

Swedish Arena for AM of Metals Online Conference

11-12 January 2021

January, 11 – Morning session

9:00- 9:10 Greetings and Introduction

KEYNOTE SPEAKERS PRESENTATIONS

9:10-9:40

Prof. Olaf Diegel, University of Auckland, New Zealand

Title: "Design for AM – the key to the industrialization of additive manufacturing"

9:40-10:10

Prof. Akihiko Chiba, Tohoku University, Japan

Title: TBA

10 min break

ONLINE ORAL POSTER PRESENTATIONS

10:20 – 10:25

Claes Fredriksson, Jonas Olsson and Johny Haraldsson

"Sustainability Assessment of Additive Manufacturing with Superalloy 718"

Department of Engineering Science, University West, Trollhättan

10:25 – 10:30

Bilen Emek Abali

"Infill ratio caused substructure and effects on the mechanical response"

Uppsala University, Sweden

10:30 – 10:35

Danial Molavitabrizi and Mahmoud Mousavi

"Design of Metamaterials for Additive Manufacturing"

Uppsala University, Sweden

10:35 – 10:40

Dmitri Riabov, Eduard Hryha, Sven Bengtsson

"Effect of Atomization on the Surface-Oxide Composition of 316L Powders for AM"

Chalmers University of Technology, Höganäs AB

10:40 – 10:45

Ahmad Raza, Eduard Hryha

"Powder degradation in laser powder bed fusion process"

Chalmers University of Technology, Sweden

10:45 – 10:50

Camille Pauzon¹, Pierre Forêt², Eduard Hryha¹

"Atmospheres for laser powder bed fusion"

¹Chalmers University of Technology, Sweden, ²Linde GmbH, Unterschleissheim, Germany

10:50 – 10:55

Durga Ananthanarayanan, Greta Lindwall

"Materials design for grain refinement using inoculants in additive manufacturing"

KTH Royal Institute of Technology, Stockholm, Sweden

10:55 – 11:10

Questions and discussion

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10 min break

11:20 – 11:25

Sri Bala Aditya Malladi, Zhuoer Chen, Shen Guo, Lars Nyborg
“Additive Manufacturing of CoCrNi Medium Entropy Alloy”
Chalmers University of Technology, Sweden

11:25 – 11:30

Inga Goetz¹, Ulf Jansson¹, Jochen Schneider²
“ZrN – bulk metallic glass composite formation under laser processing”
¹Uppsala University, ²RWTH Aachen University

11:30 – 11:35

Hanna Nilsson Åhman^{1,2}, Pelle Mellin¹, Cecilia Persson²
“Corrosion behaviour of Mg-alloy WE43 processed by PBF-LB”
¹Swerim AB, ²Uppsala University

11:35 – 11:40

Jithin James Marattukalam, Lisa Larsson, Björgvin Hjörvarsson, Natalia Ferraz, Cecilia Persson
“Biocompatibility of an additively manufactured zirconium-based bulk metallic glass: Effect of surface roughness on osteoblastic cell response”
Uppsala University, Sweden

11:40 – 11:45

Simon Tidén¹, Mamoun Taher², Ulf Jansson¹
“The effect of functionalized graphene coated copper powder in laser powder bed fusion”
¹Uppsala University, ²Graphmatech AB

11:45 – 12:00

Questions and discussion

5 min break

12:05 – 12:15

Best poster award and Closing the session

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January, 12 – Afternoon session at 13:00

13:00 – 13:10 Introduction to the second day of the conference

KEYNOTE SPEAKERS PRESENTATIONS

13:10-13:40

Prof. Carolin Körner, Central Institute for New Materials and Process Technology ZMP and at Neue Materialien Fürth GmbH, Fürth, Germany

Title: " Powder bed and electron beam based additive manufacturing"

13:40-14:10

Prof. Iain Todd, The University of Sheffield, UK

Title: TBA

10 min break

ONLINE ORAL POSTER PRESENTATIONS

14:20 – 14:25

Amir Baghdadchi¹, Vahid A Hosseini¹, Maria Asuncion Valiente Bermejo¹, Björn Axelsson², Ebrahim Harati³, Mats Höglström¹, Leif Karlsson¹

"Additive Manufacturing of Duplex Stainless Steel by Laser Metal Deposition with Wire"

¹Department of Engineering Science, University West, 461 86 Trollhättan, Sweden, ²Alfa Laval Tumba AB, 147 80 Tumba, Sweden, ³ITW Welding AB, 433 25 Partille, Sweden

14:25 – 14:30

Rasmus Gunnerek and William Hearn

"Influence of layer thickness on the processability and productivity of low alloys steel"

Chalmers University of Technology, Department of Industrial and Materials Science, CAM2

14:30 – 14:35

William Hearn

"L-PBF Processing of Low Alloy Steels"

Chalmers University of Technology – CAM2

14:35 – 14:40

Stefan Roos, Lars-Erik Rännar

"Process window for electron beam melting of 316LN stainless steel"

Sports Tech Research Centre, Department of Quality Management and Mechanical Engineering, Mid Sweden University, Östersund, Sweden

14:40 – 14:45

Susanne Lewin¹, Ingmar Fleps², Jonas Åberg¹, Stephen J. Ferguson², Håkan Engqvist¹, Caroline Öhman-Mägi¹, Benedikt Helgason², Cecilia Persson¹

"Computational and experimental assessment of additively manufactured mesh-type Ti6Al4V structures for cranial implants"

¹Uppsala University, Uppsala, Sweden; ²Institute for Biomechanics, ETH Zurich, Switzerland

14:45 – 14:50

Dunyong Deng, Ru Lin Peng, Johan Moverare

"A comparison study of the dwell-fatigue behaviors of additive and conventional IN718: The role of dislocation substructure on the cracking behavior "

Linköping University

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14:50 – 14:55

Magnus Kahlin^{1,2}, Hans Ansell^{1,2}, Johan Moverare²

“Improved fatigue strength of AM Ti6Al4V by surface post-processing”

Saab AB¹, Linköping University²

14:55 – 15:00

Questions and discussions

10 min break

15:10 – 15:15

Jinghao Xu¹, Hans Gruber², Ru Lin Peng¹, Johan Moverare¹

A novel γ' strengthened nickel-based superalloy for laser powder bed fusion

¹Linköping university, ²Chalmers University of Technology

15:15 – 15:20

Cheng-Han Yu, Ru Lin Peng, Johan Moverare

“Effect of crystallographic texture on the anisotropic mechanical behaviour of additively manufactured Ni-based superalloy”

Linköping University

15:20 – 15:25

Prabhat Pant¹, Sebastian Proper², Vladimir Luzin³, Sören Sjöström¹, Kjell Simonsson¹, Johan Moverare¹, Seyed Hosseini², Victor Pacheco⁴, Ru Peng¹

“Residual stresses in AM components: Print orientation study with neutron diffraction”

¹Linköping University, Dept. of Management and Engineering, Linköping, Sweden, ²RISE, Sweden, ³ANSTO, Australia, ⁴Uppsala University, Uppsala, Sweden

15:25 – 15:30

Victor Pacheco¹, Jithin James Marattukalam², Dennis Karlsson¹, Luc Dessieux^{3,4}, Tran Van Khanh⁵, Premysl Beran^{6,7}, Ingo Manke⁵, Nikolay Kardjilov⁵, Henning Markötter^{5,8}, Martin Sahlberg¹, Robin Woracek⁶

“Revealing localized microstructure variations in additive manufacturing by neutron imaging”

¹Department of Chemistry - Ångström Laboratory, Uppsala University, Box 523, SE-75120 Uppsala, Sweden; ² Department of Physics, Materials Physics, Uppsala University, Box 530, SE-75121, Uppsala, Sweden; ³ Physics Department, University of Tennessee, Knoxville, Tennessee TN 37996-1200, USA; ⁴ Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, USA; ⁵ Helmholtz-Zentrum Berlin für Materialien und Energie (HZB), Hahn-Meitner-Platz 1, 14109 Berlin, Germany; ⁶ European Spallation Source ERIC, Box 176, 22100 Lund, Sweden; ⁷ Nuclear Physics Institute, Czech Academy of Sciences, 250 68, Řež, Czech Republic; ⁸ Bundesanstalt für Materialforschung und -Prüfung (BAM), Unter den Eichen 87, 12205 Berlin, Germany

15:30 – 15:35

Dennis Karlsson¹, Mikael Kjellén², Thomas Helander², Martin Sahlberg¹, Ulf Jansson¹

“Manufacturing of an NiCr alloy by laser powder bed fusion for high temperature applications”

¹Department of Chemistry – Ångström Laboratory, Uppsala University, Sweden

²Kanthal AB, Hallstahammar, Sweden

15:35 – 15:40

Questions and Discussions

5 min break

15:45 – 16:00

Best poster award and Closing the conference