

Session Program

13-17 Sept 2021

**EUROPEAN CONGRESS AND EXHIBITION ON
ADVANCED MATERIALS AND PROCESSES -
EUROMAT 2021**

***C1_Additive manufacturing processes and
modelling***

Virtual

Monday 13 September

11:00

C1_Additive manufacturing processes and modelling: C1_1_Powder for AM - powder properties

Session | Location: Room 8

11:00–11:40

Copper alloys for Additive Manufacturing: Gas atomization and Laser Powder Bed Fusion (LPBF) (Keynote)

Speaker

Prof. Ulrich Krupp

11:40–12:00

Effect of powder variability during laser powder bed fusion

Speaker

Mr Dmitri Riabov

12:00–12:20

Effect of processing atmosphere on spatter characteristics during laser powder bed fusion processing of Ti-6Al-4V

Speaker

Mr Ahmad Raza

12:20–12:40

Physical properties of powder blends: application to the Laser Powder Bed Fusion process

Speaker

Mr Paul Bourot

12:40

14:00

C1_Additive manufacturing processes and modelling: C1_2_Powder degradation during AM processing

Session | Location: Room 8

14:00–14:40

Surface Chemistry of Metal Powder and its Changes: from Powder Production to Powder Re-use during Powder Bed Fusion Processing: an Overview (Keynote)

Speaker

Eduard Hryha

14:40–15:00

Influence of powder recycling on the feedstock attributes and the final properties of SS316L components processed by L-PBF

Speaker

Mr Timothée Delacroix

15:00–15:20

Characterization of recycled AISI 904L powder for selective laser melting and influence on printed parts

Speaker

Mr Marius Hilzenthaller

15:20–15:40

 γ -TiAl powder characterization in order to explain a case of poor processability by Electron Beam Melting**Speaker**

Mr Cristian Ghibaudo

15:40

16:00

**C1_Additive manufacturing processes and modelling:
C1_3_Microstructure and properties of AM steels I****Session** | **Location:** Room 8

16:00–16:40

Conventionally vs. Additively Manufactured Maraging Steel C300 after Various Surface and Heat Treatments Imposed to Corrosion-Fatigue (Keynote)**Speaker**

Prof. Nikolaos Michailidis

16:40–17:00

Influence of Build Plate Preheating on the Processability of Low-Alloy Steels Produced by LB-PBF**Speaker**

Mr William Hearn

17:00–17:20

Tailoring the TRIP effect of austenitic stainless steels with selective laser melting**Speaker**

Christos Sofras

17:20–17:40

Crack Mechanism Analysis of a Laser Based Powder Bed Fused Tool Steel using High-Resolution Techniques**Speaker**

Mr Jan Platl

17:40

Tuesday 14 September

09:50

C1 Additive manufacturing processes and modelling: C1_4 Microstructure and properties of AM steels II

Session | Location: Room 8

09:50–10:10

Microstructure characterization of multiwalled 316L Wire Arc Additive Manufacturing, analyzed with a novel average microstructure cell extraction method

Speaker

Dr Johan Hoefnagels

10:10–10:30

Cooling rate and microstructure: an overview on 316L stainless steel processed by LPBF and DED

Speaker

Dr Eleonora Santecchia

10:30–10:50

Multi-scale correlations between residual stress and microstructural features in additively manufactured 316L stainless steel

Speaker

Da Guo

10:50–11:10

Effect of Trace Elements on 4140 Low-Alloy Steel Produced by LB-PBF

Speaker

Mr William Hearn

11:10–11:30

Microstructural comparison of as-built and annealed 316L stainless steel samples fabricated by Directed Energy Deposition

Speaker

Valerio Di Pompeo

11:30

11:50

C1 Additive manufacturing processes and modelling: C1_5_LPBF of Ni-base superalloys - material and process development

Session | Location: Room 8

11:50–12:10

On the influence of heat treatment on microstructure and mechanical behavior of laser powder bed fused Inconel 718

Speaker

Mr Jakob Schröder

12:10–12:30

Alloy Design of New Nickel-based Superalloy for Laser Powder Bed Fusion

Speaker

Mr Jinghao Xu

12:30-12:50

Creep behaviour of Laser Powder Bed Fused alloy 718**Speaker**

Ms Salomé Sanchez

12:50-13:10

Optimisation of post-built annealing of Ni Alloy 718 processed by powder bed fusion**Speaker**

Jan Capek

13:10

15:20

C1_Additive manufacturing processes and modelling: C1_6_LPBF of Ni-base superalloys - microstructure and properties**Session** | **Location:** Room 8

15:20-16:00

On the use of operando X-ray imaging for the observation of crack formation during Laser Powder Bed Fusion processing (Keynote)**Speaker**

Dr Charlotte de Formanoir

16:00-16:20

Processing of a high g' nickel-based superalloy manufactured by laser powder bed fusion**Speaker**

Dr Fiona Schulz

16:20-16:40

Effect of building platform material on properties of an additively manufactured superalloy**Speaker**

Abdul Shaafi Shaikh

16:40-17:00

Fatigue behavior at room and service temperatures for L-PBF and DED Inconel 625**Speaker**

Noémie Martin

17:00

17:20

C1_Additive manufacturing processes and modelling: C1_7_LPBF of Ti-alloys - microstructure and properties**Session** | **Location:** Room 8

17:20-18:00

Separation of the impact of residual stress and microstructure on the fatigue performance of LPBF Ti-6Al-4V at elevated temperature (Keynote)**Speaker**

Ms Tatiana Mishurova

18:00-18:20

Towards increased quality of Ti-6Al-4V medical parts produced by laser powder bed fusion by using Argon-Helium gas mixtures to reduce spatter and defect formation

Speaker

Dr Marie Fischer

18:20–18:40

Influence of surface treatment, heat treatment and print orientation on the mechanical and microstructural properties of Ti 6Al 4V processed by L- PBF

Speaker

Mr Benjamin Meier

18:40–19:00

Microstructural evolution during post heat treatment of the Ti-6Al-4V titanium alloy elaborated by powder bed fusion

Speaker

Mr Yassine Lakroune

19:00

Wednesday 15 September

09:50

C1_Additive manufacturing processes and modelling: C1_8_DED microstructure and properties

Session | Location: Room 8

09:50–10:10 **Repair of stainless steel 316L parts using Laser Metal Deposition**

Speaker

Mr Thomas Cailloux

10:10–10:30

Microstructural improvement of Ti-6Al-4V alloy in Wire arc additive manufacturing

Speaker

Mathieu Hautesserre

10:30–10:50

Optimization of the production process of Ti-6Al-4V with additive manufacturing using Electron Beam Melting (EBM).

Speaker

Chaouki Tahri

10:50–11:10

Exploring the role of beta stabilizers Fe and Cr in titanium alloys during laser powder bed fusion

Speaker

Dr Ming Chen

11:10–11:30

Microstructure and Mechanical Properties of Ti Grade 2 fabricated by Selective Laser Melting

Speaker

Ms Jelena Petrusa

11:30

11:50

C1_Additive manufacturing processes and modelling: C1_9_AM of Al-alloys - microstructure and properties

Session | Location: Room 8

11:50–12:10

Printability of novel Al-Mn based ternary and quaternary alloys for laser powder bed fusion

Speaker

Mr Bharat Mehta

12:10–12:30

Microstructures and mechanical properties of a new modified Al6061 alloy processed by laser beam melting

Speaker

Mr Mathieu Opprecht

12:30–12:50

Effect of platform preheating and building orientation on mechanical properties of AISi10Mg alloy elaborated by laser beam melting**Speaker**

Mr Nicolas Chambrin

12:50–13:10

Multi-functional aluminium media carrying component**Speaker**

Mr Rudolf Gradinger

13:10

15:30

C1_Additive manufacturing processes and modelling: C1_10_Novel materials of AM**Session** | **Location:** Room 8

15:30–15:50

The effect mechanism of the alloying elements carbon, titanium and zirconium in molybdenum, manufactured additively by Laser Powder Bed Fusion (Keynote)**Speaker**

Mr Jakob Braun

15:50–16:10

Wire-based directed energy deposition of Ni-rich NiTi alloy**Speaker**

Mr Rafael Paiotti Marcondes Guimaraes

16:10–16:30

Effect of Processing Parameters on the Defect Formation and the Aluminum Content of a β -solidifying Titanium Aluminide Alloy Generated by Electron Powder Bed Fusion (E-PBF)**Speaker**

Ms Juliane Moritz

16:30–16:50

Characterization of dense alumina toughened zirconia (ATZ) pieces fabricated by additive manufacturing using direct powder-bed selective laser processing (PBSLP)**Speaker**

Mr Eren Özmen

16:50–17:10

A Novel Mechanical Metamaterial with Independently Tunable Stiffness in the Three Spatial Directions**Speaker**

Mathias Fleisch

17:10

17:30

C1_Additive manufacturing processes and modelling: C1_11_AM process improvement**Session** | **Location:** Room 8

17:30–18:10

Challenges and opportunities connected to process atmospheres for laser powder bed fusion (Keynote)

Speaker

Camille Pauzon

18:10-18:30

Elaboration of a new β -Ti alloy manufactured by in-situ powder bed fusion: mechanical characteristics and comparison with the heat-treated powder bed fusion Ti-6Al-4V alloy

Speaker

Hugo Schaal

18:30-18:50

Influence of layer thickness on build rate and processability of low-alloy steels produced by LB-PBF

Speaker

Mr Rasmus Gunnerek

18:50-19:10

Increasing productivity of laser powder bed fusion manufactured Hastelloy X through modification of process parameters

Speaker

Claudia Schwerz

19:10

Thursday 16 September

10:10

C1_Additive manufacturing processes and modelling: C1_12_Novel AM technologies -1

Session | Location: Room 8

10:10-10:30

Plasma metal deposition - AM for Space Applications

Speaker

Mr Michael Kitzmantel

10:30-10:50

Inconel-Steel Multilayers by Liquid Dispersed Metal Powder Bed Fusion: Microstructure, Residual Stress and Property Gradients

Speaker

Ms Sabine C. Bodner

10:50-11:10

Shape Evolution and Growth Mechanisms of 3D-Printed Nanowires via Focused Electron Beams

Speaker

Dr Robert Winkler

11:10-11:30

Integration of optical fibers in parts resulting from additive metal fabrication processes

Speaker

Mr Quentin Pouille

11:30

11:50

C1_Additive manufacturing processes and modelling: C1_13_Overview of Sinter-based AM Technologies

Session | Location: Room 8

11:50-12:10

Lithographic Additive Manufacturing of Highly Precise Ceramic and Metallic Components

Speaker

Mr Martin Schwentenwein

12:10-12:30

Metal Binder Jetting of NiTi shape memory alloys

Speaker

Mr Christian Weck

12:30-12:50

Strategies for NiTi crack sensor integration in aluminum alloy matrix by indirect additive manufacturing

Speaker

Dr Patrícia Freitas Rodrigues

12:50-13:10

Design of additive manufactured materials for hybrid injection mould applications

Speaker

Ms Ellen Fernandez

13:10–13:30

Enhancement of adhesion between layers and to the printing platform in polymeric materials via Fused Filament Fabrication**Speaker**

Alberto Sanz de León

13:30

14:40

C1_Additive manufacturing processes and modelling: C1_14_Alloy and microstructure simulation**Session** | **Location:** Room 8

14:40–15:00

Design of Austenitic Stainless Steels for Additive Manufacturing**Speaker**

Ms Mariam Assi

15:00–15:20

A Thermal-Elasto-Viscoplastic FE model to study microstructure evolution of polycrystals during metal additive manufacturing**Speaker**

Mr Nikhil Mohanan

15:20–15:40

Modelling of microstructures development in laser powder bed fusion process - Application on an IN718 nickel-base superalloy**Speaker**

Mr Théophile Camus

15:40–16:00

Numerical Modelling of Solidification Microstructure During Additive Manufacturing of Nickel Based Super Alloys**Speaker**

Mr Murali Uddagiri

16:00–16:20

Predictive Simulation of Bulk Metallic Glass Crystallization during Selective Laser Melting**Speaker**

Mr Zerong Yang

16:20

17:00

C1_Additive manufacturing processes and modelling: C1_15_Process Simulation**Session** | **Location:** Room 8

17:00–17:20

Simulation of multi-material electron beam powder bed fusion**Speaker**

Robert Scherr

17:20–17:40

Full-scale numerical modelling and validation of directed energy deposition of stainless steel 316L

Speaker

Mohamad Bayat

17:40–18:00

A CFD-DEM approach to numerical modeling of selective laser melting process

Speaker

Mr Navid Aminnia

18:00–18:20

Multiscale simulation of melt pool solidification in additive manufacturing of nickel-based superalloys

Speaker

Rouhollah Tavakoli

18:20