

# Alloys for Additive Manufacturing

## Symposium

3rd—4th September 2018

### INFORMATION FOR DELEGATES

Thank you for registering to attend the Alloys for Additive Manufacturing Symposium hosted by MAPP EPSRC Future Manufacturing Hub. MAPP's vision is to deliver on the promise of powder-based manufacturing to provide low energy, low cost, and low waste high value manufacturing routes and products to secure UK manufacturing productivity and growth.

This event continues the series of Europe-wide Additive Manufacturing workshops and symposiums which began at the Max-Planck Institute in 2016 and follows a successful event in 2017 which was hosted by EMPA in Switzerland. The scope of the symposium will cover additive manufacturing technologies which include a metallic phase .

You will find all the information you need to know in advance of the event on the following few pages. Final programmes will be distributed with the delegate packs at the symposium. We look forward to seeing you soon.



 [www.mapp.ac.uk](http://www.mapp.ac.uk)

 [@mapphub](https://twitter.com/mapphub) #AAMS18

 [mapp@sheffield.ac.uk](mailto:mapp@sheffield.ac.uk)

# Getting Here



The Alloys for Additive Manufacturing Symposium will be held at:

Inox Conference Suite

Level 5, Students' Union Building, Durham Road, Sheffield, S10 2TG

## By Train

Inox Conference Suite is within the University of Sheffield Students Union which is 3.2km from Sheffield railway station, which is served by routes from across the UK. A *Supertram* service runs from Sheffield railway station to the University of Sheffield stop, and it is then a two minute walk to the Students Union building.

## By Car

Approach Sheffield on the M1 and leave the motorway at junction 33, following signs along the dual carriageway A630/A57/A61 Parkway. The nearest secure parking is at the nearby [Q-Park on Durham Road, S10 2JA](#), which can be booked in advance.

## By Plane

There are several airports near Sheffield with good transport links. We recommend using Manchester Airport, where there are good onward rail links to Sheffield. Other options include Robin Hood and East Midlands Airports as well as travelling up from London airports.

For more travel information see the [University of Sheffield information for visitors webpage](#)

You are reminded that accommodation is not part of the symposium package so you will need to book this separately.

# Programme - Day 1

Time	Session	Speaker	Title
10.00	Registration and Poster set up		
11.00	Welcome & Opening	Prof. Iain Todd, University of Sheffield, MAPP Director	
11.15	Phase transformation in AM produced Alloys	Dr. Hector Basoalto, University of Birmingham	A stochastic multiscale modelling approach to additive manufacturing of nickel-based superalloys
	1	Mr Priyanshu Bajaj, Max-Planck-Institut für Eisenforschung	Precipitation kinetics during non-linear heat treatment in Laser Additive Manufacturing
	2	Dr Marie Fischer, Chalmers University of Technology	Investigation of the <i>in situ</i> elaboration of alloys by selective laser melting of mixed elemental powders: application to a Ti-26(at.%)Nb alloy
	3	Mr Philipp Kürnsteiner, Max-Planck-Institut für Eisenforschung	Designing Fe-Ni-Al and Fe-Ni-Ti Maraging steels tailor-made for Laser Metal Deposition by exploiting Intrinsic Heat Treatment
13.00	Lunch		
14.00	Alloy Design	Dr Blanka Szost, Additive Manufacturing Competence Centre (EU), Oerlikon AM	AM Alloy Design at Oerlikon - modelling and validation
	1	Prof. Roger Reed, University of Oxford	New Nickel-based Superalloys for AM by Alloys-By-Design Approach
	2	Mr Fabian Kies, Steel Institute IEHK, Aachen University	Development of New Compositionally Complex Alloys for Laser Additive Manufacturing
	3	Dr Behrang Poorganji, GE Additive	Material Development opportunities and challenges in Additive Manufacturing: GE Additive Vision and Examples
	4	Mr Patrick Köhnen, Steel Institute IEHK, Aachen University	High-Manganese Steels for Additive Manufacturing Applications with Energy-Absorption Functionality
16.00	Tea break		
16.30	Advances in Processing	Prof. Eduard Hryha, Chalmers University of Technology	Material - and powder solutions for powder-based additive manufacturing
	1	Dr Christian Leinenbach, Empa	Influence of re-scanning on defects and grain microstructure in SLM parts
	2	Dr Matteo Seita, Nanyang Technological University	High-resolution powder bed scanner for in-line defect detection and characterization during additive manufacturing
	3	Dr Sam Clark, University College London	<i>In situ</i> synchrotron quantification of microstructural feature phase and morphological evolution in Stainless Steels
18.15	Poster session and drink reception		
19.30	Conference dinner		

We have a full and packed programme over the 2 days, but hope you will find time to network during breaks. There is a dedicated poster session at 18.15 on Day 1 at which we encourage you to meet the presenters. We also have a symposium dinner immediately afterwards which is in the Inox Break out area.

# Programme – Day 2

Time	Session	Speaker	Title
8.30	Coffee		
9.00	Welcome to Day 2	Prof. Iain Todd	
9.05	Alloy Design	Dr Phil Carroll, LPW Technology	What ever happened to the lost generation...? Of alloys that is!
	1	Mr Florian Hengsbach, Paderborn University	Processing surface inoculated ferritic steel powder via selective laser melting – microstructural and mechanical properties
	2	Dr Pere Barriobero Vila, German Aerospace Centre	Re-interpreting titanium alloys for additive manufacturing
	3	Dr Ian Mellor, Metalysis	The Metalysis Process – A Flexible Distributed Manufacturing Route for the Production of Novel AM Powders
	4	Mr Mark Parsons, Zeiss	From Powder to Part: Microscopy and Measurement in Additive Manufacturing
11.00	Coffee break		
11.20	Structural Control by Design	Dr Eric A. Jäggle, Max-Planck-Institut für Eisenforschung	Impact of the process gas atmosphere in Laser Additive Manufacturing – desired and undesired effects
	1	Prof. Hong Dong, University of Leicester	Cracking during High Rate Solidification
	2	Mr Seth Griffiths, EMPA	Microstructure Characterization of L12 Strengthened Aluminum Superalloy Addalloy™
	3	Dr Xinjiang Hao, Liberty Steel	Cracking in Additive Manufactured 316L Stainless Steel
	4	Dr Ida Berglund, QuesTek Europe	Development of alloys for additive manufacturing using the <i>Materials by design™</i> methodology
13.15	Lunch		
14.15	Novel Concepts in Alloy Metamaterials	Dr Christopher M. Spadaccini, Lawrence Livermore National Laboratory	Additive Manufacturing and Architected Materials: New Process Development and Materials
	1	Mr Chen Liu, Imperial College, London	Meta-grain size effect: Hall-Petch-like relationship in architected meta-alloys
	2	Dr Markus Weinmann, H.C.Stark Tantalum and Niobium	Development of Ti/Nb/Ta alloys for application in 3D printing of patient-specific implants
	3	Dr Minh-Son Pham, Imperial College, London	Meta-crystals: Fusion of metallurgy and meta-materials
15.50	Symposium Round Up and Close		
16.00	Refreshments and Depart		



# Useful Information

Thank you for registering to attend the Alloys for Additive Manufacturing Symposium 2018. We hope that this pre-arrival pack has all the information you need – but if you have any further queries, please email [mapp@sheffield.ac.uk](mailto:mapp@sheffield.ac.uk).

All posters submitted will be displayed in the poster area in Suite 3 of the Inox Conference Suite.

Our registration desk, in the main foyer, will be manned throughout the conference to help you with any queries, and Inox Conference staff are also always on hand to assist.

The registration desk will be open from 09.30 on Monday 3rd September, where you will collect your badge and delegate bag. It would be appreciated if you could return your badge before leaving at the end of the symposium.

We have included plenty of networking opportunities as we appreciate that this is an important part of conference attendance and are also providing pre-dinner drinks sponsored by Inovar Communications.

The informal conference dinner will be free seating.

Please use the conference hashtag **#AAMS2018** and tweet **@mapphub** to share your thoughts over the two days.

Here are some hotels which are near to Inox Conference Suite or in the city centre. There are other hotels available, [please ask if you need any advice].

## [Leopold Hotel \[West Street\]](#)

We have a discounted rate for those attending the conference at this hotel. Enter promo code 71140066 when booking. Leopold Hotel is a couple of minutes away from the City Hall tram stop.

## [Premier Inn, Angel Street](#)

Standard rate, near to the Castle Square tram stop.

## [Halifax Hall Hotel](#)

There are limited spaces available, at a discount rate of £65—£70 depending on room occupancy.

# Sponsors

We are grateful to our sponsors, who are an important part of our symposium. Please make time to visit their stands. More details about all our sponsors can be found on the AAMS webpage.

## Gold Sponsor



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