Session Program

13–17 Sept 2021

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

B7_Material testing, characterisation and modelling

Virtual

Monday 13 September

11:00

B7_Material testing, characterisation and modelling: B7_1_ Mechanical testing and behaviour of structural materials

Session | **Location:** Room 6

11:00–11:20

Deformation mechanisms under tensile, creep and fatigue test conditions in a polycrystalline Ni-based superalloy

Speaker
R. Schlütter

11:20–11:40

Influence of grain orientation distribution on the high temperature fatigue behaviour of smooth and notched specimen made of polycrystalline nickel base superalloy

Speaker
Dr Benedikt Engel

11:40–12:00

Influence of Microstructure on Thermo-Mechanical Crack Growth Propagation in a Nickel-Base Superalloy

Speaker
Svjetlana Stekovic

12:00–12:20

Advanced concept for validation of cast surface layer fatigue strength model by component-like testing

Speaker
Mr Matthias Oberreiter

12:20–12:40

Analysis of transverse corner cracks from continuous casting process and comparison to laboratory experiments

Speaker
Mrs Marina Gontijo

12:40

14:00

B7_Material testing, characterisation and modelling: B7_2_Mechanical testing and behaviour of structural materials II

Session | **Location:** Room 6

14:00–14:40

Three-dimensional damage microstructures of thermomechanically stressed power electronics module interconnects (Keynote)

Speaker
Dr Pearl Agyakwa

14:40–15:00

In-situ tensile tests for mechanical characterization of steels with complex microstructure

Speaker
Mr Maxime Mollens

15:00–15:20
Mechanical behaviour of the oxygen-enriched layer in Ti6242S alloy during high temperature tensile tests

Speaker
Mr Kévin Cavé

15:20–15:40
Influence of aging conditions on the mechanical properties and microstructure of glass fibres reinforced laminates

Speaker
Paulina Kozera

15:40

16:00

B7_Material testing, characterisation and modelling: B7_3_Modelling and numerical simulation approaches

Session | **Location:** Room 6

16:00–16:20
Integrated Physical-Constitutive Computational Framework for Plastic Deformation Modeling

Speaker
Mr Bernhard Viernstein

16:20–16:40
ASSESSMENT OF THE RELIABILITY OF SMALL PUNCH TESTING IN MEASURING MECHANICAL BEHAVIOUR OF A THERMAL BARRIER COATING (CoNiCrAlY) USING A MULTI-SCALE MODELLING APPROACH

Speaker
Mr Kenanao Sithole

16:40–17:00
Regularization of Ductile Damage within a Thermodynamically Based Gradient Enhanced Computational Framework in Semi-Crystalline Polyamides

Speaker
Mr Soheil Satouri

17:00

Tuesday 14 September

09:50

B7_Material testing, characterisation and modelling: B7_4_Modelling and numerical simullation appraches II

Session | **Location:** Room 6

09:50–10:10

High-throughput simulation of finite-temperature elasticity and phase stability of TiZrHfTa$_x$ alloys with near-DFT accuracy via machine-learning techniques

Speaker
Dr Konstantin Gubaev

10:10–10:30

Determination of AlSi-PES properties using a particle swarm optimisation method and representative volume element modelling

Speaker
Ryan Lye

10:30–10:50

Fracture mechanisms in single- and bicrystalline tungsten : An atomistic approach

Speaker
Praveenkumar Hiremath

10:50–11:10

An-isothermal viscous behaviors in a common chromium alloy

Speaker
Dr James Rouse

11:10

11:50

B7_Material testing, characterisation and modelling: B7_5_Fundamental physical ddeformation mechanisms in structural materials

Session | **Location:** Room 6

11:50–12:30

Sustainable surface treatment of aluminum alloys through nanotechnology (Keynote)

Speaker
Dr Linnea Selegård

12:30–12:50

Tailoring hardness and fracture toughness of chemical vapor deposited coatings within the Ti(B,C,N) system

Speaker
Dr Christina Kainz

12:50–13:10

Reorientation mechanism upon deformation in the martensite of an α-α’ Ti-6Al-4V dual-phase microstructure exhibiting high work-hardening rate

Speaker
Ms Odeline Dumas

13:10–13:30

Influence of precipitate and grain sizes on the ductile to brittle transition in a Fe-Al base (bcc-L21) ferritic superalloy

Speaker
P.A. Ferreirós

13:30

15:20

B7_Material testing, characterisation and modelling: B7_6_Fundamental physical ddeformation mechanisms in structural materials II

Session | **Location:** Room 6

15:20–15:40

Ion-Irradiation-Induced Property Change in FeCr: Hardness, Thermal Diffusivity and Lattice Strain

Speaker
Ms Kay Song

15:40–16:00

The effect of ion irradiation on the microstructure and mechanical properties of the W-6Re alloy at a temperature of 500°C

Speaker
Ms Polina Zakharova

16:00–16:20

Effect of strain distribution on the occurrence of liquid metal embrittlement on a 30% Zn brass in contact with the liquid Ga-In eutectic

Speaker
Mr Marco Ezequiel

16:20–16:40

Biaxial in-situ XRD fragmentation of polymer supported Al, Al/Mo and Mo/Al thin film systems

Speaker
Dr Patrice Kreiml

16:40–17:00 **Influence of welding on the ductility of a Fe-Nb-V-C microalloyed steel**

Speaker
Lucas Soriano Bardon

17:00

17:20

B7_Material testing, characterisation and modelling: B7_7_Microstructure and its changes in structural materials

Session | **Location:** Room 6

17:20–17:40

Phase separation in duplex stainless steels characterized by small-angle neutron scattering

Speaker
Jianling Liu

17:40–18:00

Phase Transformations in a Heterogeneous Ti-xNb-7Zr-0.8O Alloy Prepared by a Field-assisted Sintering Technique

Speaker
Mr Jiří Kozlík

18:00–18:20
In-situ study on phase transformations of novel metastable beta zirconium alloys and their comparison with well-known metastable beta titanium alloys

Speaker
Mrs Anna Veverková

18:20–18:40
Microstructural and micro-mechanical investigation of cathodic arc evaporated ZrN/TiN multilayer coatings with varying bilayer thickness

Speaker
Mr Florian Frank

18:40–19:00 **Novel magnesium alloys containing yttrium, gadolinium and calcium**

Speaker
Mr Stanislav Šašek

19:00

Wednesday 15 September

09:50

B7_Material testing, characterisation and modelling: B7_8_Microstructure and its changes in structural materials II

Session | **Location:** Room 6

09:50–10:10

Functionally graded W/Cu materials, tensile properties and fracture behaviour of Cold-Spray coatings

Speaker
Sandra Tarancón

10:10–10:30

Evaluation of grain boundary cohesion in technically pure and micro-doped molybdenum via three-point-bending tests

Speaker
Severin Jakob

10:30–10:50

Microstructural defect evolution in WC-Co hard metals during cyclic loading at elevated temperature and its connection with stress-strain hysteresis loop shape

Speaker
Mrs Kathrin Maier

10:50–11:10

On the reuse of Inconel 718 powders for additive manufacturing. Microstructure and mechanical investigations.

Speaker
Dr Xavier Sauvage

11:10

11:50

B7_Material testing, characterisation and modelling: B7_9_Various charaacterisation techniques

Session | **Location:** Room 6

11:50–12:10

Analyzing the cyclic properties of metallic materials by means of an innovative and efficient short-time procedure based on cyclic indentation tests - PhyBaLCHT

Speaker
Dr Bastian Blinn

12:10–12:30

Application of the Digital Image Correlation method on mechanical tests of GTAW and SAW welded 316L-type material

Speaker
Amke Lescur

12:30–12:50

Experimental investigations into viscoelastic relaxation in aluminium alloy 7175 via small specimen method

Speaker
Mr William Lavie

12:50–13:10
A simplified formula to estimate the size of the cyclic plastic zone in metals containing elastic particles

Speaker
Tito Andriollo

13:10–13:30
Microscale damage prediction enables high-resolution in-situ measurement of plasticity-to-damage in Dual-Phase steels

Speaker
Mr Tijmen Vermeij

13:30

15:30
B7_Material testing, characterisation and modelling: B7_10_Various characterisation techniques II
Session | **Location:** Room 6

15:30–15:50
High-Temperature Scanning Indentation: a new method to continuously follow materials transformations in temperature

Speaker
Gabrielle Tiphéne

15:50–16:10
Triboscopy as a Quasi-In-Situ Technique for Dry Friction of ta-C Coatings in Vacuum and Ambient Air Conditions

Speaker
Mr Lars Lorenz

16:10–16:30 **Heat transfer distribution during in-line heat treatment**

Speaker
Prof. Petr Kotrbacek

16:30–16:50 **In situ lab: an automatic tensile testing system in SEM**

Speaker
Dr Luyang Han

16:50–17:10
Combined measurement and simulation of piston ring liner contacts with a reciprocating long-stroke tribometer

Speaker
Mr Björn Michelberger

17:10

17:30
B7_Material testing, characterisation and modelling: B7_11_Deformation and damage mechanisms
Session | **Location:** Room 6

17:30–17:50
Analysis of deformation mechanisms in a textured AZ31 magnesium alloy using advanced in-situ methods

Speaker
Mr Jan Dittrich

17:50–18:10
Damage Mechanisms and Fracture Toughness of Conventional and Additive Manufactured Ti6Al4V alloy with Different Microstructures

Speaker
Mr Vivek Kumar Sahu

18:10–18:30 **Damage evolution in thick aerospace aluminium plates.**

Speaker
Anthony Albert Harrup

18:30–18:50
Stress relaxation grain boundary damage in 316L(N) austenitic stainless steel

Speaker
Mr Baptiste Py

18:50–19:10
Damage accumulation in a hard-coated WC-Co hard metal substrate under cyclic shear-compression loading at 700°C in vacuum

Speaker
Dr Thomas Klünsner

19:10