

1S

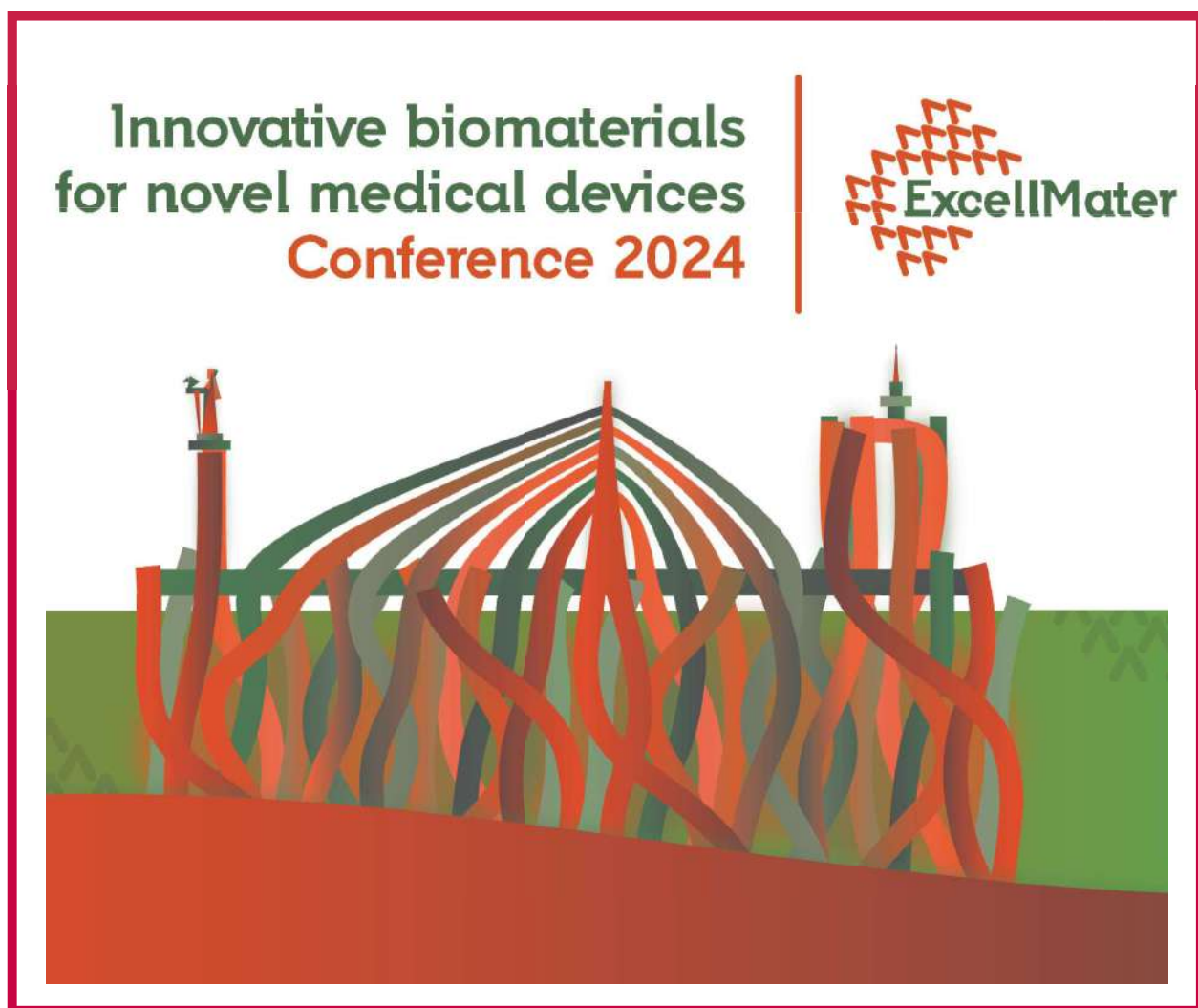
# Hemijska industrija

Vol. 78

Časopis Saveza hemijskih inženjera Srbije

## Chemical Industry

Supplementary Issue  
ExcellMater Conference 2024 Abstracts



## Aktivnosti Saveza hemijskih inženjera Srbije pomažu:



MINISTARSTVO NAUKE,  
TEHNOLOŠKOG RAZVOJA  
I INOVACIJA  
REPUBLIKE SRBIJE



Tehnološko-metalurški fakultet  
Univerziteta u Beogradu



Prirodno-matematički fakultet  
Univerziteta u Novom Sadu



Institut za tehnologiju nuklearnih i  
drugih mineralnih sirovina, Beograd



Tehnološki fakultet  
Univerziteta u Novom Sadu



Institut za hemiju, tehnologiju i metalurgiju  
Univerziteta u Beogradu



Fakultet tehničkih nauka  
Univerziteta u Novom Sadu



Tehnološki fakultet  
Univerziteta u Nišu, Leskovac



Fakultet tehničkih nauka  
Univerziteta u Prištini  
Kosovska Mitrovica



Institut IMS, Beograd



DCP HEMIGAL  
Leskovac



Barič



Elixir Prahovo



Chemical Industry  
Химическая промышленность

# Hemijska industrija

Časopis Saveza hemijskih inženjera Srbije  
Journal of the Association of Chemical Engineers of Serbia  
Журнал Союза химических инженеров Сербии

VOL. 78

Beograd, mart 2024.

Broj 1s

#### Izdavač

Savez hemijskih inženjera Srbije  
Beograd, Kneza Miloša 9/1

#### Glavni urednik

Bojana Obradović

#### Zamenica glavnog i odgovornog urednika

Emila Živković

#### Pomoćnik glavnog i odgovornog urednika

Ivana Drvenica

#### Urednici

Jelena Bajat, Dejan Bezbradica, Ivana Banković-Ilić,  
Dušan Mijin, Marija Nikolić, Đorđe Veljović, Tatjana  
Volkov-Husović

#### Članovi uredništva

Nikolaj Ostrovski, Milorad Cakić, Željko Čupić, Miodrag  
Lazić, Slobodan Petrović, Milovan Purenović,  
Aleksandar Spasić, Dragoslav Stoiljković, Radmila  
Šećerov-Sokolović, Slobodan Šerbanović, Nikola  
Nikačević, Svetomir Milojević

#### Članovi uredništva iz inostranstva

Dragomir Bukur (SAD), Jiri Hanika (Češka Republika),  
Valerij Meshalkin (Rusija), Ljubiša Radović (SAD),  
Constantinos Vayenas (Grčka)

#### Likovno-grafičko rešenje naslovne strane

Milan Jovanović

#### Redakcija

11000 Beograd, Kneza Miloša 9/1

Tel/fax: 011/3240-018

E-pošta: [shi@ache.org.rs](mailto:shi@ache.org.rs)

[www.ache.org.rs](http://www.ache.org.rs)

Izlazi kvartalno, rukopisi se ne vraćaju

Za izdavača: Ivana T. Drvenica

Sekretar redakcije: Slavica Desnica

#### Izdavanje časopisa pomaže

Republika Srbija, Ministarstvo nauke, tehnološkog  
razvoja i inovacija

Uplata pretplate i oglasnog prostora vrši se na tekući  
račun Saveza hemijskih inženjera Srbije, Beograd, broj  
205-2172-71, Komercijalna banka a.d., Beograd

#### Menadžer časopisa i kompjuterska priprema

Aleksandar Dekanski

#### Štampa

Razvojno-istraživački centar grafičkog inženjerstva,  
Tehnološko-metalurški fakultet, Univerzitet u  
Beogradu, Karnegijeva 4, 11000 Beograd

#### Indeksiranje

Radovi koji se publikuju u časopisu *Hemijska Industrija*  
indeksiraju se preko *Thompson Reuters Scietific®* servisa  
*Science Citation Index - Expanded™* i *Journal Citation  
Report (JCR)*

Guest Editor:

**Ana Janković**

*Department of Physical Chemistry and Electrochemistry*

*Faculty of Technology and Metallurgy, University of Belgrade Belgrade, Serbia*

## SADRŽAJ/CONTENTS

### Editorial

- ExcellMater Conference 2024: Innovative biomaterials for novel medical devices**  
Bojana Obradović ..... 1
- Tissue engineering and *in vitro* tissue and organ culture models**
- Translational studies of engineered human tissues**  
Gordana Vunjak-Novakovic ..... 3
- Regenerative engineering: designing grafts, processes and signals**  
Ivan Martin ..... 4
- Cartilage bioreactors: where we are and where we are going!**  
Mauro Alini ..... 5
- Ex vivo* testing of biomaterials for intervertebral disc repair using organ culture bioreactors**  
Sibylle Grad ..... 6
- Engineering of multicellular systems by hydrodynamic waves**  
Tiziano Serra ..... 7
- Sound based assembly of spatially organized porous constructs**  
Greta Cocchi, Riccardo Tognato, Lorenzo Moroni, Tiziano Serra ..... 8
- Development of an *in vitro* branched vasculature using bioprinting technique in combination with sacrificial materials**  
Natalija Stojanovic, Nadja Hansen, Horst Fischer ..... 9
- Unraveling the transcriptome profile of pulsed electromagnetic field stimulation in bone regeneration using an *in vitro* investigation platform**  
Farah Daou, Rana Zarean Hafdaran, Beatrice Masante, Stefano Gabetti, Giovanni Putame, Eleonora Zenobi, Federico Mochi, Cristina Bignardi, Federica Dell'Atti, Francesco Favero, Costantino Del Gaudio, Diana Massai, Andrea Cochis, Lia Rimondini ..... 10
- Whey protein isolate: a versatile dairy-derived hydrogel for bone and vascular tissue engineering and antimicrobial applications**  
Timothy E. L. Douglas ..... 11
- Innervation of the musculoskeletal system in physiological and pathological conditions: Insights from organ-on-a-chip models**  
Meriem Lamghari ..... 12
- Extracellular vesicles derived from mesenchymal stem/stromal cells derived from dental pulp of exfoliated teeth induce osteogenic differentiation**

## Boosting Institute of Chemistry, Technology and Metallurgy in water biomonitoring - BIOLAWEB

Danijela Vidaković<sup>1</sup>, Jelena Avdalović<sup>1</sup>, Biljana Dojčinović<sup>1</sup>, Aleksandra Marković<sup>1</sup>, Srđan Miletić<sup>1</sup>, Katarina Milanović<sup>1</sup>, Željka Milovanović<sup>1</sup>, Vladimir Petrović<sup>1</sup>, Dragana Zlatović<sup>1</sup>, Benjamin Alric<sup>2</sup>, Herve Dumont<sup>2</sup>, Clarisse Lemonnier<sup>2</sup>, Antoine Moatti<sup>2</sup>, Frederic Rimet<sup>2</sup>, Andreas Ballot<sup>3</sup>, Susanne Claudia Schneider<sup>3</sup> and Miloš Ćirić<sup>1,\*</sup>

<sup>1</sup>University of Belgrade, Institute of Chemistry, Technology and Metallurgy, National Institute of the Republic of Serbia, Belgrade, Serbia

<sup>2</sup>UMR CARRTEL, INRAE, University of Savoie Mont Blanc, Thonon-les-Bains, France

<sup>3</sup>Norwegian Institute for Water Research, Oslo, Norway

**Keywords:** Twinning project; lakes monitoring; biodiversity; freshwater ecology; metabarcoding

*Hem. Ind.* **78(1S)** 77 (2024)

Available on-line at the Journal web address: <http://www.ache.org.rs/HI/>

Project "Boosting Institute of Chemistry, Technology and Metallurgy in Water Biomonitoring" (BIOLAWEB) aims to strengthen the research and innovation capacity of the Institute of Chemistry, Technology and Metallurgy, National Institute of the Republic of Serbia, University of Belgrade (UB-ICTM) in biodiversity assessment and biomonitoring. UB-ICTM researchers made a noticeable contribution to the study of biodiversity, community ecology, and conservation of water bodies in South-Eastern Europe. However, a knowledge on index development and intercalibration following the EU standards for lakes and watercourse monitoring is still lacking in this geographic region. Similarly, there is a knowledge gap in DNA-based ecological status assessment in SEE. Overcoming these gaps and achieving the objectives of the BIOLAWEB is realized through networking with international institutions with a strong expertise in metabarcoding approach and in biological indices development: the French National Research Institute for Agriculture, Food and Environment (INRAE) and the Norwegian Institute for Water Research (NIVA). Staff exchange, common field, and laboratory work, and a variety of courses are used for an effective knowledge transfer from the partnering institutions to UB-ICTM. In order to strengthen research and innovation capacity, through BIOLAWEB project the International Cooperation and Project Office was established at UB-ICTM to support project application, management, and reporting at the international level.

The implementation of the BIOLAWEB results will raise the research profile of the coordinator and partner institutions and contribute to UB-ICTM's vision of becoming a lighthouse for attracting the best talents and tackling the burning issues of environmental assessment.

**Acknowledgements:** This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101079234.

\*Corresponding author E-mail: [circmilosh@yahoo.com](mailto:circmilosh@yahoo.com)

