1st Winter School, 24-28 Jan. 2021

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, NORWAY
Rules for online meetings!

- Write your name in the Chat window for presence.
- Ask questions in the Chat, to be addressed to Lecturers.
- For any issue write an e-mail to: liviu.marsavina@upt.ro, roberto.brighenti@unipr.it
155 participants from 21 countries
# Time Table

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<tr>
<td><strong>9:00 — 9:30</strong></td>
<td><strong>1st lecture</strong></td>
<td><strong>5th lecture</strong></td>
<td><strong>9th lecture</strong></td>
<td><strong>10th lecture</strong></td>
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<td><strong>1st lecture</strong></td>
<td>(UPT library)</td>
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<tr>
<td>Prof. Liviu Marsavina</td>
<td>Presentation of the SIRAMM project</td>
<td>Prof. D. Constantinescu</td>
<td>“Experimental Fracture Mechanics”</td>
<td>Prof. F. Berto</td>
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<td><strong>9:30– 11:00</strong></td>
<td><strong>2nd lecture</strong></td>
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<td>Prof. Jan Torgensen</td>
<td>“Opening the design space by removing constraints with Additive Manufacturing and Topology Optimization”</td>
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<td><strong>11:00 – 11:30</strong></td>
<td>Break (UPT library)</td>
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<td><strong>11:30 – 13:00</strong></td>
<td><strong>3rd lecture</strong></td>
<td><strong>6th lecture</strong></td>
<td><strong>Practical session 1</strong></td>
<td><strong>11th lecture</strong></td>
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<td><strong>3rd lecture</strong></td>
<td>(online)</td>
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<td>(Faculty of Mech. Eng. Lab. Belgrade &amp; online)</td>
<td>(UPT library)</td>
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<td>Prof. R. Brighenti</td>
<td>Prof. A. Spagnoli</td>
<td>Dr. S. Tavernini (*)</td>
<td>Designing and Manufacturing of Specimens</td>
<td>Prof. Roxana Ghița</td>
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<tr>
<td><strong>13:00 – 15:00</strong></td>
<td>Lunch</td>
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<td><strong>14:30 – 16:30</strong></td>
<td>Welcome reception &amp; registration (UPT library)</td>
<td>4th lecture (online)</td>
<td>Practical session 2 (Faculty of Mech. Eng. Lab. UPT &amp; online)</td>
<td>Final exam (UPT library &amp; online)</td>
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<td><strong>16:30 – 17:00</strong></td>
<td>Opening of the winter School (UPT library &amp; online):</td>
<td>7th lecture (online)</td>
<td>Testing of specimens (static, fracture toughness)</td>
<td>16:00 – 17:00</td>
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<td>Dr. A. Grbovic</td>
<td>(*) 16:30-18:00 (online)</td>
<td>Discussion session (UPT library &amp; online)</td>
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<td>“Numerical simulation of fatigue crack growth”</td>
<td>Dr. S. Tavernini will be available to discuss and answer questions by the winter school attendees on research funding and related tips</td>
<td>Research, future perspectives and international collaborations on AM in engineering</td>
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<td><strong>17:00 – 18:00</strong></td>
<td>Presentation of some of the participants on their backgrounds and current activities (UPT library &amp; online)</td>
<td>16.30 – 18.00 Discussion session (UPT library &amp; online)</td>
<td>17.15 – 18.00 PhD presentations (UPT library &amp; online)</td>
<td><strong>Closing of the winter School</strong> (UPT library &amp; online)</td>
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<td>Speakers will be available online for Q&amp;A</td>
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Sunday, Jan. 24th, 2021 (CE time, Rome, Paris)

14:30 – 16:30 Welcome reception & registration
(UPT library)

16:30 – 17:00 Opening of the Winter School
(UPT library & Online)

Rector of University Politehnica Timisoara Florin Dragan (UPT, Romania)
Dean of the Mechanical Engineering Faculty Virgil Stoica (UPT, Romania)
Prof. Liviu Marsavina (UPT, Romania)
Presentation of the University Politehnica Timisoara Week Program of the Winter School

17:00 – 18:00 Presentation of some of the participants on their backgrounds and current activities
(UPT library & Online)
Monday, Jan. 25th, 2021 (CE time, Rome, Paris)

9:00 – 9:30  
**1st lecture** (UPT library & Online)  
Prof. Liviu Marsavina (UPT, Timisoara, ROMANIA)  
*Presentation of the SIRAMM project*

9:30 – 11:00  
**2nd lecture** (Online)  
Prof. Jan Torgensen (NTNU, Trondheim, NORWAY)  
*Opening the design space by removing constraints with Additive Manufacturing and Topology Optimization*

11:30 – 13:00  
**3rd lecture** (Online)  
Prof. R. Brighenti, Prof. A. Spagnoli (Univ. of Parma, ITALY)  
*Review on AM of polymeric materials*

13:00 – 15:00  
Lunch, suspension of the online transmission
Monday, Jan. 25th, 2021 (CE time, Rome, Paris)

15:00 – 16:30 **4th lecture** (Online)

Prof. Ludvík Kunz (IPM Brno, CZECH REP.)

*Fatigue properties of metallic materials produced by AM*

16:30 – 18:00 **Discussion session**

(UPT library & Online)

Svetozar Koloser (3D Republic, Serbia)
Dr. Monica Buzdugan (Vitesco, Romania)
Prof. Dorian Nedelcu (U. Babes – Boyai, Romania)
Tuesday, Jan. 26th, 2021 (CE time, Rome, Paris)

9:00 – 11:00  **5th lecture** (UPT library & Online)
Prof. D. Constantinescu (UP Bucharest, ROMANIA)
*Experimental Fracture Mechanics*

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

11:30 – 13:00  **6th lecture** (Online)
Dr. S. Tavernini (Univ. of Parma, ITALY) *(Q&A on Wed. 27th, 16.30-18.00, *)
*How to apply for research funding:  
 funding opportunities for Early Stage Researchers and grant writing tips*

13:00 – 15:00 Lunch, suspension of the online transmission
Tuesday, Jan. 26th, 2021 (CE time, Rome, Paris)

15:00 – 16:30  **7th lecture** (Online)
Dr. A. Grbovic (Univ. of Belgrade, SERBIA)
*Numerical simulation of fatigue crack growth*

16:30 – 17:15  **8th lecture** (Online)
Prof. F. Auricchio (Univ. of Pavia, ITALY)
*Simulation for additive manufacturing: opportunities and challenges*

17:15 – 18:00  **PhD presentations**
(UPT library & Online)
M. Maurizi (NTNU, NORWAY), Vasile Alexandru (UPB, ROMANIA),
L. Poczklan (IPM, CZECH Rep), T. Krausz (UPT, ROMANIA), N. Yadzhak
(Nat. Univ. Lvov, UKRAINE), A. Celotto (NTNU, NORWAY), R. Alberini
(Univ. of Parma, ITALY), A. Isaincu (UPT, ROMANIA), M.-O. Popp (ULB
Sibiu, ROMANIA), M. Cosma (Univ. of Parma, ITALY), M. Doubrava (Brno
Univ. CZECH. REP), F. Uriati (Univ. of Parma, ITALY)
Wednesday, Jan. 27th, 2021 (CE time, Rome, Paris)

9:00 – 11:00  **9th lecture** (Online)

Prof. A. Sedmak (Univ. of Belgrade, SERBIA)

*Application of Fracture Mechanics parameters on structural integrity assessment*

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

11:30 – 13:00 **Practical session 1** (Faculty of Mech. Eng. Lab., Belgrade & Online)

*Designing and Manufacturing of AM Specimens*

13:00 – 15:00 Lunch, suspension of the online transmission
Wednesday, Jan. 27\textsuperscript{th}, 2021 (CE time, Rome, Paris)

15:00 – 16:30  **Practical session 2** (Faculty of Mech. Eng. Lab., Timisoara & Online)

*Testing of AM specimens (static, dynamic, fracture toughness)*

16:30 – 18:00  **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, Jan. 28th, 2021 (CE time, Rome, Paris)

9:00 – 11:00  
10th lecture (Online)  
Prof. F. Berto (NTNU, Trondheim, NORWAY)  
Local approaches in fatigue

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

11:30 – 13:00  
11th lecture (UPT library & Online)  
Prof. Roxana Ghita (UPT, Timisoara, ROMANIA)  
Gender (im)balance in science and engineering across cultures

13:00 – 15:00  
Lunch, suspension of the online transmission
Thursday, Jan. 28th, 2021 (CE time, Rome, Paris)

15:00 – 16:00  **Final exam** (UPT library & Online)

*Multiple choice test*

16:00 – 17:00  **Discussion session** (UPT library & online)

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

- Florin Vladulescu (University Politehnica Bucharest, ROMANIA): *Design and additive manufacturing process simulation of a bracket using finite element method*
- Farzad Tatar (IRAN)
- Michele Terzano (Univ. of Parma, ITALY)
- Pavol Dlhy (IPM Brno, CZECH REP.)

17:00 – 17:15  **Closing of the winter School** (UPT library & Online)
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Trends on Additive Manufacturing for Engineering Applications
24-28 Jan. 2021

Thursday, Jan. 28th, 2021 (CE time, Rome, Paris)

15:00 – 16:00  Final exam (UPT library & Online)

Google forms

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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www.siramm.unipr.it
Project No. 857124

unicampus.ro
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Video of lectures will be available at: www.esis.tv

Thank you to all the participants!