

WINTER SCHOOL ON 3D PRINTING OF METALS



FROM FUNDAMENTALS TO APPLICATIONS

**IMDEA MATERIALS INSTITUTE
GETAFE (SPAIN) JANUARY 14th-15th 2020**

The program will cover both fundamental and application aspects involved in the 3D printing of metals. During the first day, lectures will focus on fundamental aspects of powder production, 3D printing techniques, process-microstructure-properties relationships, as well as on the innovative approaches for the design of new materials and structures opened up by these novel processing techniques. During the second day, lectures by industrial participants will focus on commercial applications and the current technological challenges towards full industrialization of these processes.

The program is suitable for graduates in science and engineering, researchers, academics and industry professionals in advanced manufacturing of metals. The purpose is to foster discussion and open debate amongst different members of the additive manufacturing ecosystem, including industry, researchers and students.

TRAINERS

Renowned experts in the field of additive manufacturing and applications of 3D printed metals, from IMDEA Materials Institute and other academic centres and companies. Speakers from other industries will also participate (see the program).

This event is organized as part of the **MAT4.0-CM** (Smart Manufacturing of advanced materials for energy, transport and health) project, funded by the Madrid regional government and by the European regional development fund under ref: S2018/NMT-4381 (MAT4.0-CM).

REGISTRATION FEE

The registration fee is € 100,00 (VAT included) per participant, including coffee, lunch and course materials. To attend this Winter School, please fill in the [following form](#).

PROGRAM

TUESDAY, JANUARY 14th 2020

FUNDAMENTALS

| Time | Title | Speaker |
|-------------|---|---|
| 9:15-9:30 | Welcome | Teresa Pérez-Prado Deputy Director IMDEA Materials Institute |
| 9:30-10:30 | Opening lecture – From Additive Manufacturing to Materials Processing 4.0: the journey from making objects to delivering performance on demand | Ian Todd Director of Future Manufacturing Hub University of Sheffield, UK |
| 10:30-11:15 | Metallic Powders for Additive Manufacturing | Monica Campos Powder Technology Group Carlos III University |
| 11:15-11:45 | Coffee break | |
| 11:45-12:30 | Development and 3D-4D characterization of two novel Ti alloys tailored to laser-based additive manufacturing | Guillermo Requena Department of Metals and Hybrid Mat German Aerospace Center, Germany |
| 12:30-13:15 | Computational modeling of metal additive manufacturing: Recent advances and outstanding challenges | Damien Tournet Modelling and Simulation of Mat. Proc. IMDEA Materials Institute |
| 13:15-15:00 | Lunch | |
| 15:00-15:30 | New Al alloys for additive manufacturing | Carmen Cepeda-Jiménez Physical Metallurgy IMDEA Materials Institute |
| 15:30-16:00 | Prospects for the use of Laser Shock Processing as a defect-mitigating technique for metallic AM'ed components | José Luis Ocaña Laser Engineering and Applications Polytechnic University of Madrid |
| 16:00-17:00 | Closing lecture – Metacrystals: Damage-tolerant and Programmable Materials | Mihn-Son Pham Materials Design for Adv. Manufact. Imperial College, UK |

WEDNESDAY, JANUARY 15th 2020

APPLICATIONS

| Time | Title | Speaker |
|-------------|---|--|
| 9:15-9:30 | Welcome | Jon Molina Coordinator of MAT4.0-CM IMDEA Materials Institute |
| 9:30-10:30 | Opening lecture - Programmable materials and the transformation of additive manufacturing to digital manufacturing | Omar Fergani Siemens Digital Industries |
| 10:30-11:00 | Developments & challenges in SLM for aero-engines | Ana Fernández-Blanco ITP Aero |
| 11:00-11:30 | Coffee break | |
| 11:30-12:00 | New developments in Selective Laser Melting | Iñigo Bereterbide Renishaw |
| 12:00-12:30 | HP 3D Metal Jet Technology Disrupting manufacturing and accelerating mass production of 3D-printed parts | Rocío Muñoz HP |
| 12:30-13:00 | Challenges and developments in AM industrialization – A view into SW & HW integration | Elvira León ADVANCE |
| 13:00-14:30 | Lunch | |
| 14:30-15:30 | Closing lecture – A vision of biomaterials from medicine to engineering: Oral and Maxillofacial Surgery | Pedro Martínez Seijas Maxillofacial Surgeon |
| 15:30-16:30 | Round table with industrial representatives | |
| 16:30-17:30 | Visit to the facilities (optional) | |

DATE, LOCATION AND REGISTRATION PROCEDURE

DATES January 14 – 15, 2020

LOCATION **IMDEA Materials Institute** (Auditorium)
Eric Kandel 2, Tecnogetafe
28906, Getafe (Madrid)
SPAIN
<http://materials.imdea.org/>

REGISTRATION PROCEDURE AND CONTACT Please **fill the registration form** <https://docs.google.com/forms/d/e/1FAIpQLSfGhqeK7iMpEK0Ut42Ihqb79LI3axsmt0AzhRrqTBmG-tkZPg/viewform> and send it. After registration, an invoice will be issued to the attendee (to be paid via bank transfer).

Mariana Huerta
Public relations and events management
mariana.huerta@imdea.org
+34 91 5493422 (extension 1001)

ORGANIZERS



COLLABORATORS

