

MATERIALS RESEARCH SOCIETY OF SERBIA  
INSTITUTE OF TECHNICAL SCIENCES OF SASA



*Programme and the Book of Abstracts*

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

Belgrade, December 4–6, 2019

<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**

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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  
Materials for new generation solar cells  
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 2020.

### Sponsors



**ANALYSIS**  
LABORATORY EQUIPMENT

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**Synthesis and characterization of Brushite-metakaolin-based geopolymer materials**

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In a field of green chemistry, environmental protection and ecological conservation of the environment there are ways to come up with new and more advanced materials using on the one hand natural, recycled or waste materials and on the other hand synthetic materials obtained by using green chemistry synthesis procedures. The aim of this paper was to synthesize and characterize Brushite-metakaolin-based geopolymer materials and to examine the possibility of using these materials in the fields of construction, cement industry, as well as in environmental protection as potential adsorbents. Initial materials which were used for geopolymer synthesis was Brushite ( $\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$ ) which was obtained by solution-precipitation reaction from acetate solutions and Kaolinite clay from Rudovci deposit (Serbia). The obtained mixture powders were dissolved in a strong alkaline solution with addition of water glass. Produced geopolymers was cast into mods and preserved for 28 days. The starting materials and the synthesized Brushite-metakaolin-based geopolymer material were examined using XRPD, FTIR SEM-EDS methods. The contact angle measurements were made to test hydrophilic and wettability properties of synthesized material.