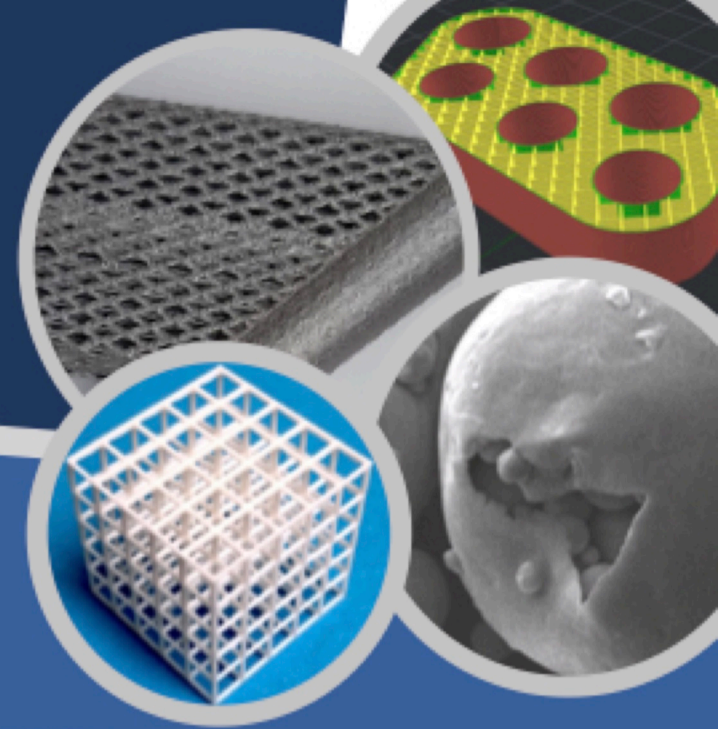


# INTERNATIONAL SUMMER SCHOOL

## New Advances in Materials for Additive Manufacturing

5<sup>th</sup>-9<sup>th</sup> September 2022, Brescia, Italy



### JOIN OUR SUMMER SCHOOL!



Deadline for registration:  
**12<sup>th</sup> August**

The summer school focuses on the latest advances in materials used and developed for additive manufacturing, involving both polymeric and metallic materials. Lectures will be dedicated to various topics, such as 3D and 4D printing of polymeric materials for biomedical and robotics fields, the design of innovative metallic alloys tailored for additive manufacturing processes, metal powders production and characterization, innovative post-processing routes. Hands-on activities will support the application of the acquired knowledge and will provide the possibility to try in person these tools and understand which one better fits the specific needs for scientific research or industrial design. Innovative teaching strategies involving theatre activities are proposed as precious tool to improve communicating skills.

#### The summer school is addressed to:

- Post-graduate and PhD students
- Early-stage and senior researcher
- Professionals and technicians from industries

#### Why participating?

- To improve your knowledge
- To put your knowledge into practice using advanced material-dedicated software
- To meet experts in the fields
- Networking and interacting

#### Interactive activities:

- Use of databases for materials selection and materials design
- Numerical simulation of additive manufacturing processes at micro- and macro-scale

#### Blended courses

The lectures will be provided in blended mode. It is possible to participate in person or online using a dedicated platform.

We encourage in person participation!

**Where:** Department of Mechanical and Industrial Engineering, via Branze 38, Brescia (Italy)

**Language:** The Summer School will be held in English.

**Registration Fee:** No fee is required to attend the summer school. Coffee break will be offered to the attendants. Lunches, dinners and accommodation are excluded.

**Social activities:** A social dinner and a visit to the castle of Brescia will be organized during the summer school. The details will be communicated after registration to the summer school.

**Laptop:** Attendees to the Summer School are requested to have a personal laptop for using softwares for numerical simulation of additive manufacturing processes.

**Deadline for registration:** 12<sup>th</sup> August

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International Activities



UNIVERSITÀ  
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DI BRESCIA



**MONDAY, 5<sup>th</sup> SEPTEMBER**  
**4D Printing**

9.00

**Welcome and introduction**

Annalisa Pola - University of Brescia, Italy

9.15

**From 3D Printing to 4D printing: state of the art, perspectives, challenges (ONLINE)**

Mahdi Bodaghi - Nottingham Trent University, UK  
Ali Zolfagharian - Deakin University, Australia

11.00

**Characterization of 4D printed structures**

Stefano Pandini - University of Brescia, Italy

..... 13.00 Lunch .....

14.30

**Constitutive modelling of active materials and its application to 4D printing**

Giulia Scalet - University of Pavia, Italy

16.30

**4D printing for biomedical and pharmaceutical applications (ONLINE)**

Nicoletta Inverardi - Massachusetts General Hospital, USA

**TUESDAY, 6<sup>th</sup> SEPTEMBER**  
**Materials selection and alloy design**

9.00

**GRANTA - Material and Process selection**

Harriett Parnell, Mauricio Dwek, Luca Masi - Ansys, GRANTA - Cambridge (UK), Lyon (France)

11.00

**GRANTA - Exercises on material and process Selection**

Stefano Pandini - University of Brescia, Italy

..... 13.00 Lunch .....

14.30

**Design of alloys and microstructures for metal AM parts**

Riccardo Casati - Politecnico of Milan, Italy

16.30

**Advanced manufacturing and characterization of AM components**

Dermot Brabazon - Dublin City University, Ireland

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**WEDNESDAY, 7<sup>th</sup> SEPTEMBER**  
**Metal Additive Manufacturing**

9.00

**Metallic powders production and characterization**

Annalisa Pola - University of Brescia, Italy

11.00

**New advances in metal AM**

Nesma Aboulkhair - University of Nottingham, UK

..... 13.00 Lunch .....

14.30

**Innovative heat treatment under pressure for AM components**

Jim Shipley - Quintus Technologies, Sweden

16.30

**Shape memory alloys for AM**

Marialaura Tocci - University of Brescia, Italy

**20.00 Social dinner**

**THURSDAY, 8<sup>th</sup> SEPTEMBER**  
**Simulation of AM processes**

9.00

**FLOW-3D AM: numerical simulation for optimization of process parameters**

Filippo Palo - XC Engineering, Italy

..... 13.00 Lunch .....

14.30

**DEFORM AM: from the forecast of residual stresses after production to applications for binder jetting**

Cristian Viscardi - Ecotre Valente, Italy

**18.30 Social event: guided  
tour to the Castle of Brescia**

**FRIDAY, 9<sup>th</sup> SEPTEMBER**  
**Gender in research - Theatre teaches**

9.00

**Gender in EU-funded research**

Mariasole Bannò - University of Brescia, Italy

11.00

**Theatre teaches: art based methods for non-technical skills**

Mariasole Bannò - University of Brescia, Italy

Andrea Albertini - Compagnia teatrale La Betulla, Italy

**12.30 School closing and graduation**

**Registration**

[Link to Registration Form](#)

**More information**

**website:** [mat4ind.unibs.it](http://mat4ind.unibs.it) **email:** [mat4ind@unibs.it](mailto:mat4ind@unibs.it)

**Scientific and organizing committee**

Prof. Annalisa Pola

Prof. Mariasole Bannò

Prof. Stefano Pandini

Dr. Marialaura Tocci

Eng. Maria Beatrice Abrami

Eng. Jacopo Agnelli

Eng. Chiara Pasini

Eng. Pietro Tonolini