

11.00 - 12.00 *Commercial Solutions for Simulation of Additive Manufacturing Processes*

**Manuel Monti**, Almatec, Italy

12.00 - 13.00 *Additive Manufacturing in Steel Making Industry*

**Rolando Paolone**, Danieli, Italy

13.00 - 14.00 Lunch Break

14.00 - 16.00 *Recent Developments in Additive Manufacturing Materials*

**Vanni Lughi**, Università di Trieste, Italy

16.00 - 16.30 Coffee break

16.30 - 17.30 *Additive Manufacturing in Medical Sector*

**Riccardo Toninato**, Lima LTO, Italy

17.30 - 18.30 *Additive Manufacturing in Energy Sector*

**Giuseppe Saragò**, Wartsila, Finland

### Friday, March 29th

**ADDITIVE SQUARE FVG, Friuli Innovazione**  
via Jacopo Linussio, Udine

8.30 - 09.30 *Additive Square FVG*

**Fabio Feruglio**, Friuli Innovazione, Udine, Italy

09.30 - 10.30 *Recent Developments in Additive Manufacturing Materials*

**Gian Carlo Scianatico**, EOS, Italy

10.30 - 11.30 *Additive Manufacturing in Automotive*

**Sergio Barel**, Brovedani, Italy

11.30 - 13.00 Tour of Additive Square FVG

13.00 Closing remarks

## GENERAL INFORMATION

The course is mainly addressed to doctoral students on a first come first served basis.

Registration Fees:

- Early bird registration (before March 1<sup>st</sup>, 2019):  
400,00 Euro + VAT taxes\* where applicable (bank charges are not included).

- Regular registration (from March 1<sup>st</sup>, 2019):  
450,00 Euro + VAT taxes\* where applicable (bank charges are not included)

The registration fee includes a complimentary bag, four fixed menu buffet lunches, coffee breaks, downloadable lecture notes and wi-fi internet access

Applicants to the seminar must apply by March 20<sup>th</sup>, 2019.

Applications should be made on-line through our web site:

<http://www.cism.it/courses/E1904/>.

A message of confirmation will be sent to accepted participants.

Information about travel and accommodation is available on our web site, or can be mailed upon request.

Applicants may cancel their course registration and receive a full refund by notifying CISM Secretariat in writing (by email) no later than two weeks prior to the start of the course.

If cancellation occurs less than two weeks prior to the start of the course, a Euro 50,00 handling fee will be charged. Incorrect payments are subject to Euro 50,00 handling fee.

*For further information please contact:*

CISM

Palazzo del Torso

Piazza Garibaldi 18

33100 Udine (Italy)

tel. +39 0432 248511 (6 lines)

fax +39 0432 248550

e-mail: [cism@cism.it](mailto:cism@cism.it)



**UNIVERSITÀ  
DEGLI STUDI  
DI UDINE**



Centro Internazionale  
di Scienze Meccaniche  
*International Centre  
for Mechanical Sciences*

Official Program

# METAL ADDITIVE MANUFACTURING SCENARIO RESEARCH AND INDUSTRIAL EXPERIENCE

**CISM-UniUD Summer School**  
coordinated by

**Marco Sortino**  
University of Udine  
Italy



**Udine March 25-29 2019**

## METAL ADDITIVE MANUFACTURING SCENARIO RESEARCH AND INDUSTRIAL EXPERIENCE

Additive manufacturing (AM) or 3D printing techniques, aim at becoming the new way of producing personalized components beyond the limits of geometry and location. AM has already established itself in the aerospace, energy, and medical sectors as a reliable technology, and many companies are already investing in series production plants based on AM.

This workshop aims at presenting up-to-date information on the latest developments – research and industrial experience – in the field of additive manufacturing techniques for metallic materials, thus providing an international forum for a beneficial exchange of ideas, and furthering a favorable cooperation between research and industry.

### Organized in collaboration with:

**Friuli Innovazione**, Udine, Italy

**COMET**, Pordenone, Italy

**Automotive Cluster Slovenia**, Ljubljana, Slovenia

**Automotive Cluster Styria**, Graz, Austria

**Joanneum Research**, Graz, Austria

### SPONSORS



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### PROGRAMME

#### Monday, March 25th

**CISM, piazza Garibaldi, Udine**

08.00 - 08.45 Registration

08.45 - 09.15 Welcome address

- Paolo Gardonio, UniUd - CISM referent
- Marco Sortino, UniUd - Course Organiser

09.15 - 11.00 *Overview of Additive Manufacturing of Metals*  
**David Bourell**, University of Texas at Austin, USA

11.00 - 11.15 Coffee break

11.15 - 13.00 *3D Printing of Multi-Functional Structures*  
**Eric MacDonald**, Youngstown State University, USA

13.00 - 14.00 Lunch Break

14.00 - 16.00 *Simulation and Quality Control in Additive Manufacturing*  
**Konrad Wegener**, ETH Zurich, IWF, Switzerland

16.00 - 16.30 Coffee break

16.30 - 18.30 *Simulation of Additive Manufacturing Processes*  
**Manuela Galati**, Politecnico di Torino, Italy

#### Tuesday, March 26th

**CISM, piazza Garibaldi, Udine**

8.30 - 10.30 *In-situ Monitoring for Metal Additive Manufacturing Processes*  
**Bianca Maria Colosimo**, Politecnico di Milano, Italy

10.30 - 11.00 Coffee break

11.00 - 13.00 *Comprehensive Optical Monitoring for Process Optimisation and Quality Assurance in SLM*  
**Smurov Igor**, École Nationale d'Ingénieurs de Saint-Étienne, France

13.00 - 14.00 Lunch Break

14.00 - 16.00 *Laser for Additive Manufacturing*  
**Barbara Previtali**, Politecnico di Milano, Italy

16.00 - 16.30 Coffee break

16.30 - 18.30 *Production of Prosthetic Implants by Additive Manufacturing*  
**Florian Klämpfl**, Friedrich-Alexander Universität Erlangen-Nürnberg, Germany

#### Wednesday, March 27th

**CISM, piazza Garibaldi, Udine**

8.30 - 10.30 *Additive Manufacturing of High Complexity Cutting Tools for Gear Production*  
**Alessandro Fortunato**, Università di Bologna, Italy

10.30 - 11.00 *Rapid Tooling Using Additive Manufacturing*  
**Carlo Iurisci**, Samputensili, Bologna, Italy

11.30 - 11.15 Coffee break

11.15 - 13.00 *Advanced Applications of Lattice Structures Obtained by SLM*  
**Giovanni Totis**, Università di Udine, Italy

13.00 - 14.00 Lunch Break

14.00 - 16.00 *Additive Manufacturing Process Monitoring and Certification*  
**Michele Lanzetta**, Università di Pisa, Italy

16.00 - 16.30 Coffee break

16.30 - 18.30 *Cold Gas Dynamic Spraying as Additive Technology: From Process Fundamentals Towards Industrial Applications*  
**Alexey Sova**, École Nationale d'Ingénieurs de Saint-Étienne, France

#### Thursday, March 28th

**LAMA FVG, University of Udine via Sondrio 2, Udine**

8.30 - 09.30 *Presentation of LAMA FVG*  
**Marco Sortino**, Università di Udine, Italy

9.00 - 10.30 *Industrial Applications of Laser Cladding*  
**Wolfgang Waldhauser**, Joanneum Research, Austria

10.30 - 11.00 Coffee break