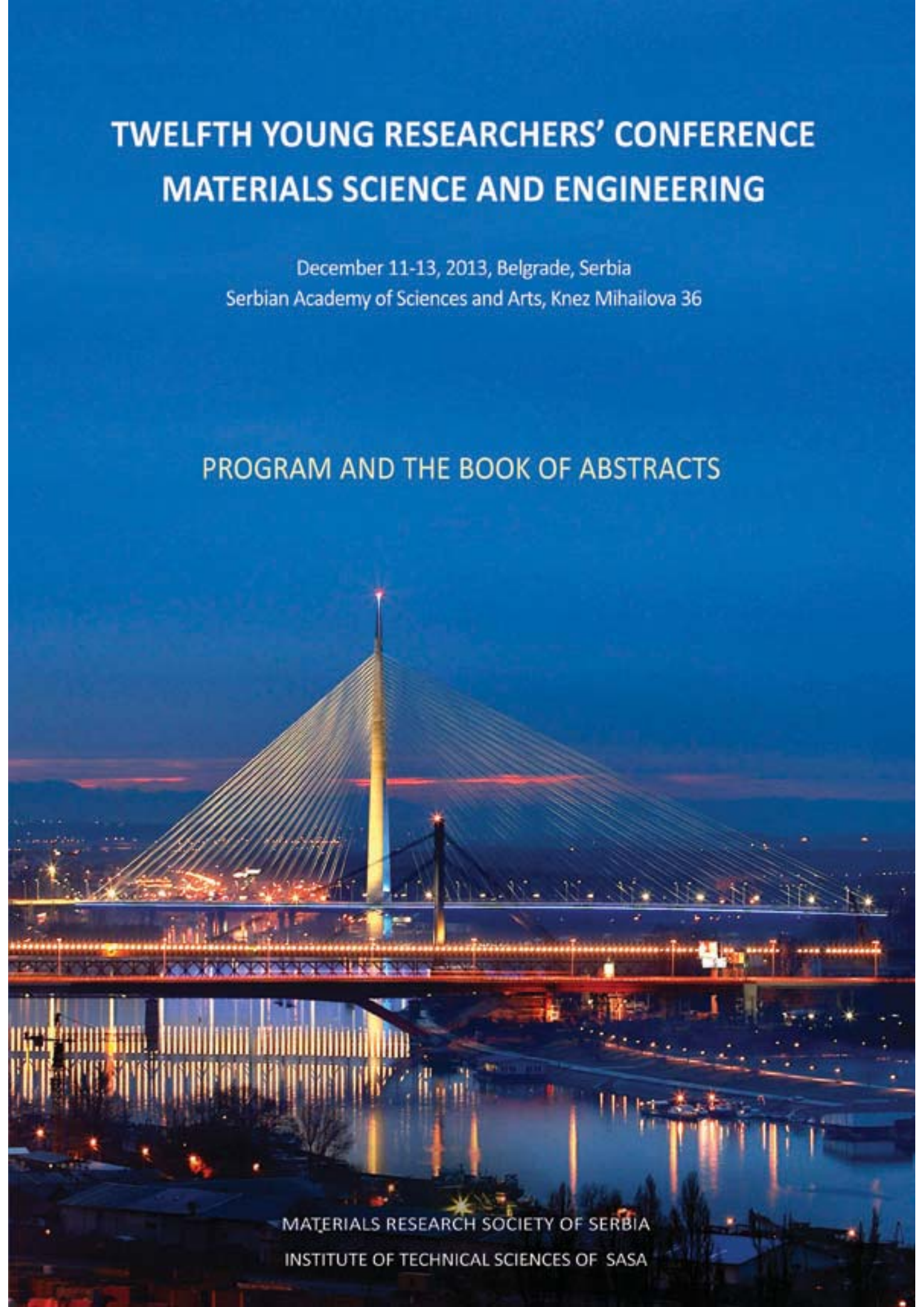


# TWELFTH YOUNG RESEARCHERS' CONFERENCE MATERIALS SCIENCE AND ENGINEERING

December 11-13, 2013, Belgrade, Serbia  
Serbian Academy of Sciences and Arts, Knez Mihailova 36

PROGRAM AND THE BOOK OF ABSTRACTS



MATERIALS RESEARCH SOCIETY OF SERBIA  
INSTITUTE OF TECHNICAL SCIENCES OF SASA

Twelfth Young Researchers' Conference  
Materials Science and Engineering

December 11-13, 2013, Belgrade, Serbia  
Serbian Academy of Sciences and Arts, Knez Mihailova 36

**Program and the Book of Abstracts**

Materials Research Society of Serbia  
Institute of Technical Sciences of SASA

December 2013, Belgrade, Serbia

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## **Aim of the Conference**

Main aim of the conference is to enable young researchers (post-graduate, master or doctoral student, or a PhD holder younger than 35) working in the field of materials science and engineering, to meet their colleagues and exchange experiences about their research.

## **Topics**

Nanostructured materials  
New synthesis and processing methods  
Materials for high-technology applications  
Biomaterials

## **Scientific and Organizing Committee**

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### Conference Secretary

Aleksandra Stojičić                Institute of Technical Sciences of SASA, Belgrade, Serbia

## **Results of the Conference**

Beside printed «Program and the Book of Abstracts», which is disseminated to all conference participants, selected and awarded peer-reviewed papers will be published in journals “Tehnika – Novi Materijali” and “Processing and Application of Ceramics“. The best presented papers, suggested by Session Chairpersons and selected by Awards Committee, will be proclaimed at the Closing Ceremony.

**12.45 – 13.00 A comparative study of dissolution behavior of bioactive glass ceramics in SBF-K9 and r-SBF**

Muhammad Usman Hashmi<sup>1</sup>, Saqlain Abbas Shah<sup>2</sup>

<sup>1</sup>*Department of Applied Sciences, Superior University Lahore 54000, Pakistan*

<sup>2</sup>*Physics Department, F. C. College University, Lahore 54000, Pakistan*

**13.00 – 13.15 Pectin and poly(ethylene glycol) based films: mechanical and structural properties**

Sanja Šešlija<sup>1</sup>, Aleksandra Nešić<sup>2</sup>, Roberto Avolio<sup>3</sup>, Maria Errico<sup>3</sup>, Mario Malinconico<sup>3</sup>, Sava Veličković<sup>4</sup>

<sup>1</sup>*Innovation Centre of the Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia,*

<sup>2</sup>*Vinča Institute for Nuclear Sciences, University of Belgrade, Belgrade, Serbia,*

<sup>3</sup>*Institute on Polymer Chemistry and Technology, Pozzuoli (Na), Italy,*

<sup>4</sup>*University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia*

**13.15 – 13.30 Effect of starch gels preparation on the supercritical impregnation of Thymol**

Stoja Milovanović, Jasna Ivanović, Irena Zizović

*University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11000 Belgrade, Serbia*

**13.30. – 13.45 Partial characterization of levan from *Brachybacterium sp.* CH-KOV3**

Aleksandra Djurić<sup>1</sup>, Branka Kekez<sup>1</sup>, Jovana Stefanović-Kojić<sup>1</sup>, Dragica Jakovljević<sup>2</sup>, Gordana Gojgić-Cvijović<sup>2</sup>, Ljubiša Ignjatović<sup>3</sup>, Vladimir P. Beškoski<sup>1,2</sup>, Miroslav M. Vrvic<sup>1,2</sup>

<sup>1</sup>*Faculty of Chemistry, University of Belgrade, Serbia,*

<sup>2</sup>*Centre for Chemistry-Institute for Chemistry, Technology and Metallurgy, University of Belgrade,*

<sup>3</sup>*Faculty of Physical Chemistry, University of Belgrade, Serbia*

**13.45 – 14.00 Microbial polysaccharides as a prospective base for new materials**

Branka Kekez<sup>1</sup>, Marija Lješević<sup>1</sup>, Aleksandra Djurić<sup>1</sup>, Jovana Stefanović Kojić<sup>2</sup>, Dragica Jakovljević<sup>2</sup>, Gordana Gojgić-Cvijović<sup>2</sup>, Vladimir P. Beškoski<sup>1,2</sup>, M.M. Vrvic

<sup>1</sup>*Faculty of Chemistry, University of Belgrade, Serbia,*

<sup>2</sup>*Centre for Chemistry-Institute for Chemistry, Technology and Metallurgy, University of Belgrade, Serbia*

**14.00 – 15.15 Lunch break with refreshments**

**15.15 – 17.15 3<sup>rd</sup> Session – Nanomaterials I: Synthesis and Characterization**  
Chairpersons: Dr. Smilja Marković, Prof. Dr. Nebojša Mitrović and Jelena Zagorac

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### **Partial characterization of levan from *Brachybacterium sp.* CH-KOV3**

Aleksandra Djurić<sup>1</sup>, Branka Kekez<sup>1</sup>, Jovana Stefanović-Kojić<sup>1</sup>, Dragica Jakovljević<sup>2</sup>,  
Gordana Gojgić-Cvijović<sup>2</sup>, Ljubiša Ignjatović<sup>3</sup>, Vladimir P. Beškoski<sup>1,2</sup>, Miroslav M.  
Vrvić<sup>1,2</sup>

<sup>1</sup>*Faculty of Chemistry, University of Belgrade, Serbia,* <sup>2</sup>*Centre for Chemistry-Institute for  
Chemistry, Technology and Metallurgy, University of Belgrade,* <sup>3</sup>*Faculty of Physical Chemistry,  
University of Belgrade, Serbia*

Microbial polysaccharides are characterized by high structural diversity leading to their applications in various fields: food industry, agriculture, pharmacy and medicine. In recent years, much attention was given to bacterial exopolysaccharide levan, due to specific physical and chemical properties and non-toxicity, for which it could be applied as a emulsifier, flavor and fragrance carrier, prebiotic, antioxidant and antitumor agent.

The aim of this work was to investigate structure of exopolysaccharide produced by *Brachybacterium sp.* CH-KOV3 by planar chromatography, elemental analysis, FTIR, NMR and conduct basic rheological characterization. It has been shown that the investigated biopolymer belongs to levan-type polysaccharide.

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### **Microbial polysaccharides as a prospective base for new materials**

Branka Kekez<sup>1</sup>, Marija Lješević<sup>1</sup>, Aleksandra Djurić<sup>1</sup>,  
Jovana Stefanović Kojić<sup>2</sup>, Dragica Jakovljević<sup>2</sup>, Gordana Gojgić-Cvijović<sup>2</sup>,  
Vladimir P. Beškoski<sup>1,2</sup>, M. M. Vrvić<sup>1,2</sup>

<sup>1</sup>*Faculty of Chemistry, University of Belgrade, Serbia,* <sup>2</sup>*Centre for Chemistry-Institute for  
Chemistry, Technology and Metallurgy, University of Belgrade, Serbia*

Microbial polysaccharides (MP<sub>S</sub>) have high structural variety which leads to a wide diversity of their applications. Main characteristics of these polymers produced by microorganisms are non-toxicity, biocompatibility and biodegradability, which is a significant advantage compared to synthetic polymers. Many of the MP<sub>S</sub> show a number of attractive properties. Among the most studied MP<sub>S</sub> is the  $\beta$ -glucan from *S. cerevisiae*, due to its antitumor/antiviral activity and possessing a **bifidogenic effect**. Pullulan from *A. pullulans* has excellent properties as the result of its unique structure. Levan from *B. licheniformis* strain has potential for many applications, including synthesis of nanoparticles.