WINTER SCHOOL ON
3D PRINTING OF METALS

mat4.0
Fabricación inteligente de materiales avanzados para la energía, el transporte y la salud

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.

institute IMdea materials

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 Tourret** 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** ADDVANCE
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** Maxilofacial Surgeon
15:30-16:30	**Round table with industrial representatives**	
16:30-17:30	Visit to the facilities (optional)	

institute IMdea materials

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/1FAIpQLSfGhqeK7impEK0Ut42Ihqb79Ll3axsmt0AzhRrqTBmG-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