

Swedish Arena for AM of Metals Academic Conference

11-12 January 2023

Jernkontoret, Kungsträdgårdsgatan 10, Stockholm, SWEDEN

January 10

19:00 Pre-conference dinner (TRATTORIAN, Norr Mälarstrand , Kajplats 464, 112 20 Stockholm)

January 11

9:00 Welcome and introduction

Session 1

Session Chair: Robert Pederson

9:20 Invited speaker: **Dimitri Riabov**, Chalmers University, Laser-based powder bed fusion of stainless steels.

10:00 Coffee

10:30 **Ethan Sullivan**, KTH. Effect of powder particle size distribution and contouring on build quality in electron beam powder bed fusion. Saman Sharif Hedås, Mattias Jerhamre Engström, Greta Lindwall.

10:50 **Julia Löfstrand**, UU. Process development and magnetic contrast of an additively manufactured Fe-based bulk metallic glass. Inga Goetz, Jithin James Marattukalam, Björgvin Hjörvarsson, Björn Skårman, Petra Jönsson.

11:10 **Zeyu Lin**, KTH. The processing windows for NiTi alloy manufactured with PBF-EB. Sasan Dadbakhsh, Kumar Babu Surreddi, Amir Rashid

11:30 **Tatiana Fedina**, LTU. Processing of iron ore in laser additive manufacturing. Frank Brueckner, Alexander F. H. Kaplan

11:50 **Lisa Larsson**, UU. Influence of build direction and scan strategy on the mechanical properties of a biodegradable magnesium alloy produced by PBF-LB. Tuerdi Maimaitiyili, Francesco D'Elia, Cecilia Persson.

12:10 Lunch

Session 2

Session Chair: Greta Lindwall

13:20 Invited speaker: **Anton Wiberg**, Linköping University. Holistic design optimization for additive manufacturing.

14:00 **Kameshwaran Swaminathan**, University West. Laser-material interaction of Haynes 282 Ni-based superalloy. Renuka Gore, Marcello Miodic, Jonas Olsson, Joel Andersson

14:20 **Hanna Nilsson Åhman**, Swerim/UU. Influence of wall thickness on microstructure in a MgY-Nd-Zr alloy processed by L-PBF. Lisa Larsson, Francesco D'Elia, Cecilia Persson

KTH Royal Institute of Technology is host for the conference, and Linköpings University, Luleå University of Technology, Swerim and University West are co-organising.

Organizing committee: Sasan Dadbakhsh (KTH), Greta Lindwall (KTH), Raquel Lizárraga Jurado, Ethan Sullivan (KTH), Jörg Volpp (LTU), Robert Pederson (HV), Johan Moverare (LIU), Annika Strondl (SWERIM) and Anna Öhrwall (LTU).

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14.40 Bharat Mehta, Chalmers. Effect of Zr, Mg on aluminum alloys tailored for powder bed fusion-laser beam. Karin Frisk; Lars Nyborg

15.00 Coffee

15:30 Invited speaker: **Christo Dordlofva**, GKN Aerospace. From research to implementation – additive manufacturing at GKN Aerospace.

16:00 Amir Baghdadchi, University West. Wire laser metal deposition additive manufacturing of duplex stainless steel components. Joel Andersson, Maria Asuncion Valiente Bermejo

Poster session (16:20 – 18:30)

Shaafi Shaikh, Chalmers. On the effect of building platform material on laser-powder bed fusion of a Ni-base superalloy HAYNES® 282®

Shaafi Shaikh, Chalmers. Additive manufacturing of an alumina-forming Ni-base alloy Haynes® 233™ - A preliminary assessment

Carlos Botero, Mid Sweden University. In-situ compositional tuning of functionally graded lamellas by electron beam powder bed fusion

Hans-Henrik König, KTH. A sample environment for in-situ synchrotron X-ray studies on electron beam powder bed fusion (E-PBF) of metals and its application for alloy design.

Chia-Ying Chou, KTH. ICME framework of an additively manufactured hot-work tool steel

Shafaq Zia, LTU. Estimating manufacturing parameters of additively manufactured 316L steel cubes using ultrasound fingerprinting.

Joakim Larsson, Örebro University. Improving cooling in tooling - Case studies from the wire drawing process exploring the benefits of additive manufacturing.

William Sjöström, Mid Sweden University. In-situ compositional tuning of functionally graded lamellas by electron beam powder bed fusion

William Sjöström, Mid Sweden University. Feasibility of electron beam melting metal coated ceramic powders

Shubham Sanjay, Groupe de Physique des Matériaux (Rouen, Fr), Precipitates formed in as-built and heat-treated Ni20Cr alloy fabricated by laser powder bed fusion process

Erik Lewin, UU, AM activities at Uppsala university

Johan Moverare, LiU, AM activities at Linköpings university

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January 11

Conference diner 18:30

January 12

Sessions 3 and 4

Session Chair: Sasan Dadbakhsh and Jörg Volpp

9:00 Invited speaker: Olutayo Adegoke, Siemens-Energy. Laser-powder bed fusion of difficult-to-weld Ni-based superalloys.

9:40 Cladia Schwerz, Chalmers. In-situ detection of redeposited spatter on the powder bed by optical tomography and its correspondence. Benjamin Bircher, Alain Küng, Lars Nyborg

10:00 Coffee

10:30 Adrien Da Silva, LTU. Perspectives for thermal monitoring of directed energy deposition. Jan Frostevarg, Alexander F.H. Kaplan

10:50 Lisanne Wockenfuss, LTU. Influence of a laser focus shift on the laser powder bed fusion process.

11:10 Danial Molavitabrizi, UU. Damage-induced failure analysis of additively manufactured lattice materials. Rhodel Bengtsson, Carlos Botero, Lars-Erik Rännar, S. Mahmoud Mousavi.

11:30 Didunoluwa Obilade, LTU. An additive manufacturing design artefact investigation. Peter Törlind and Christo Dordlofva.

11:50 Mustafa Subasic, KTH. Effect of preload on the fatigue strength of SLM made 316L stainless steel with high porosity. Rami Mansour, Xiaoyu Zhao, Pavel Krakhmalev, Sasan Dadbakhsh, Mårten Olsson.

12:10 Lunch

Session 5

Session Chair: Johan Moverare

13:20 Invited speaker: **Xiaoyu Zhao**, KTH. Additive manufacturing of Ni-based superalloys- an analysis of parameter and strategy driven properties in electron beam melting process.

14:00 **Giulio Cavaliere**, UU. Effect of storage and reuse on powder and bulk specimen properties for powder bed fusion – laser beam of WE43 magnesium alloy. Pelle Mellin, Cecilia Persson, Francesco D'Elia.

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January 12

Session 5

Session Chair: Johan Moverare

14:20 Markus Uhlirsch, Swerim. Corrosion challenges for additively manufactured stainless steel materials. Sara Munktell, Maria Paschalidou, Konstantin Simonov, Jesper Flyg, Nuria Fuertes.

14:40 Xuying Wang, KTH. Bioaccessibility and reactivity of alloy powders used in powder bed fusion additive manufacturing. Inger Odnevall, Hanna L. Karlsson, Yolanda S. Hedberg, Kim Färnlund, Johan Lundqvist, N. V. Srikanth Vallabani, Alix Giboin

15:00 Coffee

Session 6

Session Chair: Johan Moverare

15:30 Liene Zaikovska, University West. Virtual testing of synthetic polycrystal microstructures predicting elastic properties of additive manufactured IN718. Magnus Ekh, Chamara Kumara

15:50 Dan Yang, LTU. Numerical simulation and experimental investigation on iron ore reduction by laser powder bed fusion. Dan Yang, Himani Naestroem, Tatiana Fedina, Joerg Volpp, Alexander F. H. Kaplan.

Awards and concluding remarks

KTH Lab Tour 16:30

KTH Lab Tour Finish 18:00

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