

Structural Integrity and Reliability
of Advanced Materials obtained
through additive Manufacturing

SIRAMMI

www.siramm.unipr.it

H2020-WIDESPREAD-2018, Project No. 857124



**European
Commission**

2nd Winter School, 6-10 Feb. 2022

Trends on Additive Manufacturing for Engineering Applications

Organized by:



University Politehnica Timisoara, ROMANIA



University of Belgrade, SERBIA



Institute of Physics of Materials, Brno, CZECH REP.



University of Parma, ITALY



Norwegian University of
Science and Technology

Norwegian University of Science and Technology, NORWAY



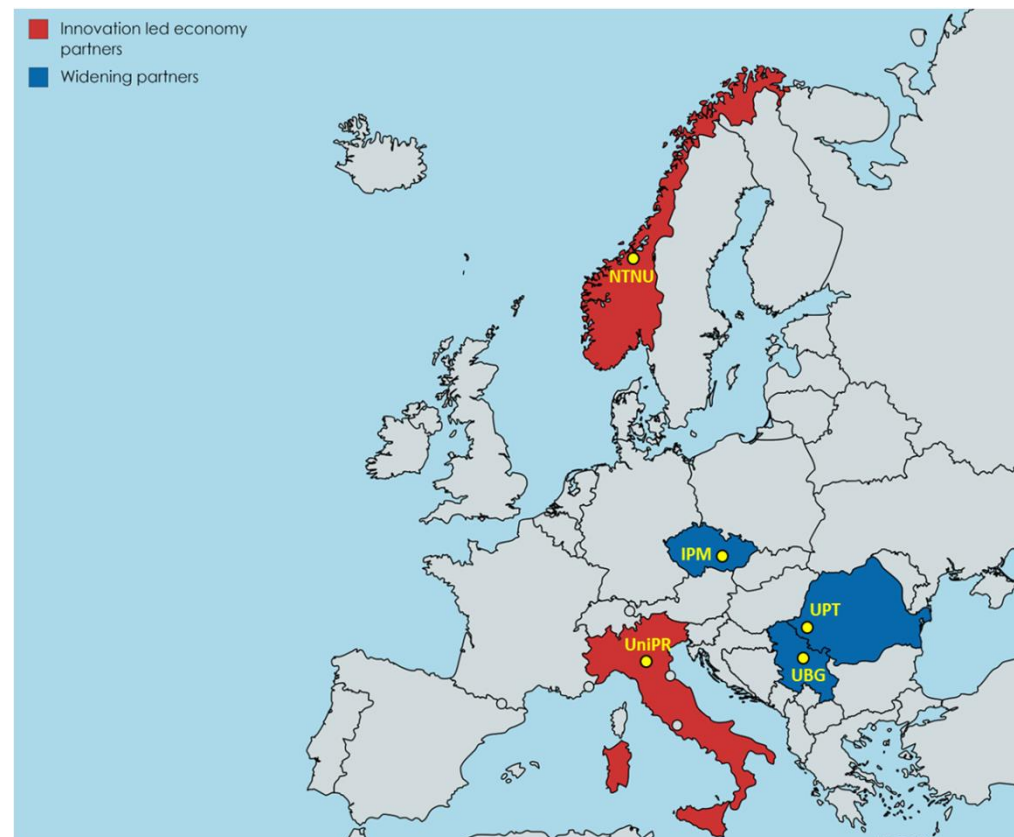
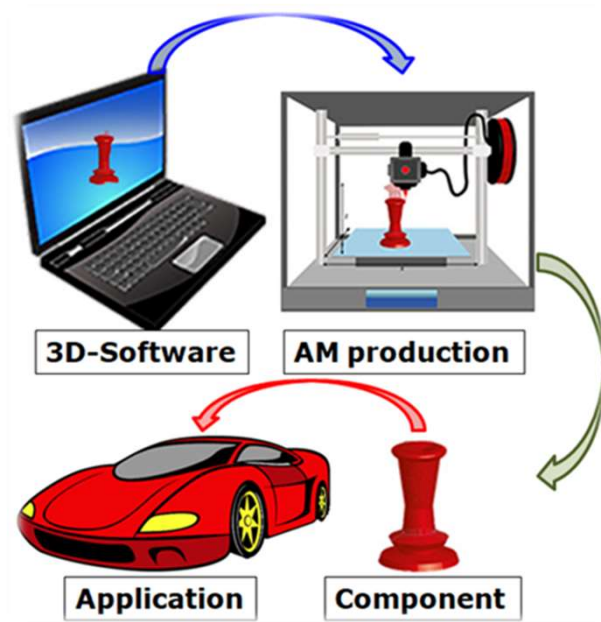
Twinning project on
***Structural Integrity and Reliability of Advanced
Materials obtained through additive Manufacturing***



<https://www.siramm.unipr.it>



Eastern European twinning on
**Structural Integrity and Reliability of Advanced
Materials obtained through additive
Manufacturing (SIRAMM)**



SIRAMM past events



1st Winter school on

Trends on Additive Manufacturing for Engineering Applications

Central Library, Polytechnic Univ. of Timisoara (UPT), Romania & Online

24th-28th January 2021

[Press release](#)



1st International Workshop on

Structural Integrity of Additively Manufactured Materials - SIAMM21

Polytechnic Univ. of Timisoara (UPT), Romania & Online

25th-26th February 2021

[link to the videos on the Facebook page](#)

The Workshop will be held in presence & online

Participation in the Workshop is free!

A limited number of places is available (~max. 80)

Selected papers will be invited to be submitted for publication in one or more indexed Journals

The selection process for participating in the Workshop will be based on the participant's country, with a preference for east European countries.

Participation of PhDs, post-docs and young researchers as well as women will be especially preferred.



East Europe Conference on AM materials - EECAM21

Faculty of Mechanical Engineering, Univ. of Belgrade, Serbia & Online

2nd-4th September 2021

The Conference will be held in presence & online

Participation in the Conference is free!

A limited number of places is available (~max. 90)

Selected papers will be invited to be submitted for publication in one or more indexed Journals



2nd International Workshop on

Structural Integrity of Additively Manufactured Materials - SIAMM22

Modelling and Simulation of Additively Manufactured Elements

Hotel Continental Brno, Brno, Czech Rep. & Online

4th-5th February 2022

Participation in the Workshop is free!

A limited number of places is available (~max. 80)

Selected papers will be invited to be submitted for publication in the
Journal of Mechanical Science and Technology (Springer, IF 1.7134)

SIRAMM future events

2022



3rd International Workshop on *Reliability and Design of Additively Manufactured Materials - RdAMM22*

Faculty of Mechanical Engineering, Univ. of Belgrade, Serbia
& Online

Dates to be defined (in Sept. 2022)

Participation in the Workshop is free!

SIRAMM future events

2023

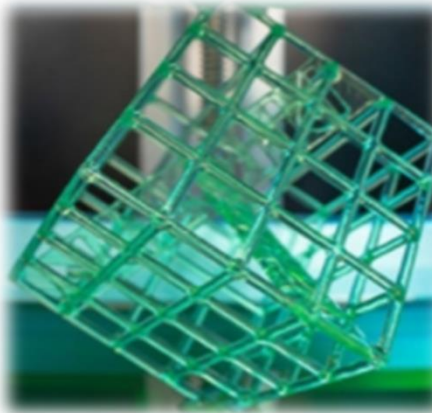


Final International Conference on *Mechanics and Integrity of Additively Manufactured Materials* (MIAMM23)

Central Library, *Polytechnic Univ. of Timisoara (UPT)*, Romania
Dates to be defined (March 2023)

Participation in the conference is free!

Conference details in preparation



3rd Winter school on

Trends on Additive Manufacturing for Engineering Applications

Faculty of Mechanical Engineering, Univ. of Belgrade, Serbia &
Online

Dates to be defined (Jan. - Feb. 2023)

Participation in the winter school is free!

2nd Winter school on
***Trends on Additive Manufacturing for
Engineering Applications***



Institute of Physics of Materials,
Czech Academy of Sciences,


Brno, CZECH REPUBLIC

	Feb. 6 Sunday		Feb. 7 Monday	Feb. 8 Tuesday	Feb. 9 Wednesday	Feb. 10 Thursday
		9.00 – 10.00	1st lecture (IPM & online) Prof. Liviu Marsavina <i>Presentation of the SIRAMM project</i>	5th lecture (online) Prof. Donato Firrao Prof. Filippo Berto Prof. Francesco Iacoviello <i>"Additive manufacturing in metals and defects: a challenging topic"</i>	10th lecture (online) Prof. Javad Razavi <i>"Fatigue life extension by crack repair"</i>	12th lecture (IPM & online) Prof. Roxana Ghita <i>"Gender (im)balance in science and engineering – a cross-cultural perspective"</i>
		10.00– 11.00	2nd lecture (online) Prof. Snezana Kirin <i>"Statistical methods for evaluating the experimental data obtained by testing AMM"</i>	6th lecture (online) Dr. Marco Maurizi <i>"Data-driven approaches for modeling and design of additive manufactured architected materials"</i>	11th lecture (IPM & online) Dr. Jan Cizek <i>"Cold spray Additive Manufacturing"</i>	13th lecture (IPM & online) Prof. Marian Janek <i>"Additive manufacturing of bioactive personalised hard tissue replacements"</i> Prof. Lubos Baca, <i>"Opportunities and challenges in the fused deposition modeling of ceramics"</i>
		11.00 – 11.30	Break (IPM)	Break (IPM)	Break (IPM)	Break (IPM)
		11.30 – 12.30	3rd lecture (IPM & online) Dr. Jaroslav Kovacic <i>"Cross-properties in Cu-graphite composites and aluminium foams and their applicability to Additive Manufacturing of materials"</i>	7th lecture (online) Prof. Florian Arbeiter <i>"Mechanical properties of layered polymers produced via extrusion-based additive manufacturing"</i>	Practical session 1 (IPM & online) <i>Advanced testing</i>	Final exam (IPM & online)
		12.30 – 14.30	Lunch	Lunch	Lunch	Lunch
14.30 – 16.30	Welcome reception & registration (IPM)	14.30 – 16.00	4th lecture (online) Dr. Francesco Puzello <i>"Additive Manufacturing from prototype to mass customization: a new industrial revolution. Challenges in AM production"</i>	8th lecture (online) Dr. S. Tavernini (*) <i>"The Marie Skłodowska-Curie Actions in Horizon Europe, with a special focus on postdoctoral fellowship"</i>	Practical session 2 (IPM & online) <i>Brno Univ. of Tech. 3D printers for metals</i>	14.30 – 15.30 Discussion session (IPM & online) Research, future perspectives and international collaborations on AM in engineering
16.30 – 17.00	Opening of the winter School (IPM & online):	16.00 – 17.00	Presentation of some participants' backgrounds and current activities (IPM & online)	9th lecture (online) Prof. Chao Gao <i>"Structural Integrity of Additive Manufactured Components – Introduction to AM of polymer component"</i>	(*)16.00 – 17.00 (IPM & online) Dr. S. Tavernini will be available to discuss and answer questions by the winter school attendee on research funding and related tips	15.30 – 16.00 Closing of the winter School (IPM & online)

Teaching material & video of lectures



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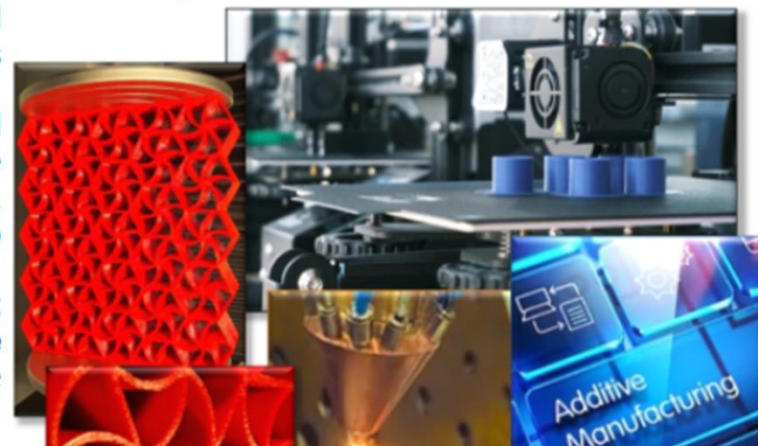
[Winter school](#)



The H2020 Twinning project **SIRAMM** aims to strengthen research in the field of **Additive Manufacturing (AM)** in the **Polytechnic University of Timisoara (UPT, Romania)** and in the participants from widening countries:

Univ. of Belgrade (Serbia) and Institute of Physics of Materials (Czech Rep.).

To achieve this goal, SIRAMM will build upon the existing science and innovation base of UPT, creating a network with two internationally-leading counterparts at EU level: **Norwegian University of Science and Technology (Norway)** and the **University of Parma (Italy)**.



After the winter school, if you are interested to access the restricted area of the SIRAMM project devoted to our schools, **please ask the password by writing an email to: SIRAMM.Twin@gmail.com**



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Access to the SIRAMM Reserved Area

Summer/Winter Schools' teaching material

Please insert password to enter into the reserved area:



You will find the **slides** and the **video of some lectures**



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Summer/Winter schools teaching material



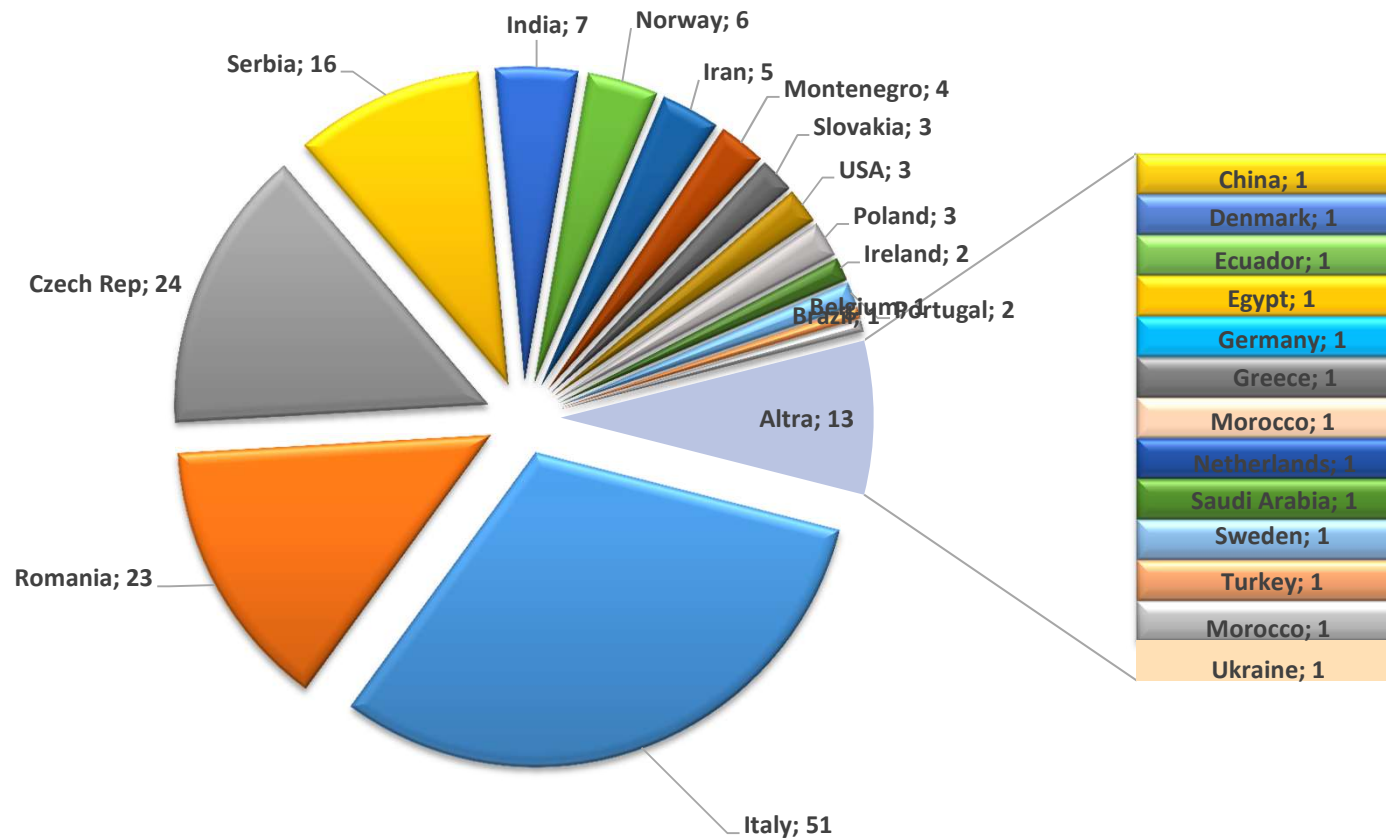
2nd Winter School on

Trends on Additive Manufacturing for Engineering Applications

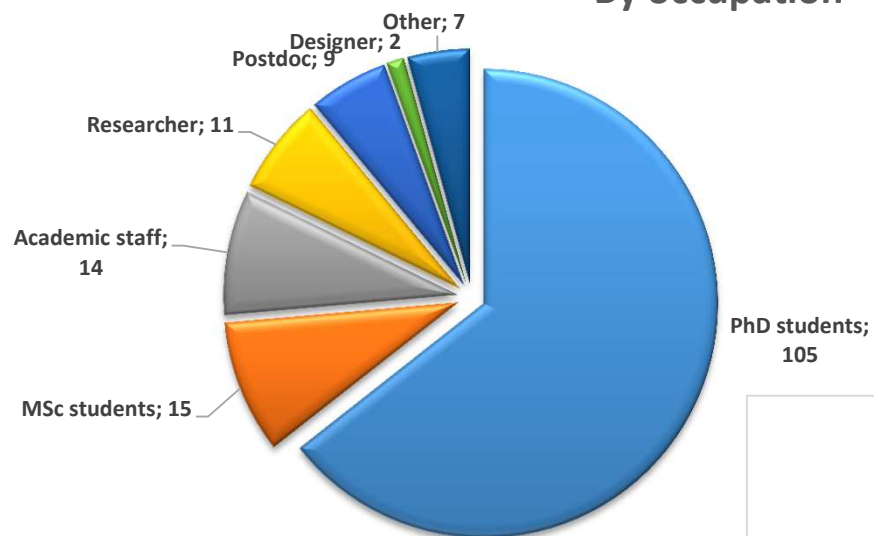
Institute of Physics of Materials (IPM),

Brno, Czech Republic, 6th -10th February 2022

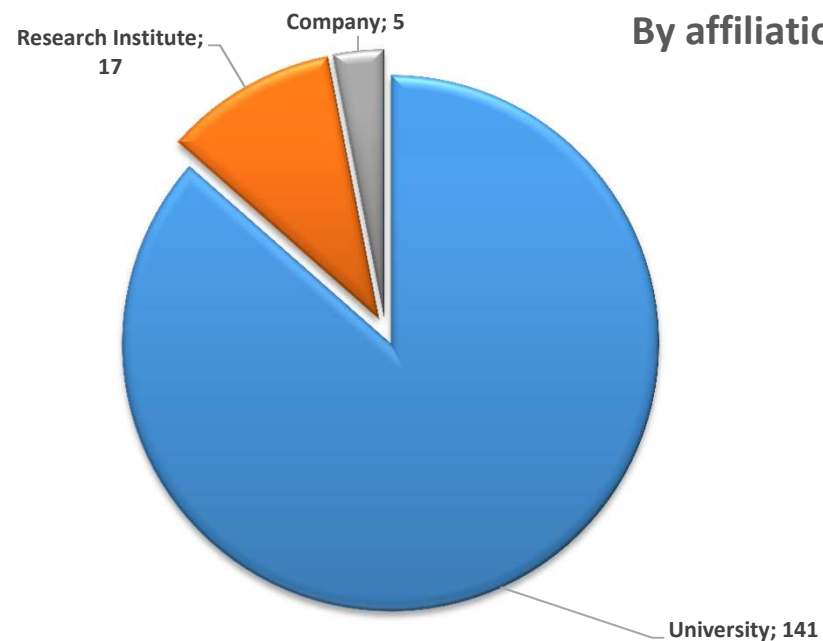
164 participants from 27 countries



By occupation



By affiliation



To access the lectures online, goto the following
URL:

www.symposium.online/siramm

login: *your email address*

password: **SIRAMM**

PhDs who are going to present their research activities tomorrow at 4:00 PM, must access the winter school by using this ZOOM link:

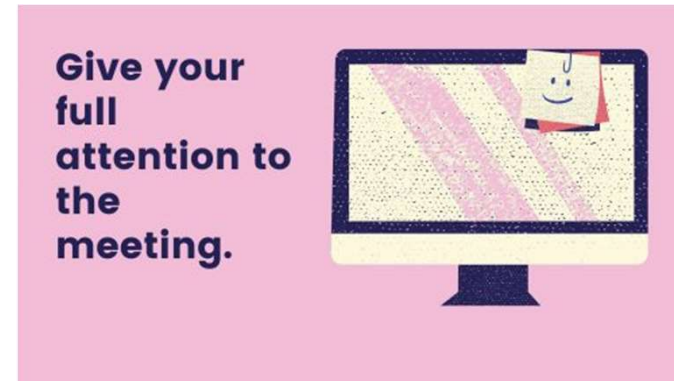
<https://us02web.zoom.us/j/83890539117?pwd=TEQyT3htcjFHL2xkc2Yxd2FiVlVYUT09>

ID: 838 9053 9117

passcode: 0202

We kindly ask you to send us by email during this week
your presentation (3-4 pages long) in PDF format

Rules for online meetings !



- Write your name in the Chat window for registering your presence.
- Ask questions to be addressed to Lecturers in the Chat.
- For any issue write an e-mail to:
liviu.marsavina@upt.ro, or roberto.brighenti@unipr.it

Time table

	Feb. 6 Sunday		Feb. 7 Monday	Feb. 8 Tuesday	Feb. 9 Wednesday	Feb. 10 Thursday
		9.00 – 10.00	1st lecture (IPM & online) Prof. Liviu Marsavina <i>Presentation of the SIRAMM project</i>	5th lecture (online) Prof. Donato Firrao Prof. Filippo Berto Prof. Francesco Iacoviello <i>"Additive manufacturing in metals and defects: a challenging topic"</i>	10th lecture (online) Prof. Javad Razavi <i>"Fatigue life extension by crack repair"</i>	12th lecture (IPM & online) Prof. Roxana Ghita <i>"Gender (im)balance in science and engineering – a cross-cultural perspective"</i>
		10.00– 11.00	2nd lecture (online) Prof. Snezana Kirin <i>"Statistical methods for evaluating the experimental data obtained by testing AMM"</i>	6th lecture (online) Dr. Marco Maurizi <i>"Data-driven approaches for modeling and design of additive manufactured architected materials"</i>	11th lecture (IPM & online) Dr. Jan Cizek <i>"Cold spray Additive Manufacturing"</i>	13th lecture (IPM & online) Prof. Marian Janek <i>"Additive manufacturing of bioactive personalised hard tissue replacements"</i> Prof. Lubos Baca, <i>"Opportunities and challenges in the fused deposition modeling of ceramics"</i>
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16.30 – 17.00	Opening of the winter School (IPM & online):	16.00 – 17.00	Presentation of some participants' backgrounds and current activities (IPM & online)	9th lecture (online) Prof. Chao Gao <i>"Structural Integrity of Additive Manufactured Components – Introduction to AM of polymer component"</i>	(*)16.00 – 17.00 (IPM & online) Dr. S. Tavernini will be available to discuss and answer questions by the winter school attendee on research funding and related tips	15.30 – 16.00 Closing of the winter School (IPM & online)

Sunday, Feb. 6th, 2022 (CE time, Rome, Paris, Prague)

14:30 – 16:30 **Welcome reception & registration**
(IPM)

16:30 – 17:00 **Opening of the Winter School**
(IPM & Online)

Prof. Roberto Brighenti (Univ. of Parma, ITALY)
Presentation of the SIRAMM project and of the Winter School

Dr. Lubos Nahlik (IPM, Czech Rep.)
*Presentation of the Institute of Physics of Materials, Brno
Week Program of the Winter School*

17:00 – 17:30 **Presentation of some of the participants on their backgrounds
and current activities**
(IPM & Online)

Monday, Feb. 7th, 2022 (CE time, Rome, Paris, Prague)

9:00 – 10:00 **1st lecture** (IPM & Online)

Prof. Liviu Marsavina (UPT, Timisoara, ROMANIA)

Presentation of the SIRAMM project

10:00 – 11:00 **2nd lecture** (Online)

Prof. Snezana Kirin (UBG, Belgrade, SERBIA)

Statistical methods for evaluating the experimental data obtained by testing AMM

11:00 – 11:30 Coffee break, suspension of the online transmission

11:30 – 12:30 **3rd lecture** (IPM & Online)

Dr. Jaroslav Kovacik (Institute of Materials and Machine Mechanics, Slovak Academy of Sciences SAS, CZECH REP.)

Cross-properties in Cu-graphite composites and aluminium foams and their applicability to Additive Manufacturing of materials

12:30 – 14:30 Lunch, suspension of the online transmission

Monday, Feb. 7th, 2022 (CE time, Rome, Paris, Prague)

14:30 – 16:00 **4th lecture** (Online)

Dr. Francesco Puzello (BI-REX - Big Data Innovation & Research Excellence,
ITALY)

***Additive Manufacturing from prototype to mass customization: a new
industrial revolution. Challenges in AM production***

16:00 – 17:00 **PhD presentations** (IPM & Online)

1. **Marek Doubrava** (Brno Univ. of Tech., CZECH REP),
2. **Daniele Cortis** (Sapienza University of Rome, ITALY),
3. **Manuel Sardinha** (Instituto Superior Técnico, University of Lisbon, PORTUGAL),
4. **Alberto Corvi** (Univ. of Parma, ITALY),
5. **Larisa Patricia Mocanu** (Univ. of Cassino, ITALY),
6. **Farzad Tatar** (Univ. of Parma, ITALY),
7. **Olivia-Laura Petrascu** (Univ. of Sibiu, ROMANIA),
8. **Isaak Trajkovic** (Faculty of Mechanical Eng., Belgrade, SERBIA),
9. **Bruna Torres Ferreira** (Univ. of Lisbon, PORTUGAL),
10. **Klara Nopova** (Brno Univ. of Tech., CZECH REP),
11. **Alexandra Morvayová** (Polytechnical Univ. of Bari, ITALY),
12. **Maria-Cristina Ioncica** (Polytechnical Univ. of Timisoara, ROMANIA)

Tuesday, Feb. 8th, 2022 (CE time, Rome, Paris, Prague)

9:00 – 10:00 **5th lecture** (UPT library & Online)

Prof. D. Firrao (Politecnico di Torino, ITALY)

Additive manufacturing in metals and defects: a challenging topic

10:00 – 11:00 **6th lecture** (Online)

Dr. M. Maurizi (NTNU, Trondheim, NORWAY)

*Data-driven approaches for modeling and design of additive
manufactured architected materials*

10:00 – 11:30 Break, suspension of the online transmission

10:00 – 11:00 **7th lecture** (Online)

Prof. F. Arbeiter (Montanuniversitaet Leoben, AUSTRIA)

*Mechanical properties of layered polymers produced via extrusion-
based additive manufacturing*

13:00 – 15:00 Lunch, suspension of the online transmission

Tuesday, Feb. 8th, 2022 (CE time, Rome, Paris, Prague)

14:30 – 16:00

8th lecture (Online)

Dr. S. Tavernini (Univ. of Parma, ITALY)

(Q&A on Wed. 9th, 16.00-17.00 *)

The Marie Skłodowska-Curie Actions in Horizon Europe, with a special focus on postdoctoral fellowship

16:00 – 17:00

9th lecture (Online)

Prof. C. Gao (NTNU, Trondheim, NORWAY)

Structural Integrity of Additive Manufactured Components – Introduction to AM of polymer component

Wednesday, Feb. 9th, 2022 (CE time, Rome, Paris, Prague)

9:00 – 10:00 **10th lecture** (Online)

Prof. J. Razavi (NTNU, Trondheim, NORWAY)

Fatigue life extension by crack repair

10:00 – 11:00 **11th lecture** (IPM & Online)

Dr. J. Cizek (Czech Academy of Sciences, Prague, CZECH REP)

Cold spray Additive Manufacturing

11:00 – 11:30 Break, suspension of the online transmission

11:30 – 12:30 **Practical session 1** (IPM & Online)

Advanced testing of materials at IPM

12:30 – 14:30 Lunch, suspension of the online transmission

Wednesday, Feb. 9th, 2022 (CE time, Rome, Paris, Prague)

15:00 – 16:30 **Practical session 2** (Brno Univ. of Techn., Brno & Online)

3D printers for metals

16:00 – 17:00 **Dr. S. Tavernini** (Univ. of Parma, ITALY) (Online)

Online meeting to discuss and answer questions by the winter school attendee on research funding and related tips

Thursday, Feb. 10th, 2022 (CE time, Rome, Paris, Prague)

9:00 – 10:00 **12th lecture** (Online)

Prof. R. Ghita (UPT, Timisoara, ROMANIA)

Gender (im)balance in science and engineering – a cross-cultural perspective

10:00 – 11:00 **13th lecture** (UPT library & Online)

Prof. M. Janek (Slovak University of Technology, SLOVAKIA)

Part 1: Additive manufacturing of bioactive personalised hard tissue replacements

Prof. L. Baca (Slovak University of Technology, SLOVAKIA)

Part 2: Opportunities and challenges in the fused deposition modeling of ceramics

11:00 – 11:30 Break, suspension of the online transmission

11:30 – 12:30 **Final Exam** (Online test – Google Forms) - ***Multiple choice test***

12:30 – 14:30 Lunch, suspension of the online transmission

Thursday, Feb. 10th, 2022 (CE time, Rome, Paris, Prague)

11:30 – 12:30 **Final exam** (IPM & Online)

Google forms

Multiple choice test

ECTS credits

3 ECTS will be recognized for the participation (for at least 70% of the lectures attended) to the winter school.

2 more ECTS will be recognized upon the positive evaluation of the final assessment test.

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H2020-WIDESPREAD-2018, Project No. 857124

 **European
Commission**

2nd Winter School on Trends on "Additive Manufacturing for Engineering Applications", Final test

Institute of Physics of Materials (IPM), Brno & Online, 6-10 February 2022

Please answer the questions below by choosing only one of the proposed answers

Test pass with at least 60% of correct responses (2 ECTS will be recognized)
3 ECTS are assigned for attending the winter school (min 70% of the lectures)

Correct answer: 1 point

Incorrect answer or answer not given: 0 points



H2020-WIDESPREAD-2018
Project No. 857124



European
Commission

Certificate of Attendance

hereby I confirm that

NAME SURNAME

participated in the

2nd Winter school on

Trends on Additive Manufacturing for Engineering Applications

held in Brno, Czech Rep. & online – 6th - 10th February 2022

and obtained **5 ECTS** by attending the school
and successfully passing the final exam



Norwegian University of
Science and Technology

The winter school Responsible
Prof. Dr. Eng. Liviu MARSAVINA

Thursday, Feb. 10th, 2022 (CE time, Rome, Paris, Prague)

14:30 – 15:30 **Discussion session (IPM & online)**

***Research, future perspectives and international
collaborations on AM in engineering***

15:30 – 16:00 **Closing of the winter School (IPM & Online)**

***Please stay up to date on our events & activities by visiting our
website at: <http://www.siramm.unipr.it>***



*Twinning project on
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Thank you to all participants !