



Universitatea
Transilvania
din Braşov

raMat 2022

12TH INTERNATIONAL CONFERENCE ON MATERIALS SCIENCE & ENGINEERING

BOOK OF ABSTRACTS

Braşov
ROMANIA

March 9 – 12,
2022

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Braşov – ROMANIA
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BOOK OF ABSTRACTS

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Conference Sections

- I. Metallic materials
- II. Biomaterials
- III. Ceramics, polymers and composite materials
- IV. Surface engineering
- V. Nanomaterials
- VI. Welding engineering and safety engineering
- VII. Additive manufacturing
- VIII. Engineering: Education and Entrepreneurship

Hall B = room U I 6

Hall C = room U I 3

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Conference Venue

Brașov is situated in the central part of the country being considered the second most important town in Romania. Located 160 km from Bucharest (Romania's capital), Brașov is surrounded by the Carpathian Mountains, being in the middle of the country at the crossroads of the Eastern Carpathian and the Southern Carpathians. Across the mountains to the South and East there are Wallachia and Moldavia, to the West the Banat region and to the North the rolling hills of Northern Transylvania.

The 12th International Conference of Materials Science and Engineering – BraMat 2022, will be held at Sergiu T. Chiriacescu Aula, 41A Iuliu Maniu Str., Brașov, ROMANIA.

CONTENT

PLENARY LECTURES	7
SECTION I – Metallic materials	15
SECTION II – Biomaterials	31
SECTION III – Ceramics, polymers and composite materials	61
SECTION IV – Surface engineering	91
SECTION V – Nanomaterials	113
SECTION VI – Welding and safety engineering	131
SECTION VII – Additive manufacturing	139
SECTION VIII - Engineering: Education and Entrepreneurship	147
INDEX OF AUTHORS	151

Program (Outline)

Wednesday, 09.03.2022

- 16.00: Registration (Hall H)
- 16.30: Opening ceremony (Main Hall A)
- 17.00: Honorary Professor ceremony (Main Hall A)
- 17.30: Musical moment 1 (Main Hall A)
- 17.45: Plenary lectures 1 (Main Hall A)
- 19.15: Musical moment 2 (Main Hall A)
- 19.30: Welcome cocktail (Hall H)

Thursday, 10.03.2022

- 9.00: Registration (Hall H)
- 9.30: Plenary lectures 2 (Main Hall A)
- 10.30: Coffee break (Hall H)
- 11.00: Plenary lectures 3 (Main Hall A)
- 12.00: Workshop (Main Hall A)
- 13.00: Lunch (Hall H)
- 14.30: Oral presentations 1 (Hall C)
- 14.30: Online presentations 1 (Main Hall A for audience)
- 14.30: Online presentations 2 (Hall B for audience)
- 16.00: MDPI Materials presentation (Hall C)
- 16.30: Coffee break (Hall H)
- 17.00: Online presentations 3 (Main Hall A for audience)
- 17.00: Online presentations 4 (Hall B for audience)
- 17.00: Poster presentations 1 (Hall G)
- 9.30 – 19.00: Companies exhibitions (Hall G)
- 20.00: Gala dinner (ARO PALACE HOTEL - night bar)

Friday, 11.03.2022

- 10.00: Oral presentations 2 (Hall C)
- 10.00: Oral presentations 3 (Hall B)
- 10.00: Online presentations 5 (Main Hall A for audience)
- 11.30: Coffee break (Hall H)
- 12.00: Oral presentations 4 (Hall C)
- 12.00: Online presentations 6 (Hall B for audience)
- 12.00: Online presentations 7 (Main Hall A for audience)
- 12.00: Poster presentations 2 (Hall G)
- 14.00: Camp fire and barbeque (Garcini research base)
- 18.00: Closing Ceremony (Garcini research base)

Saturday, 12.03.2022

- Free visit of Brasov city



SECTION IV

Surface engineering

Chairpersons:

Ioan ARDELEAN, Technical University of Cluj-Napoca, ROMANIA

Liana Sanda BALTEȘ, Transilvania University of Brasov, ROMANIA

Rodica Mariana ION, "Valahia" University of Târgoviște, Council of academic doctoral studies; ICECHIM, Dept. Evaluation and Conservation of Cultural Heritage, Bucharest, ROMANIA

Nestor Ruben FLORIDO-SUAREZ, Universidad de Las Palmas de Gran Canaria, Spain

Elena Manuela STANCIU, Transilvania University of Brasov, ROMANIA



IV.OL.01

MECHANICAL PROPERTIES AND CORROSION RESISTANCE OF TWO NEW TITANIUM ALLOYS FOR ORTHOPAEDICS APPLICATIONS

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Keywords: Biomaterial, Corrosion, Metallography, Microhardness, Three-Point Bending.

Abstract: Due to the compatibility problems of biomaterials currently used in biomedicine, such as Ti6Al4V alloy, whose release of vanadium and aluminum ions can cause adverse local tissue reactions and immunological responses, the effect of 2 percentage variants of the elements that make up the



Fig. 1. Different used equipment

the modulus of elasticity. Finally, in the case of the microhardness test, when the load was applied, as the percentage of silicon increased, the hardness increased considerably, and the surfaces showed soft and hard areas, due to the forming process.

Selective references:

1. Tudoran, S., Voiculescu, I., Geantă, V., Vizureanu, P., Marza Roșca, I., Pătrașcu, I., Gălbinașu, B. M., & Ciocoiu, R. (2019). Effects of the chemical composition on the microstructural characteristics of Ti-Nb-Ta-Zr alloys. IOP Conference Series: Materials Science and Engineering, 572(1), 012022. <https://doi.org/10.1088/1757-899X/572/1/012022>
2. López Ríos, M., Socorro Perdomo, P. P., Voiculescu, I., Geanta, V., Crăciun, V., Boerasu, I., & Mirza Rosca, J. C. (2020). Effects of nickel content on the microstructure, microhardness and corrosion behavior of high-entropy AlCoCrFeNi_x alloys. Scientific Reports, 10(1), 1-11. <https://doi.org/10.1038/s41598-020-78108-5>

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