

MATERIALS RESEARCH SOCIETY OF SERBIA  
INSTITUTE OF TECHNICAL SCIENCES OF SASA

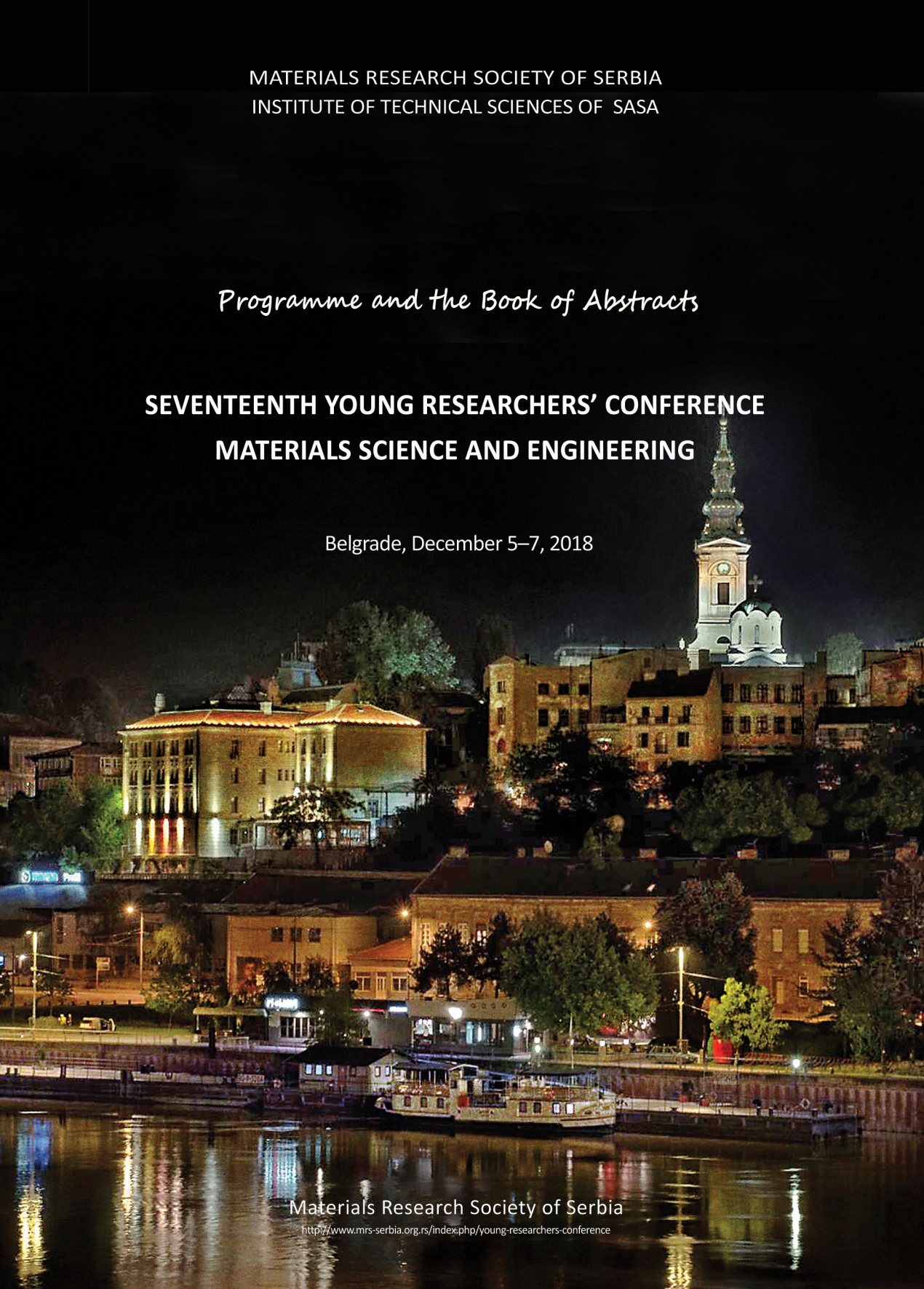
*Programme and the Book of Abstracts*

**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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**December 5-7, 2018, Belgrade, Serbia**

**Program and the Book of Abstracts**

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

**November 2018, 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**

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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**The investigation of structural and morphological properties  
of starch coated Ni-Zn-ferrites**

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Zinc-ferrite, nickel-ferrite and mixed nickel-zinc ferrites were synthesized *via* the thermal decomposition method from the precursor complexes containing acetylacetonate as ligand. The biomedical application of ferrites requires controllable particle size and enhanced dispersibility in a physiological medium. Surface coating of the samples obtained from acetylacetonate complexes was achieved using starch, a natural and biocompatible compound, for the first time. Investigation of their structural and microstructural properties by X-ray powder diffraction (XRPD) was performed. The XRPD results confirmed the crystalline nature and presence of single phase spinel structure. The unit cell parameter decreased, while the crystallite size increased with decreasing zinc content in the structure. The average microstrain parameters unambiguously showed a change in the spinel structure with cation distribution. Scanning electron microscopy (SEM), energy-dispersive X-ray spectroscopy (EDS) and Fourier transform infrared spectroscopy (FTIR) analyses were also performed to characterize the synthesized magnetic powders. The obtained results indicated that functionalization by starch was successfully achieved.