aan Zee

Date: Monday 8th June 2026 **Time: PM2**

Room: D

Theme: Electronic Assembly

Topic: Printed Electronics

155 Integrating additive manufacturing and 3D printed electronics: CRM Group's unique expertise for heavy industry and harsh environments

Guaino Philippe, *CRM Group, Belgium*

239 Advancing printed organic field-effect transistors performances: Overcoming the 100 MHz barrier toward ultra-high frequency

Martino Cambiaggio, *Istituto Italiano Di Tecnologia, Italy*

254 Comparing indirect and direct printed electronics approaches for lightweight, flexible and 3D-integrated functional units

Mariia Arseenko, *CRM Group, Belgium*

18 3D Microelectronics for next-gen Cubesats: Additive manufacturing of embedded electronics and thermal management

Darragh Walsh, *Holst Centre - TNO, Netherlands*

Evening: Welcome Reception Barbeque, Zeemauw, Noordwijk aan Zee

Date: Monday 8th June 2026 **Time: PM2**

Room: E

Theme: Welding and Joining

Topic: Friction Stir Welding

25 Refill Friction Stir Spot Welding (Refill FSSW) for skin-stringer-frame stiffening of Al-Cu-Li cryogenic tanks

Pedro De Sousa Santos, *TWI, Ltd, United Kingdom*

67 Refill Friction Stir Spot Welding and Bobbin Tool Friction Stir Welding of AA2219 for aerospace structures

Matteo Bernardi, *Helmholtz Zentrum Hereon, Germany*

85 Advances in joining titanium alloys using FSW

Jonathan Martin, *TWI, Ltd, United Kingdom*

152 High-performance FSW and SS-FSW on T-Joints of AA2219-T31 stiffened panels: A comprehensive analysis of mechanical properties and microstructure and surface finishing.

Luciano Bergmann, *Helmholtz Zentrum Hereon, Germany*

Evening: Welcome Reception Barbeque, Zeemauw, Noordwijk aan Zee

Date: Tuesday 9th June 2026 Time: AM1

Room: A

Theme: In Space Manufacturing

Topic: ISRU Regolith Based Manufacturing 2

173 Additive manufacturing of Martian regolith simulant for CO production: A first approach to in-situ propellant generation.

Arturo Pajares, *Flemish Institute for Technological Research, Belgium*

97 Recent developments in laser beam melting of lunar regolith for in-situ resource utilisation

Michael Müller, *Laser Zentrum Hannover e.V., Germany*

123 Low temperature, rapid flash sintering of lunar regolith simulant

David Pearmain, *Lucideon Ltd, United Kingdom*

135 Powder-bed additive manufacturing of fibre-reinforced regolith composites by concentrated solar sintering

Juan Carlos *Arañó Romero, Dlr E.v., Germany*

Coffee Break

Date: Tuesday 9th June 2026 **Time: AM1**

Room: B

Theme: Additive Manufacturing

Topic: Powder Feedstock, Reuse and Characterisation

59 Powder boundary conditions in directed energy deposition simulations and the relevance of particle size

Tijan Mede, *Institute of Metals and Technology, Slovenia*

164 The role of powder quality in additive manufacturing of space hardware – a review of ESA studies on the relationship between powder-part characteristics, influence of the environment and lessons learnt on powder re-use

Martina Meisnar, *European Space Agency, United Kingdom*

194 Chemically assisted powder de-clogging and cleaning of metal AM microchannel

Agustin Diaz, *REM Surface Engineering, Germany*

238 The effects of powder reuse on powder and bulk properties of ABD®-900AM® in closed-loop laser powder bed fusion additive manufacturing systems

Ewa M. Hahn, *European Space Agency, United Kingdom*

Coffee Break

Date: Tuesday 9th June 2026 **Time: AM1**

Room: C

Theme: Additive Manufacturing

Topic: Multi Materials 2

174 Multi-material laser powder bed fusion additive manufacturing of MoS2-integrated metal matrix composites for multifunctional aerospace energy storage applications

Navid Alinejadian, *KTH Royal Institute of Technology, Sweden*

187 Interface engineering in additively manufactured multi-material structures for thermal protection systems

Davoud Jafari, *University of Twente, Netherlands*

219 Material jetting and co-sintering of functionally graded metal-ceramic structures

Davoud Jafari, *University of Twente, Netherlands*

258 A mesoscale multi-material manufacturing for space applications: An additive-subtractive laser approach

Vipin Richhariya, *University of Minho, Portugal*

Coffee Break

Date: Tuesday 9th June 2026 **Time: AM1**

Room: D

Theme: Electronic Assembly

Topic: Miscellaneous Processes

159 Unlocking the future of space electronics with the advanced manufacturing revolution

Rita Palumbo, *European Space Agency, Netherlands*

175 Direct atomic layer processing and material combinatorics for next-generation electronics: Enabling distributed and zero-G manufacturing with ATLANT 3D.

Laszlo Izso, *Atlant 3d, Denmark*

213 Additive manufacture of electrical wiring on 3D surfaces: Integration of Q5D CY1000 into industry 4.0 production environments

Caitlin McCall, *The Manufacturing Technology Centre, United Kingdom*

224 Hybrid thin film electronics platform with optimised aerosol jet printed interconnects and printed functional sensors, integrated with embedded electronic components for distributed planetary sensing

Davide Deganello, *Swansea University, United Kingdom*

Coffee Break

Date: Tuesday 9th June 2026 **Time: AM1**

Room: E

Theme: Welding and Joining

Topic: Friction Based Processes

91 Applicability of friction surfacing as solid-state layer technique – Process, structure & properties

Zina Kallien, *Helmholtz-Zentrum Hereon, Germany*

114 Friction stir channelling innovation for aerospace thermal management

Sam Holdsworth, *TWI Ltd, United Kingdom*

198 Solid state spot welding of additive-manufactured and wrought aluminium alloys for aerospace structures

Sergio Amancio-Filho, *Graz University of Technology, Austria*

207 Linear friction welding: Accelerating advanced manufacturing for space applications

Anthony McAndrew, *Kuka Systems Uk Ltd, United Kingdom*

Coffee Break

Date: Tuesday 9th June 2026 Time: AM2

Room: A

Theme: In Space Manufacturing

Topic: ISRU Regolith Based Manufacturing 3

28 Mechanisms for autonomous material deposition and additive manufacturing using in-situ Resources in space environments

Rui Pires, *Politécnico Da Guarda, Portugal*

203 More than highland and mare: The importance of site-specific compositions in regolith laser processing

Emma Porsbjerg, *Danmarks Tekniske Universitet, Denmark*

211 Vacuum laser additive manufacturing of lunar regolith: System development and performance validation

Parker Shake, *Nasa MSFC, United States*

247 In situ monitoring of regolith L-PBF: Insights and strategies for printability enhancement

Yassir Ben Dahou, *Politecnico Di Milano, Italy*

Lunch

Date: Tuesday 9th June 2026 **Time: AM2**

Room: B

Theme: Additive Manufacturing

Topic: Standardisation and Qualification

191 Traceable AM serial production for space – Ensuring quality from powder to final part

Philip Sperling, *amsight Gmbh, Germany*

33 The Nadcap aerospace additive manufacturing accreditation programme

Richard Freeman, *Performance Review Institute (PRI), United States*

161 A frank discussion on lessons learned from adopting and applying NASA-STD-6030 for spaceflight systems

Tim Poe, *NASA, United States*

246 Advancing standardization and part qualification for PBF-LB/M: Areal surface characterization for load-bearing area correction in tensile testing

Theresa Buchenau, *Fraunhofer IFAM, Germany*

Lunch

Date: Tuesday 9th June 2026 **Time: AM2**

Room: C

Theme: Additive Manufacturing

Topic: Advanced Materials

70 Advancement in materials through additive manufacturing

Youping Gao, *Castheon Inc, United States*

206 Advanced textiles for space applications

Malgorzata Holynska, *European Space Agency, Netherlands*

63 Additive manufacturing of high-performance ceramics by vat photopolymerization – Status quo and way forward

Martin Schwentenwein, *Lithoz GmbH, Austria*

220 Reusable shape memory shock absorption elements for future landing systems using additive manufacturing

Vaclav Pejchal, *CSEM, Switzerland*

Lunch

Date: Tuesday 9th June 2026 **Time: AM2**

Room: D

Theme: Smart and Digital Manufacturing

Topic: Model Based Engineering

41 SYMADE.ai: a Materials informatics discovery platform for next-generation radiation shielding materials for harsh environments

Sofia Colombi, *EmTDLab, Luxembourg*

10 Application of crystal plasticity finite element modelling to low cycle fatigue prediction in gas turbine components

Christos Argryakis, *Rolls-royce Plc, United Kingdom*

190 A model-based engineering toolbox for thermoelectric design in radioisotope power generation

Aniruddha Ray, *RGS Development, Netherlands*

216 NewATHENA optical bench: Idea to TRL-6 —Concluding the data-driven Leap to TRL next

André Seidel, *Rosa² GmbH, Germany*

Lunch

Date: Tuesday 9th June 2026 **Time: AM2**

Room: E

Theme: Welding and Joining

Topic: Miscellaneous Processes

172 How does diffusion bonding and brazing enable technology development of advanced components

Kandarp Amin, *TWI, Ltd, United Kingdom*

181 Solid-state joining of shape memory alloys using cold spray deposition

Ashton Lyon, *Worcester Polytechnic Institute, United States*

199 Novel joining and additive manufacturing techniques for next-generation aerospace hybrid structures

Sergio Amancio-Filho, *Graz University of Technology, Austria*

212 Investigating laser beam welding as an in-space joining technique via thermal vacuum and microgravity and vacuum experiments

Andrew O'Connor, *NASA Marshall Space Flight Center, United States*

Lunch

Date: Tuesday 9th June 2026 **Time: PM1**

Room: A

Theme: Keynote Presentation

Metal additive manufacturing on orbit – A journey towards a world first

Batiste Allilaire, *Airbus Defence and Space, Toulouse, France*

Wojciech Suder, *Cranfield University, United Kingdom*

Advenit Makaya, *European Space Agency, Netherlands*

Date: Tuesday 9th June 2026 **Time: PM2**

Room: A

Theme: In Space Manufacturing

Topic: Bioprinting in Space

253 Additive manufacturing of human tissues and tissue models in space

Michael Gelinsky, *Tu Dresden, Germany*

244 Opportunities and challenges for additive manufacturing in space – from drop-based 3D-bioprinting to blow extrusion of thermoplastic polymers

Andreas Blaeser, *Technical University of Darmstadt, Germany*

Coffee Break

Date: Tuesday 9th June 2026 **Time: PM2**

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266 Overview of the latest metal AM developments at European Space Agency

Benoit Bonvoisin, *European Space Agency, Netherlands*

210 AM for large space structures

Nicola Aversano, *Thales Alenia Space, France*

Coffee Break

Date: Tuesday 9th June 2026 **Time: PM2**

Room: C

Theme: Additive Manufacturing

Topic: Post Processing, Finishing and Surface Engineering

214 Finishing processes for additively manufactured metallic parts : Exploration, development and industrialisation

Alexis RENAUD, *IRT M2P, France*

249 Surface finishing of additive manufactured Haynes® 282 superalloy (PBF-LB and DED-LB/p) via chemical and chemical-mechanical polishing

Agustin Diaz, *REM Surface Engineering, Germany*

Coffee Break

Date: Tuesday 9th June 2026 **Time: PM2**

Room: D

Theme: Smart and Digital Engineering

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23 In-Process anomaly detection with spatial digital twins based on manufacturing data

Franz Engel, *Nebumind Gmbh, Germany*

86 Digital twin for additive manufacturing of ceramic components

Shafi Khurieshi Mohammed, *Jotne Connect, Norway*

Coffee Break

Date: Tuesday 9th June 2026 **Time: PM2**

Room: E

Theme: Composites

Topic: Structures

105 Nonlinear acoustics for the condition monitoring of composite aerospace structures

Daniel Rodriguez Sanmartin, *Theta Technologies Ltd, United Kingdom*

183 Sensorized carbon fiber composite turbine blade

Ingo Wirth, *Fraunhofer IFAM, Germany*

Coffee Break

Date: Tuesday 9th June 2026 Time: PM3

Room: A

Theme: In Space Manufacturing

Topic: ISRU Regolith Based Manufacturing 4

76 Additive manufacturing of PE–lunar regolith simulant composites for maximized ISRU

Saré Moazen, *École De Technologie Superieure (ets), Canada*

144 Polymer–regolith composites for in-situ manufacturing on the Moon and Mars

Meelad Ranaiefar, *NASA, United States*

40 Feasibility study on friction extrusion of AA6061 and lunar highlands simulant composite

Uceu Suhuddin, *Helmholtz Center Hereon, Germany*

136 Additive manufacturing with lunar regolith simulants: Recent progress from the ISRU Toulouse taskforce.

Julien Granier, *Institut Clément Ader, France*

Evening: Poster Session

Date: Tuesday 9th June 2026 **Time: PM3**

Room: B

Theme: Additive Manufacturing

Topic: Additive Manufacturing for Space Propulsion 1

21 Advanced materials and manufacturing for reusable rocket engines

Zachary Cordero, *MIT, United States*

27 RAPTURE: A rotary printing architecture for multi-material rocket nozzles

Michael Tucker, *ETH Zurich, Switzerland*

71 Design, hybrid manufacturing and hot-fire testing of an Inconel 718 rocket nozzle based on LP-DED, adapted heat treatment and accompanying detailed analyses

Henry Köhler, *DED Services GmbH, Germany*

82 Additive manufacturing of copper for space applications: laser powder bed fusion for propulsion and thermal management using GRCop-42 and pure copper

Chris Dalton, *The MTC, United Kingdom*

Evening: Poster Session

Date: Tuesday 9th June 2026 **Time: PM3**

Room: C

Theme: Additive Manufacturing

Topic: Alloy Development and Novel Alloys 1

141 Development of a new beta-metastable titanium alloy for additive manufacturing

Norberto Jimenez Mena, *CRM Group, Belgium*

143 Development of a new high Strength Al-Zn-Mg alloy for DED additive manufacturing

Norberto Jimenez Mena, *CRM Group, Belgium*

149 Additive manufacturing of high strength aluminium alloys; Phase 2 Benchmarking Study.

Matt Thomas, *The MTC, United Kingdom*

201 Toward resilient supply chain for refractory alloys in space applications: Progress in W-Re and Mo-Re alloys development

Adrian Kukofka, *Progresja S.A., Poland*

Evening: Poster Session

Date: Tuesday 9th June 2026 Time: PM3

Room: D

Theme: Smart and Digital Manufacturing

Topic: Accelerated Production

8 Automatic assembly of lattice structures with laser welding

Nicolas Chaignet, *Tetmet, Poland*

121 Accelerating materials innovation for aerospace and defence platforms- Leonardo advanced material labs

Abhishek Kumar, *Leonardo Spa, Italy*

182 Closing the iteration speed gap: An AI–AM framework for fast propulsion component development

Katharina Eissing, *Neoforge, France*

229 Digitally assisted manufacturing of complex space relevant parts

Uwe Teicher, *Fraunhofer IWU, Germany*

Evening: Poster Session

Date: Tuesday 9th June 2026 **Time: PM3**

Room: E

Theme: Composites

Topic: Materials Development

129 FibRaShield – Advanced graded-Z radiation shielding for space applications

Felix Schmidt, *Fibrecoat Gmbh, Germany*

171 Multifunctional PBI/PI/Carbon black yarns for flame-resistant and sensing-enabled space textiles

Piotr K. Szewczyk, *AGH University of Krakow, Poland*

218 Powder metallurgical manufacturing of advanced materials with tailored thermophysical properties

Erich Neubauer, *Rhp Technology Gmbh, Germany*

157 Rapid and energy efficient production of CFRP composite structures

Patrick Knaack, *TU Wien, Austria*

Evening: Poster Session

Date: Wednesday 10th June 2026 **Time: AM1**

Room: A

Theme: Technology Transfer

Technology Transfer at ESA and NASA

Industry Case Studies

Panel Discussion

Coffee Break

Industry – Reverse Pitches

Wrap Up

Lunch

Date: Wednesday 10th June 2026 **Time: PM1**

Room: A

Theme: In Space Manufacturing

Topic: Process Monitoring and Part Verification

83 Towards resource efficient artificial intelligence for in-space additive manufacturing of large structures

Marco Grasso, *Politecnico Di Milano, Italy*

54 MPEC: A novel environmental testing platform for space-grade materials reveals critical degradation in additively manufactured polymers

Gilles Bailet, *University of Glasgow, United Kingdom*

233 Enabling in-space manufacturing with laser ultrasonics

Theodosia Stratoudaki, *University of Strathclyde, United Kingdom*

Coffee Break

Date: Wednesday 10th June 2026 **Time: PM1**

Room: B

Theme: Additive Manufacturing

Topic: Additive Manufacturing for Space Propulsion 2

119 Overview of additive manufacturing developments for liquid propulsion

Aniss Kessaci, *Cnes, France*

163 Advanced manufacturing for space transportation - manufacturing innovations within ESA's Future Launchers Preparatory Programme (FLPP)

Kate Underhill, *European Space Agency, France*

231 Low cost, innovative and green rocket nozzle extension demonstrator enabled by laser material deposition

Yingwei Wu, *Fraunhofer ILT, Germany*

Coffee Break

Date: Wednesday 10th June 2026 **Time: PM1**

Room: C

Theme: Additive Manufacturing

Topic: Alloy Development and Novel Alloys 2

236 Solid-state additive manufacturing of aerospace aluminium alloy parts with a ready to launch microstructure.

Martin Luckabauer, *University of Twente, Netherlands*

241 Future-ready aluminium: Airware® Structures & Aheadd® additive manufacturing solutions for space, air, land and water

Ravi Shahani, *Constellum C-TEC, France*

77 Next-generation Niobium alloys via additive manufacturing: Microstructure, mechanical properties, and alloy design

Nicholas Sim, *Alloyed Ltd., United Kingdom*

Coffee Break

Date: Wednesday 10th June 2026 **Time: PM1**

Room: D

Theme: Smart and Digital Manufacturing

Topic: AI Assisted Manufacturing

39 The qualification systems for the systems through the model oriented by software agent : a digital engineering method before, during and after the manufacturing of a Space system

Djamel Metmati, *Csi, Italy*

87 Generative AI for advanced manufacturing in space applications: Opportunities and challenges

Bianca Maria Colosimo, *Politecnico Di Milano, Italy*

217 Data centres in space – a case for digital and out-of-earth manufacturing

Dawid Luczyniec, *European Space Agency, Netherlands*

Coffee Break

Date: Wednesday 10th June 2026 **Time: PM1**

Room: E

Theme: Composites

Topic: Ceramic Based Composites

88 Multifunctional thermal protection system: integrating ultra-high temperature ceramics into ceramic matrix composites

Yinglu Tang, *Delft University of Technology, Netherlands*

223 Infusion fabricated oxide CMC for the automatable, near-net shape fabrication of all oxide ceramic matrix composites – Technology, scale-up and applications

Michael Welter, *Deutsches Zentrum Für Luft- und Raumfahrt, Germany*

235 IFOX deployment for industry: Bridging the gap between space applications and mainstream use for oxide ceramic matrix composites.

Vito Leisner, *German Aerospace Center, Germany*

Coffee Break

Date: Wednesday 10th June 2026 **Time: PM2**

Room: A

Theme: In Space Manufacturing

Topic: Metal AM, Welding, Cutting and Repair 1

81 Towards circular fabrication of off-Earth metal structures

Vittoria Laghi, *University of Bologna, Italy*

13 Zero-gravity manufacturing of advanced materials on Earth and space

Anushanth Karalasingam, *University of Edinburgh, United Kingdom*

124 Additive manufacturing in microgravity: Wire-DED and LPBF experiments on ISS and MAPHEUS® as a basis for orbital production systems

Sonja Steinbach, *DLR - German Aerospace Center, Germany*

Evening: Conference Dinner at Madurodam

Date: Wednesday 10th June 2026 **Time: PM2**

Room: B

Theme: Additive Manufacturing

Topic: Testing and Defect Assessment

93 Optimization of damage-tolerant properties in DED-LB/CW Ti-6Al-4V through beta-annealing for aerospace applications

Xabat Orue, *Tekniker, Spain*

245 Parameter-controlled geometrically-undefined porosity in laser powder bed fusion of metals

Daniel Oropeza, *University of California, Santa Barbara, United States*

250 In-line multi-sensor monitoring and point-cloud defect detection for DED-Arc [reforms in flow-forming process chains

Robert Lau, *Fraunhofer IAPT, Germany*

Evening: Conference Dinner at Madurodam

Date: Wednesday 10th June 2026 **Time: PM2**

Room: C

Theme: Additive Manufacturing

Topic: Hybrid Manufacturing

142 Hybrid manufacturing for space - cost-effective and scalable ceramic AM

Enya Collier, *Lucideon, United Kingdom*

11 Hybrid manufacturing of Titanium structures using field-assisted sintering and directed energy deposition

Thomas Klein, *Ait Austrian Institute of Technology, Austria*

146 Vibration dampening metamaterials fabricated via material extrusion additive manufacturing

Bernardo Alves, *University of Coimbra, Portugal*

Evening: Conference Dinner at Madurodam

Date: Wednesday 10th June 2026 **Time: PM2**

Room: D

Theme: Smart and Digital Manufacturing

Topic: Data Management and Processing

128 DILAFACT + DILACERT: an integrated platform for planning, monitoring, and digital certification of laser-based manufacturing

Riccardo Tonello, *DTI, Denmark*

150 Practical data management in computational materials for qualification and certification

Andrew Kitahara, *Analytical Mechanics Associates, United States*

64 Micro-EDM for SubTHZ waveguide components

Alessandro Guida, *CNR - STIIMA, Italy*

Evening: Conference Dinner at Madurodam

Date: Wednesday 10th June 2026 **Time: PM2**

Room: E

Theme: Composites

Topic: Rapid Manufacturing

95 Advanced structures production using rapid tow shearing: Key concepts, opportunities and demonstration results and challenges across space, aerospace and automotive applications

Ben Olivier, *Icomat Limited, United Kingdom*

113 Development of automated fiber placement (AFP) process parameters for the manufacturing of curved thermoplastic composite structures for space applications using 4D Printing of Composites (4DPC) technique

Suong Hoa, *Concordia University, Canada*

209 An overview of the research, capabilities and impact of NCC - the UK's national centre of excellence for composite research

Alex Hale, *NCC, United Kingdom*

Evening: Conference Dinner at Madurodam

Date: Thursday 11th June 2026 **Time: AM1**

Room: A

Theme: In Space Manufacturing

Topic: Metal AM, Welding, Cutting and Repair 2

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51 Additive manufacturing on Mars: Process viability and mechanical properties of Inconel 625 under CO2-rich and low-pressure atmospheres

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Benjamin Rupp, *NASA, United States*

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Mahshid Memarian, *University of Twente, Netherlands*

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Marco Mulser, *OHB System AG, Germany*

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Conor O'keeffe, *Irish Manufacturing Research, Ireland*

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Jean-François Vanhumbeeck, *CRM Group, Belgium*

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237 Assessment of residual stress and lap shear strength of ultrasonically welded thermoplastic composites

Sandi Miller, *NASA, United States*

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Eric Pohl, *Fraunhofer IWS, Germany*

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Meelad Ranaiefar, *NASA, United States*

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29 Laser welding for in-space construction - Insights from an ESA study

Erik Kulu, *Moliri / Factories in Space, Switzerland*

263 In-space manufacturing using laser beam welding

Antonio J. Ramirez, *The Ohio State University, USA*

37 Electron beam processes for space applications

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Room: B

Theme: Additive Manufacturing

Topic: Space Mechanisms

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Lionel Kiener, *CSEM, Switzerland*

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Lionel Kiener, *CSEM, Switzerland*

178 Additive manufacturing of electric motors – How to achieve 100 kW/liter power density

Lukas Günther, *Additive|Drives GmbH, Germany*

226 AM reaction wheel brackets for constellations: From concept to satellite integration in under 13 weeks

Sebastian Greco, *Citd Aeropolis Sl, Spain*

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Quentin Le Paih, *Université de Bretagne Sud, France*

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Riccardo Casati, *Politecnico Di Milano, Italy*

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Luca Mariotti, *Politecnico Di Milano, Italy*

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53 ESA-GSTP – Primary structures made by AM

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Zachary Courtright, *LeapFast Manufacturing Inc., United States*

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Norberto Jimenez Mena, *CRM Group, Belgium*

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Brendan Murray, *ATG Europe, Netherlands*

44 Healable composite structures for tank applications and beyond

Cecilia Scazzoli, *CompPair Technologies SA, Switzerland*

196 Manufacturing of liner-less tank structures for crygenic application in launcher structures

Gregor Endres, *MT-Aerospace, Germany*

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Christian Puig, *Airbus, France*

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Expanding the Performance–Life Frontier of Reusable Rocket Engines

Zachary Cordero, *MIT, United States*

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Lucrezia Miseri, *University of Rome Tor Vergata, Italy*

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Mila Crook, *Leonardo UK, United Kingdom*

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Mallory James, *NASA, United States*

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Maximilian Strixner, *The Exploration Company, Germany*

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Henry Begg, *Plastometrex Limited, United Kingdom*

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Theresa Juarez, *NASA Jet Propulsion Laboratory, United States*

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Melissa Riley, *TWI Ltd, United Kingdom*

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Mike Curtis-Rouse, *Satellite Applications Catapult, United Kingdom*

106 Towards robotically reconfigurable large-scale orbital trusses: loose-fit joint design via conformal interfaces

Aran Sena, *Foster + Partners, United Kingdom*

168 µCAP: High-precision capillarity printing for in-Space manufacturing and repair of electronics

Luca Celiento, *Maana Electric, Luxembourg*

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Steffen Beyer, *Arianegroup Gmbh, Germany*

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Markus Brotsack, *Impact Innovations Gmbh, Germany*

170 Proving the concept of cold spray as a technology for repair and additive manufacturing in space environment

Patrizio Lomonaco, *Tu Delft, Netherlands*

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Mario Bragaglia, *University Of Rome Tor Vergata, Italy*

89 Vacuum fused filament fabrication of high performance polymers with integrated functional coatings for advanced space applications

Marvin Kühn, *University of the Bundeswehr Munich, Germany*

221 Flight qualification of additively manufactured polymer fluid manifolds for life-detection instruments

Theresa Juarez, *NASA Jet Propulsion Laboratory, United States*

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Tim Koenis, *Royal Netherlands Aerospace Centre, Netherlands*

134 FEM-driven optimization of thin-walled DED components for aerospace applications: predictive capabilities, experimental validation and process parameter sensitivity

Alberto Santoni, *Università Politecnica Delle Marche, Italy*

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Nieves Cubo-Mateo, *Nebrija University / Hospital General Universitario Gregorio Marañón, Spain*

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Jorge F. dos Santos, *Stirtec Gmbh, Germany*

156 A new generation of robust, solid-lubricant MoS2 coatings for bearing application

Volker Weihnacht, *Fraunhofer IWS, Germany*

165 Direct Laser Interference Patterning for Functional Surfaces in Space Applications

Christoph Zwahr, *Fraunhofer IWS, Germany*

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9. Transferring sub-nano and nanotechnology-based building materials from Earth to Space: advancing Lunar and Martian construction through nanoscale science

Hamed Niroumand, *Gdansk University of Technology, Poland*

17. Feasibility demonstration of manufacturing liquid- (LH2), gaseous (GH2) and physiosorbed hydrogen storage vessels with incorporated thermal management enabled by use of wire Directed Energy Deposition (wDED)

Florian Pixner, *AIT, Austrian Institute of Technology, Austria*

26. Feasibility of Muon Scattering Tomography (MST) for sub-centimetre defect detection in aerospace structures: a Geant4 simulation study.

Noemi Zabari, *Muotech, Poland*

50. SAMPI: Space additive manufacturing process for implants, a novel approach for transferring additive manufacturing techniques from the space field into the development of medical implants.

Lidia Hernandez Alvarez, *CiTD Engineering & Technologie, Spain*

52. Closing the loop between modelling and experiment: A material acceleration platform for AM alloy innovation

Tomi Lindroos, *VTT Technical Research Centre of Finland, Finland*

61. Design and realization of small size 316L additive manufactured compliant mechanism through finite element analysis and material characterization

Gianni Virgili, *Università Politecnica Delle Marche, Italy*

72. Reinterpreting Lebanese Mashrabiya and Domed Typologies through design for additive manufacturing for Space -relevant architectural components

Aathira Peedikaparambil Somasundaran, *Cardiff University, United Kingdom*

73. Hybrid additive-subtractive manufacturing of topology-optimized satellite structural panels for mass reduction and design flexibility

Haifa Almofareh, *Technical University of Vienna, Austria*

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90. Crack mitigation in high-performance Nickel-based superalloys in powder bed fusion Laser beam of metals PBF-LB/M via Zr and TiC addition

Klaus Brings, *RWTH Aachen University, Germany*

92. Directed energy deposition of metal matrix composites for aerospace applications

Maria L. Montero-Sistiaga, *Royal Netherlands Aerospace Centre, Netherlands*

100. Smart Skin for exploration cobots

Andreas Weje Larsen, *Danish Technological Institute, Denmark*

102. Representative quality indicators (RQIs) for large-scale additive manufacturing: Flaw generation mechanisms, non-linear resonance detection, and pathway to industrial qualification

Daniel Rodriguez Sanmartin, *Theta Technologies Ltd, United Kingdom*

103. Fulfilling AM's potential: Fast development cycles, NDT and quality assurance using non-linear resonance

Daniel Rodriguez Sanmartin, *Theta Technologies Ltd, United Kingdom*

109. Metal-Powder-Application by Hermle – A hybrid manufacturing process combining the benefits of CNC and AM for the production of RF components for satellites

Lucas Adler, Hermle *Maschinenbau GmbH, Germany*

118. Laser-based powder bed fusion and plasma electrolytic oxidation of magnesium structures to fabricate lightweight and corrosion resistant space components

Michael Müller, *Laser Zentrum Hannover e.V., Germany*

139. The topologically consistent metamaterials. A new class of functionally graded lattice structures with unstructured configurations.

Luis Saucedo-mora, *Universidad Politécnica De Madrid, Spain*

148. ESA AMBC at The MTC; Process investigation and development to accelerate industrialisation.

Matt Thomas, *The MTC, United Kingdom*

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151. Optimization of capillary mesh for thermal systems using additive manufacturing: exploration of design through different manufacturing strategies

Damien Serret, *TEMISTh, France*

176. Advancing large-scale metal additive manufacturing through precision TIG-based WAAM

Nabila Ghaddar, *Alloy Additive, Turkey*

188. Prediction of the spreadability of metal powders: the last developments

Aurélien Neveu, *Granutools, Belgium*

192. Process development of Cold Metal Transfer-based WA-DED for AZ61 magnesium alloy components

Jakub Slavíček, *Brno University Of Technology, Czech Republic*

195. Wire-based friction stir additive manufacturing: A solid-state approach for producing high-strength large-scale aluminum alloy components

Stefan Donaubauer, *MPA University of Stuttgart, Germany*

205. Metal powders in additive manufacturing: An approach to sustainable production and recycling

Emmanuel De La Rochefoucauld, *Irt M2p, France*

225. High-performance auxetic structure for energy absorption

Vítězslav Sobol, *Brno University Of Technology, Czech Republic*

230. Mechanical and microstructural assessment of 316L/17-4PH multi-material interfaces manufactured by LPBF

Adam Fábry, *Brno University Of Technology, Czech Republic*

234. Superelastic metamaterials with controlled anisotropy

Karel Brulík, *Brno University Of Technology, Czech Republic*

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Vaclav Pejchal, *CSEM, Switzerland*

251. Tailored surface texture characterisation for metal PBF - Threshold definition for feature-based approaches

Theresa Buchenau, *Fraunhofer IFAM , Germany*

255. Mechanical characterization of ER 5183 aluminum parts produced by Wire Arc Additive Manufacturing (WAAM)

Samuel Monteiro Couto Cruz, *Universidade Federal De Itajubá, Brazil*

256. Microstructural and thermo-mechanical investigation of additively manufactured pure Copper and GrCop42

Shirin Dehgahi, *University Of Twente, Netherlands*

259. Compressing reality: Joint embedding Space as the latent world model for real-time DED process monitoring and control

João Sousa, *University Of Porto, Portugal*

268. Accelerated material property screening for longevity on the example of very high cycle fatigue of AM steels

Sebastian Schettler, *Fraunhofer IWS, Germany*

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Carlos Belei, *Rhp Technology GmbH, Austria*

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Abhishek Kumar, *Leonardo S.p.A., Italy*

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Melvin Josselin, *Université De Bretagne Sud, France*

185. Developing regolith-loaded SLA composites for Lunar in-Situ resource utilization

Stefano Caporali, *Università di Firenze, Italy*

227. Development of Mycelium-PLA composites with enhanced mechanical properties and UV resistance

Mihael Brunčko, *University of Maribor, Slovenia*

260. Contour and slot milling of CFRP using laser sharpened diamond coated tools

Francisco Matos, *INEGI, Portugal*

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Koen Hollevoet, *Compolam, Belgium*

267. Microvascular FRP composites as a platform for smart properties in materials

Wojciech Guziewicz, *University of Krakow, Poland*

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261. Radiation tolerance of Pyrite (FeS_2) absorber materials for Lunar and Space photovoltaic applications

Marc Heemskerk, *TalTech - Tallinn University of Technology, Estonia*

270. Electromechanical multifunctional parts via hybrid manufacturing: Opportunities and challenges

Hervé Saudan, *CSEM, Switzerland*

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Leorick Chilimanzi, *Florida International University, United States*

5. Foundations as an initial requirement for Space construction on the Moon and Mars: Space foundation

Hamed Niroumand, *Gdansk University of Technology, Poland*

6. Geotechnical engineering from Earth to Space: Space Geotechnics (SpG)

Hamed Niroumand, *Gdansk University Of Technology, Poland*

7. Transferring Earthen architecture knowledge from Earth to space: Sustainable habitat design for the Moon and Mars as space habitats

Hamed Niroumand, *Gdansk University Of Technology, Poland*

16. Integrated self-destruct satellites: A built-in end-of-life debris mitigation solution

Anmol Gandhi, *Independent Researcher*

32. Modelling the rheological behaviour of regolith simulant pastes for the construction of habitats and buildings

Amalia Ioannou, *Cyprus University of Technology, Cyprus*

79. A flight-ready, NASA-STD-Compliant system for atomic Oxygen mitigation in LEO-based Titanium additive manufacturing

Sujit Pal, *Public Access LLC, United States*

80. Basic study for Lunar regolith powder bed fusion in high gravity

Ammar Alkhaled, *Keio University, Japan*

98. Towards sustainable Space manufacturing: Laser powder bed fusion of metal-blended regolith to enhance the performance of additively manufactured parts

Yassir Ben Dahou, *Politecnico Di Milano, Italy*

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Andreas Weje Larsen, *Danish Technological Institute, Denmark*

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Felix Schmidt, *FibreCoat Gmbh, Germany*

137. Phonon-Mediated thermal transport in Lunar regolith and its implications for additive manufacturing

Sujit Pal, *Public Access LLC, United States*

248. Characterisation of gecko-inspired adhesive performance after thermal vacuum cycling

Emre Artar, *European Space Agency, United Kingdom*

265. PEEK-based 3D printed piezoresistive sensors for in-Space printed smart devices

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Ben Groth, *Pilotarc UG, Germany*

74. Digital twin–enabled manufacturing readiness for student-led small satellite projects: A systems-based approach to early workforce development

Haifa Almofareh, *Technical University of Vienna, Austria*

108. Data driven tuning of Perovskite photovoltaics for space applications

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138. The acknowledge management and the manufacturing : the AI processing to ensure the operational feedback through the REX procedure for Space systems

Djamel Metmati, *CSI S.p.A., Italy*

166. Automized AI-assisted quality evaluation and adaptive rework for laser-based coating removal using hyperspectral imaging

Christoph Zwahr, *Fraunhofer IWS, Germany*

180. The tool box of MBSE approach through the add-on of SysML v2 to improve the engineering management : the use case of a comms subsystem

Djamel Metmati, *CSI S.p.A., Italy*

184. Inorganic Perovskite sensors for space radiation monitoring

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24. Nanostructured coating for 3D-printed aluminium

Maido Merisalu, *University Of Tartu, Estonia*

30. Surface engineering process for lightweight materials used in aerospace applications

Helin Maria Unt, *Captain Corrosion OÜ, Estonia*

58. Lunar regolith surface metallization using thermal spray technology

Pratidhwani Biswal, *Fraunhofer IGP, Germany*

162. We can weld in Space. Ultra safe and can scale tubular or linear

Paul Cheng, *Fusering Inc., United States*

84. Experimental evaluation of the reconversion potential of an Isayev S2.720 injector using Kerosene-based cold-flow tests

Emilia-georgiana Prisăcariu, *COMOTI - Romanian Research & Development Institute for Gas Turbines, Romania*

186. A ductile chromium-molybdenum alloy resistant to high-temperature oxidation

Ewa M. Hahn, *European Space Agency, United Kingdom*

193. A quantitative framework for predicting particle impact ignition in high-pressure Oxygen systems

Gregory Harrigan, *NASA, United States*

269. From materials and processes to high-frequency systems: An integrated approach to additively manufactured electronics

Mirko Sidoti, *Nano Dimension GmbH, Germany*