

International conference  
**East Europe Conference on  
AM materials**



Faculty of Mechanical Engineering  
University of Belgrade, Serbia  
& Online

2<sup>nd</sup>-4<sup>th</sup> September 2021

**Conference Programme  
& Book of Abstracts**

## Conference organized by:



Polytechnic  
University of  
Timisoara,  
ROMANIA



University of  
Belgrade,  
SERBIA



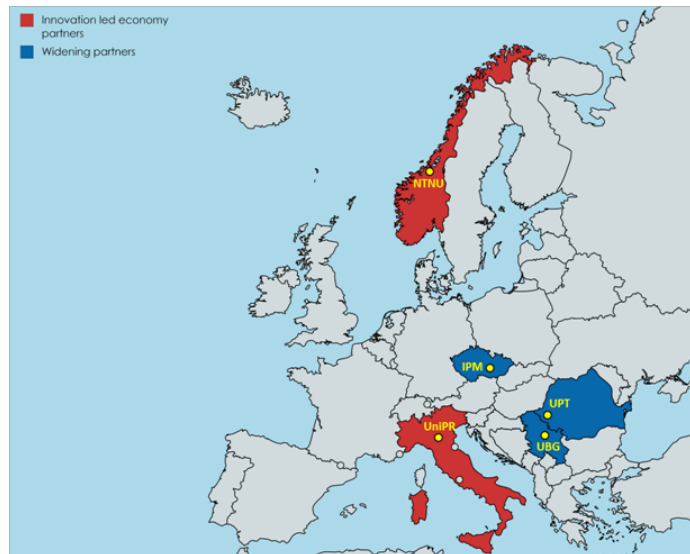
Institute of Physics  
of Materials, Brno,  
CZECH REP.



University of  
Parma,  
ITALY



Norwegian Univ. of  
Science and  
Technology,  
NORWAY



Participating institutions in SIRAMM project

## Conference Programme

(Central European Time - Paris, Rome, Belgrade)

- in presence & online
- online

### Thursday, 2<sup>nd</sup> September 2021

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8:00-9:15 Registration of participants  
Faculty of Mech. Eng. (FME), Univ. of Belgrade, Serbia

9:15-9:45 • Opening of the Conference and presentation of the SIRAMM project  
(FME & online)  
Prof. Liviu Marsavina

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9:45-10:15 • **1<sup>st</sup> Keynote lecture** (FME & online)  
Chairman Prof. Liviu Marsavina  
***Mechanical Properties and geometric aspects in Selective Laser Sintering***  
Dr. Dan Stoia (Politehnica University Timisoara, Romania)

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10:15-10:45 *Coffee break* (FME)

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10:45-12:45 **1<sup>st</sup> Session** (FME & online) (12 min presentation + 3 min Qs&As)  
Chairman: Milos Milosevic  
**Characterization of AM materials**

10:45-11:00 • *The strength of additive manufactured screws*

Andrei Morariu, Estera Valean, Monica Buzdugan, Liviu Marsavina

11:00-11:15 • *Mechanical properties of polymeric elements obtained through Digital Light Processing*

Roberto Brighenti, Liviu Marsavina, Mihai Marghitas

11:15-11:30 • *A green building technique: thermal transmittance value of the different materials used in 3D printed houses*

Milica Ivanović, Aleksandar Simonović, Toni Ivanov, Aleksandar Kovačević, Dragoljub Tanović

11:30-11:45 • *Mechanical properties of FDM printed objects as a function of the printing parameters*

Corrado Sciancalepore, Daniel Milanese

11:45-12:00 • *Application of additive manufacturing in jigs and fixture based manufacturing*

Rohit Mishra

12:00-12:15 • *How does build orientation influences the torsional capacity of hollow shaft*

Marius Nicolae Baba

12:15-12:30 • *Hardness analysis of additively manufactured metallic specimens*

Miloš Milošević, Ivana Jevtić, Isaak Trajković, Žarko Mišković, Tihomir Čuzović, Aleksa Milovanović, Milan Travica

12:30-12.45 • *Load-rate effects of Additively Manufactured metallic honeycomb structures under compression*

Solomon O. Obadimu, Kyriakos I. Kourousis

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12:45-14:15 *Lunch break (FME)*

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**14:15-14:45 • 2<sup>nd</sup> Keynote lecture (online)**

Chairman: Roberto Brighenti

***Gender in Science and Technology***

Dr. Roxana Gita (Politehnica University Timisoara, Romania)

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**14:45-16:30 2<sup>nd</sup> Session (FME & online) (12 min presentation + 3 min Qs&As)**

Chairman: Roberto Brighenti

**AM technologies advancements & new experiences**

14:45-15:00 • *The use of 3D printing for studying the influence of ionizing radiation on electronic components*

Stefan Ilić, Miloš Vorkapić, Toni Ivanov, Jelena Svorcan

15:00-15:15 • *CAD development of parts adapted to Additive Manufacturing production*

Goran Mladenovic, Ivana Jevtic, Milos Milosevic, Isaak Trajkovic

15:15-15:30 • *The first bridge - prototype development through Fused Deposition Welding Modeling (FDM)*

Anamaria Ioana Feier, Felicia Veronica Banciu, Mihai Brîndușoiu, Radu Băncilă

15:30-15:45 • *Additive Manufacturing of Removable Complete Dentures*

Christa Serban, Florin Ionel Topala, Meda Lavinia Negrutiu, Virgil Florin Duma, Liviu Marsavina, Cosmin Sinescu, Adrian Gh. Podoleanu

15:45-16:00 • *Mechanical properties of polymer matrix composite materials produced by additive manufacturing through the finite element method*

Israel David Mantilla Bravo, Octavio Andrés González Estrada, Oscar Rodolfo Bohórquez Becerra, Sebastián Casas Parra

16:00-16:15 • *KnowHub entrepreneurial projects based on Rapid Prototyping Technology: Montenegro in focus*

Jelena Šaković Jovanović, Janko Jovanović, Aleksandar Vujović

16:15-16:30 • *Experiences in 3D printing applied in education*

Petar Jakovljević, Đorđe Dihovični, Ivan Bijelić, Dragan Kreculj, Nada Ratković Kovačević

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**16:30-17:30 • Practical session (FME & online)**

***Demo from 3DRepublica company***

***Visit to testing and DIC Lab***

***Presentation of the project 5825 'Device for simultaneous measurement of thermo-mechanical properties of dental composites' funded by the Innovation Fund of the Republic of Serbia***

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## Friday, 3<sup>rd</sup> September 2021

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9:00-9:30 • **3<sup>rd</sup> Keynote lecture** (FME & online)

Chairman: Prof. Aleksandar Sedmak

***Horizon Europe – new EU framework program***

Biljana Glišić (Horizon NCP, Serbia)

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9:30-11:00 **3<sup>rd</sup> Session** (FME & online) (12 min presentation + 3 min Qs&As)

Chairman: Prof. Aleksandar Sedmak

***Simulation of AM processes***

- 9:30-9:45 • *Machine learning applications in additive manufacturing: an assessment of the state-of-the-art and future prospects*

Lipika Mohapatra, Bikash Chandra Behera

- 9:45-10:00 • *Link between reverse engineering and additive technology on the example of a model without technical documentation*

Miloš Vorkapić, Ivana Mladenović, Aleksandar Kovačević, Marija Baltić

- 10:00-10:15 • *Machine Learning Module for Predicting Tensile Response of SLMed Ti-6Al-4V*

Mainak Banerjee, Ankan Banerjee, Dipayan Mukherjee, Anil K Singla, Jagtar Singh

- 10:15-10:30 • *Modeling Selective Laser Sintering AM: an overview*

Roberto Brighenti, Andrea Spagnoli, Michele Terzano, Mattia P. Cosma

- 10:30-10:45 • *The importance of machine learning and generative design in AM*

Aleksandra Joksimović, Ivana Medojević, Mladen Regodić

- 10:45-11:00 • *Making a 3D Printer of Delta Configuration Using Open-Source Project*

Miroslav Aleksandrović, Nada Ratković Kovačević, Dragan Kreculj, Đorđe Dihovični, Petar Jakovljević

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11:00-11:30 *Coffee break* (FME)

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11:30-12:00 • **4<sup>th</sup> Keynote lecture** (FME & online)

Chairman: Prof. Aleksandar Grbovic

***Numerical modeling of AM processes***

Roberto Brighenti (Univ. of Parma, Italy)

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12:00-13:15 **4<sup>th</sup> Session** (FME & online) (12 min presentation + 3 min Qs&As)

Chairman: Prof. Lubos Nahlik

***Fatigue of AM materials***

- 12:00-12:15 • *Low cycle fatigue behavior of 316L steel manufactured by selective laser melting*

Jiří Man, Ivo Šulák, Ivo Kuběna, Alice Chlupová, Lukáš Douša, Jaroslav Polák

- 12:15-12:30 • *Numerical simulation of crack propagation in a component produced by additive manufacturing*

L. Trávníček, F. Arbeiter, P. Dlhý, M. Spoerk, L. Náhlík, P. Hutař

- 12:30-12:45 • *Correlation between fatigue behaviour and surface roughness of Inconel718 produced by additive manufacturing*

Federico Uriati, Gianni Nicoletto

- 12:45-13:00 • *Comparison of cyclic behaviour of SLM- and conventionally-processed 304L*

Miroslav Šmíd, Michal Jambor, Daniel Koutný, Stanislav Fintová, Ivo Kuběna

- 13:00-13:15 • *A\_MADAM project - fatigue behaviour of steels produced by DMLS*

Snežana Čirić-Kostić, Nebojša Bogojević, Dario Crocchio, Giorgio Olmi, Zlatan Šoškić

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13:15-14:30    *Lunch break* (FME)

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**14:30-15:00 • 5<sup>th</sup> Keynote lecture** (FME & online)

Chairman: Prof. Aleksandar Grbovic

***Additive Manufacturing in Aerospace Industry: Present and Future***

Ognjen M. Peković (Faculty of Mech. Eng. – Univ. of Belgrade, Serbia)

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**Organized city tour**

15:15 – 16:30    **Museum Nikola Tesla**

16:45 – 17:45    **Saint Sava church**

18:00 – 22:00    **River cruise & Conference dinner**

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## Saturday, 4<sup>th</sup> September 2021

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9:00-9:30 • **6<sup>th</sup> Keynote lecture** (online)

Chairman: Andrea Spagnoli

***Design advanced interlocked structures via machine learning approach***

Chao Gao (NTNU, Norway)

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9:30-10:30 **5<sup>th</sup> Session** (FME & online) (12 min presentation + 3 min Qs&As)

Chairman: Andrea Spagnoli

**Structural Integrity of AM materials**

9:30-9:45 • *Monitoring of crack growth in additive manufactured pipe ring specimens by digital image correlation*

Isaak Trajković , Miloš Milošević , Bojan Međo , Marko Rakin , Aleksandar Sedmak

9:45-10:00 • *Estimating damping values of 3D printed ABS test specimens using the half-power method*

Ionuț Ailinei, Sergiu-Valentin Galațanu, Liviu Marșavina

10:00-10:15 • *Damage mechanisms of SLM-printed 316L steel subjected to thermomechanical fatigue*

Tomáš Babinský, Ivo Šulák, Adam Weiser, Lukas Englert, Stefan Guth

10:15-10:30 • *Microstructural characteristics lying behind the instability of additively manufactured Co-28Cr-6Mo alloy*

Michaela Roudnicka, Orsolya Molnarova, Jan Drahekoupil, Jiri Kubasek, Jiri Bigas, Vit Sreibr, Libor Pantelejev, David Palousek, Dalibor Vojtech

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10:30-11:00 *Coffee break* (FME)

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11:00-12:15 **6<sup>th</sup> Session** (FME & online) (12 min presentation + 3 min Qs&As)

Chairman: Aleksa Milovanovic

**Properties and models of AM materials**

11:00-11:15 • *Printing parameter effect on tensile properties of FDM polypropylene material*

Aleksa Milovanović, Zorana Golubović, Ivana Jevtić, Aleksandar Sedmak, Miloš Milošević

11:15-11:30 • *Model development by FDM technique of additive production using dual extrusion - advantages and disadvantages*

Tijana Lukić

Replaced by the following paper

11:15-11:30 • *Influence of cordierite and zeolite on improvement of cavitation resistance of talc-based ceramics*

Marko Pavlović, Marina Dojčinović, Ljiljana Trumbulović, Drjan Todorović

11:30-11:45 • *In-process monitoring of the 3D-printing and its use in the development of special cutting tools*

Miloslav Kepka, Miroslav Zetek, Pavel Hanzl, Matěj Rott, Ivana Zetková, Martin Bureš

11:45-12:00 • *Implementation of additive manufacturing for solutions in agriculture*

Tihomir Cuzovic, Dusanka Colakovic

12:00-12:15 • *Development and additive manufacturing of bladeless thruster*

Janko Jovanović, Jelena Šaković Jovanović, Aleksandar Vujović

12:15-12:30 • *Experimental design in the quality control of the additive manufacturing process for carbon fiber-reinforced plastics*

Irina Gadolina, Sergey Smelov, Igor Maidanov

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**12:30-12:45** • Closing of the Conference and presentation of future SIRAMM events (FME & online)  
Prof. Liviu Marsavina

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12:45-14:00 *Lunch break* (FME)

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**Post Conference tour**

14:00 – 15:30 **Neolithic pre-historic site Vinča**

16:45 – 19:00 **Viminacium - Roman settlement**

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