

MATERIALS RESEARCH SOCIETY OF SERBIA  
INSTITUTE OF TECHNICAL SCIENCES OF SASA

*Programme and the Book of Abstracts*

**SEVENTEENTH YOUNG RESEARCHERS' CONFERENCE  
MATERIALS SCIENCE AND ENGINEERING**

Belgrade, December 5–7, 2018

Materials Research Society of Serbia

<http://www.mrs-serbia.org.rs/index.php/young-researchers-conference>

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**Materials Research Society of Serbia  
&  
Institute of Technical Sciences of SASA**

**November 2018, Belgrade, Serbia**

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Dr. Smilja Marković

**Technical Editor:**

Aleksandra Stojičić

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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

Biomaterials  
Environmental science  
Materials for high-technology applications  
Nanostructured materials  
New synthesis and processing methods  
Theoretical modelling of materials

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### 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 journal “Tehnika – Novi Materijali”. The best presented papers, suggested by Session Chairpersons and selected by Awards Committee, will be proclaimed at the Closing Ceremony. Part of the award is free-of-charge conference fee at YUCOMAT 2019.

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### **Biodegradable microparticles as a scaffolds for cell therapy**

Nenad Filipović,<sup>1</sup> Giuseppe Digilio,<sup>2</sup> Valeria Catanzaro,<sup>2</sup> Federico Capuana,<sup>3</sup>  
Sergio Padovan,<sup>4</sup> Juan C. Cutrin,<sup>3</sup> Fabio Carniato,<sup>2</sup> Stefano Porta,<sup>3</sup>  
Cristina Grange,<sup>5</sup> Magdalena Stevanović<sup>1</sup>

<sup>1</sup>*Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Knez Mihailova 35/IV, 11000 Belgrade, Serbia,* <sup>2</sup>*Department of Science and Technologic Innovation, Università del Piemonte Orientale 11 “Amedeo Avogadro”, Viale T. Michel 11, I-15121 Alessandria, Italy,* <sup>3</sup>*Department of Molecular Biotechnology and Health Science & Center for Molecular Imaging, University of Turin, Via Nizza 52, 10126 Torino, Italy,* <sup>4</sup>*Institute for Biostructures and Bioimages (CNR) c/o Molecular Biotechnology Center Via Nizza 52, 10126 Torino, Italy,* <sup>5</sup>*Department of Medical Sciences, University of Turin, Via Nizza 52, 10126 Torino, Italy*

Cell therapy is promising strategy that has attracted a lot of attention recently regarding regeneration of diverse tissues and treatment of various pathological conditions. Despite its great potential, several issues still need to be addressed. Among them administration route and dose, microenvironment conditions and host immune response are recognized as a major causes which lead to cells transplantation failure. In this work it is presented novel microstructural system based on biodegradable polymer poly(lactide-co-glycolide) (PLGA) and combination of biocompatible polyvinyl alcohol (PVA) and chitosan, as a scaffold for human mesenchymal stem cells (hMSCs) growth. The obtained microparticles with diameter 200-600 µm showed full biocompatibility with human hMSCs. Besides serving as a solid support, polymeric particles provided controlled release of contrast agent - gadolinium fluoride nanoparticles (Gd-NP) up to 5 weeks. The release of Gd-NP is enhanced by acidic conditions. Magnetic Resonance Imaging (MRI) of the samples embedded in 1% agar showed that contrast enhancement in T1-weighted (T1w) MR images is influenced by the amount of released Gd-NP. Based on these preliminary results, presented theranostic system could be considered for cells grafting.

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