

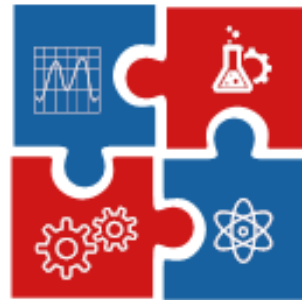
**Innovation Center of
Faculty of Mechanical
Engineering**



**Faculty of Mechanical
Engineering, University
of Belgrade**



**Center for Business
Trainings**



CNN TECH

**„International Conference of Experimental and
Numerical Investigations and New Technologies“**

Sponsored by:

**MINISTRY OF EDUCATION, SCIENCE AND TECHNICAL DEVELOPMENT
OF THE REPUBLIC OF SERBIA**

**Programme
and
The Book of Abstracts**

05 – 08 July 2022

Zlatibor, Serbia

**„International Conference of Experimental and Numerical
Investigations and New Technologies“**

CNN TECH 2022

05 – 08 July 2022

Hotel Mona, Miladina Pecinara 26, Zlatibor, Serbia

<http://cnntechno.com>

Programme and The Book of Abstracts

Organised by:

Innovation Center of Faculty of Mechanical Engineering
Faculty of Mechanical Engineering, University of Belgrade
Center for Business Trainings

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Ministry of Education, Science and Technical development of the
Republic of Serbia

Title:	International Conference of Experimental and Numerical Investigations and New Technologies – CNN TECH 2022 PROGRAMME AND THE BOOK OF ABSTRACTS
Publisher:	Innovation Center of Faculty of Mechanical Engineering Kraljice Marije 16, 11120 Belgrade 35 tel: (+381 11) 3302-346, fax 3370364 e-mail: cnntechno@gmail.com web site: http://cnntechno.com , http://www.inovacionicentar.rs
Editors:	Dr Martina Balac, Senior Scientific Researcher Dr Aleksandra Dragicevic, Scientific Researcher Dr Goran Mladenovic, Associate Professor
Technical editor	Dr Goran Mladenovic, Associate Professor
Cover page:	Dr Goran Mladenovic, Associate Professor
Printed in:	Innovation Center of Faculty of Mechanical Engineering Kraljice Marije 16 11120 Belgrade 35 tel: (+381 11) 3302-346
Circulation:	150 copies. The end of printing: June 2022.

ISBN: 978-86-6060-120-1

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CNN TECH 2022

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ACKNOWLEDGEMENT

The organizing committee of the 6th International Conference of Experimental and Numerical Investigations and New Technologies – CNN TECH 2022 wishes to sincerely thank all the institutions and individuals who by means of personal engagement and constructive action helped organizing this conference.

We particularly wish to thank our sponsor, **The Ministry of Education, Science and Technological development**, Government of the Republic of Serbia.

We are also grateful to companies, **3D Republic**, **Shimadzu** and **IMW Institute** who have significantly contributed to the organization and realization of the conference.

PREFACE

Dear Friends and Colleagues, Welcome to CNN Tech 2022 Conference and the fabulous mountain of Zlatibor!

With 88 papers (19 by international authors) and contributions by authors from 14 different countries, International Conference of Experimental and Numerical Investigations and New Technologies CNN Tech 2022 successfully sets the high level for the future conferences. Participation of a large number of domestic and international authors, as well as the diversity of topics, justifies our efforts to organize this conference and contribute to exchange of knowledge, research results and experience of industry experts, research institutions and faculties which all share a common interest in the field in experimental and numerical investigations.

This year CNN Tech 2022 focuses on the following topics:

- Mechanical Engineering,
- Engineering Materials,
- Chemical and Process Engineering,
- Experimental Techniques,
- Numerical Methods,
- New Technologies,
- Clear sky,
- Dental Materials and Structures
- Advanced Materials and Technology,
- Artificial intelligence and
- Student session.

Apart from a plenty of interesting lectures, the participants will have a chance to lighten up and communicate in friendly and relaxed settings.

Organizing committee of CNN Tech 2022 would like to express gratitude to Ministry of Education, Science and Technological development for financial support of the Conference.

On behalf of the Innovation center of Faculty of Mechanical Engineering, Faculty of Mechanical Engineering and Center for Business Trainings, we wish this to be splendid CNN Tech conference filled with many memorable moments.

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PROGRAMME

Tuesday, July 05, 2022	
19:00 to 21:00	Registration and Welcome cocktail
Wednesday, July 06, 2022	
11:00 to 11:30	Registration
11:30 to 12:00	Opening Ceremony <i>Prof dr Aleksandar Sedmak, prof. Emeritus</i>
12:00 to 14:30	<p>MINI SYMPOSIA - DENTAL MATERIALS AND STRUCTURES</p> <p>INVITED LECTURES</p> <p><i>Chairman: dr Aleksandra Dragicevic</i></p> <p><u>Tina Pajevic</u> - THERMOPLASTIC MATERIALS IN THE ORTHODONTIC PRACTICE</p> <p><u>Jelena Simonovic</u> - GRAPHENE NANOMATERIALS APPLICATION IN DENTAL PULP NERVOUS TISSUE REGENERATION</p> <p><u>Maja Milosevic Markovic</u> - OSTEOGENIC POTENTIAL OF GRAPHENE IN REGENERATIVE DENTISTRY</p> <p><u>Sanja Milutinovic</u> - BEHAVIOR OF NANOSTRUCTURED BIOMATERIALS IN ANIMAL MODELS FOR BONE REGENERATION IN VIVO</p> <p><u>Milica Jovanovic-Medojevic</u> - MAGNETIC PROPERTIES OF ROTARY Ni-Ti INSTRUMENTS AFTER FRACTURE</p> <p><u>Ivana Milanovic</u> PHYSICOCHEMICAL PROPERTIES OF CALCIUM SILICATE-BASED SEALERS</p> <p>COMPANY PRESENTATION</p> <p>3D REPUBLIKA - <u>Svetozar Kolesar</u> - OPTIMIZATION AND USAGE OF 3D TECHNOLOGY IN DENTAL AND HEALTH CARE - LEARN ON</p>
14:30 to 15:00	Coffee break
15:00 to 17:00	POSTER SESSION
17:00 to 20:00	Free time
20:00 to 23:00	Gala dinner

Thursday, July 07, 2022

09:30 to 10:00	Registration	
10:00 to 10:30	Opening Ceremony Branko Ruzic – <i>Minister of Education, Science and Technological Development</i> Prof. dr Vladimir Popovic – <i>dean of Faculty of Mechanical Engineering</i>	
10:30 to 12:30	<p>WORKSHOP - REGIONAL INNOVATION FORUM 2022</p> <p><i>Chairman: dr Zarko Miskovic</i></p> <ul style="list-style-type: none"> • <u>Mirko Pesic</u>, director of Science Technology Park Cacak: „Challenges that await you when launching START UP“ • <u>Natalija Terzic</u>, Senior Adviser at Development Agency of Serbia: „Supporting SMEs for business improvement“ • <u>Megi Witerna - Plaku</u>, RIS Relationship Manager: „Opportunities with EIT Manufacturing Regional Innovation Scheme (RIS)“ • <u>Tamara Ljubovic</u>, Senior Advisor for EU Programs and Funds and National Contact Person for Horizon Europe, Chamber of Commerce and Industry of Serbia: „Horizon Europe 2021-2027“ • <u>prof. Goran Stojanovic</u>, Faculty of Technical Sciences, University of Novi Sad: „Innovative ideas and responsible research as a way to attract funding from Horizon Europe“ 	
12:30 to 13:00	Coffee break	
13:00 to 15:00	<p>SESSION</p> <p><i>Chairman: dr Martina Balac</i></p> <p>INVITED LECTURES</p> <p><u>Zoran Stamenic</u> - RESIDUAL STRESSES – ANALYSES AND INFLUENCE ON MACHINE PARTS</p> <p><u>Dragan Milkovic</u> – EXPERIMENTAL APPROACH TO ASSESSMENT OF SAFETY AGAINST DERAILMENT OF FREIGHT WAGONS</p> <p>COMPANY PRESENTATION</p> <p>IMW INSTITUTE - <u>Andreja Radovanovic</u> - AT THE SERVICE OF NATURE AND INDUSTRY</p> <p>INVITED LECTURES</p> <p><u>Suzana Filipovic</u> - SPARK PLASMA SINTERING OF MECHANICALLY ACTIVATED MGO-TIO₂ SYSTEM</p> <p><u>Jovana Zvicer</u> - BIOMIMETIC BIOREACTORS IN CHARACTERIZATION OF NOVEL BIOMATERIALS</p> <p><u>Marko Ristic</u> - REVITALIZATION OF RAILWAY INFRASTRUCTURES IN SECTION BELGRADE NOVI SAD</p>	B2B MEETINGS
15:00 to 16:30	POSTER SESSION	
16:30 to 18:00	Free time	
18:00 to 21:00	Dinner	

Friday, July 08 2022

From 10:00

Zlatibor excursion (optional)

THE SIGNIFICANCE OF 3D PRINTING IN TEXTILE- POLYMER COMPOSITE STRUCTURES REALIZATION FOR SPECIAL PURPOSE

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Abstract

This paper presents the 3D printing technology for various textile materials. The application of this technology is vital in manufacturing various clothing items, primarily for specific purposes: hikers, firefighters, soldiers, and athletes. The installation of sensors, life function parameters monitoring, and the usage of the new materials are the basis for the future development of the textile industry. Today, thermoplastic and textile materials are increasingly used in practice. Polylactic Acid (PLA) thermoplastic materials were used in the paper - in the spool, Polyvinyl Chloride (PVC), and Nylon (in strips); while from textile materials, polyester, viscose, and silk in the form of finished fabrics were considered. The technology of preparation of textile fibers for 3D printing using laser is shown. This technology makes it easier to combine textiles and molten filament. The pros and cons of joining different materials are discussed. Further research would go in the direction of making constructive solutions and testing the mechanical properties of various textile-polymer composites.

Keywords

3D printing, Textile, Thermoplastic materials, Laser cutter, Composite structures

Acknowledgement

This work was financially supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Grants No. 451-03-68/2022-14/200026 and 451-03-68/2022-14/200105).

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

621(048)(0.034.2)
62:519.6(048)(0.034.2)

INTERNATIONAL conference of experimental and numerical investigations and new technologies (2022 ; Zlatibor)

Programme [Elektronski izvor] ; and The Book of Abstracts / International Conference of Experimental and Numerical Investigations and New Technologies - CNN TECH 2022, 05-08 July 2022, Zlatibor, Serbia ; organized by Innovation Center of Faculty of Mechanical Engineering [and] University of Belgrade, Faculty of Mechanical Engineering, Center for Business Trainings ; [editors Martina Balac, Aleksandra Dragicevic, Goran Mladenovic]. - Belgrade : Innovation Center of Faculty of Mechanical Engineering, 2022 (Belgrade : Innovation Center of Faculty of Mechanical Engineering). - 1 elektronski optički disk (CD-ROM) ; 12 cm

Sistemska zahtevi: Nisu navedeni. - Nasl. sa naslovne strane dokumenta. - Tiraž 150.

ISBN 978-86-6060-120-1

а) Машинство -- Апстрактни б) Техника -- Нумерички методи -- Апстрактни

COBISS.SR-ID 70009609