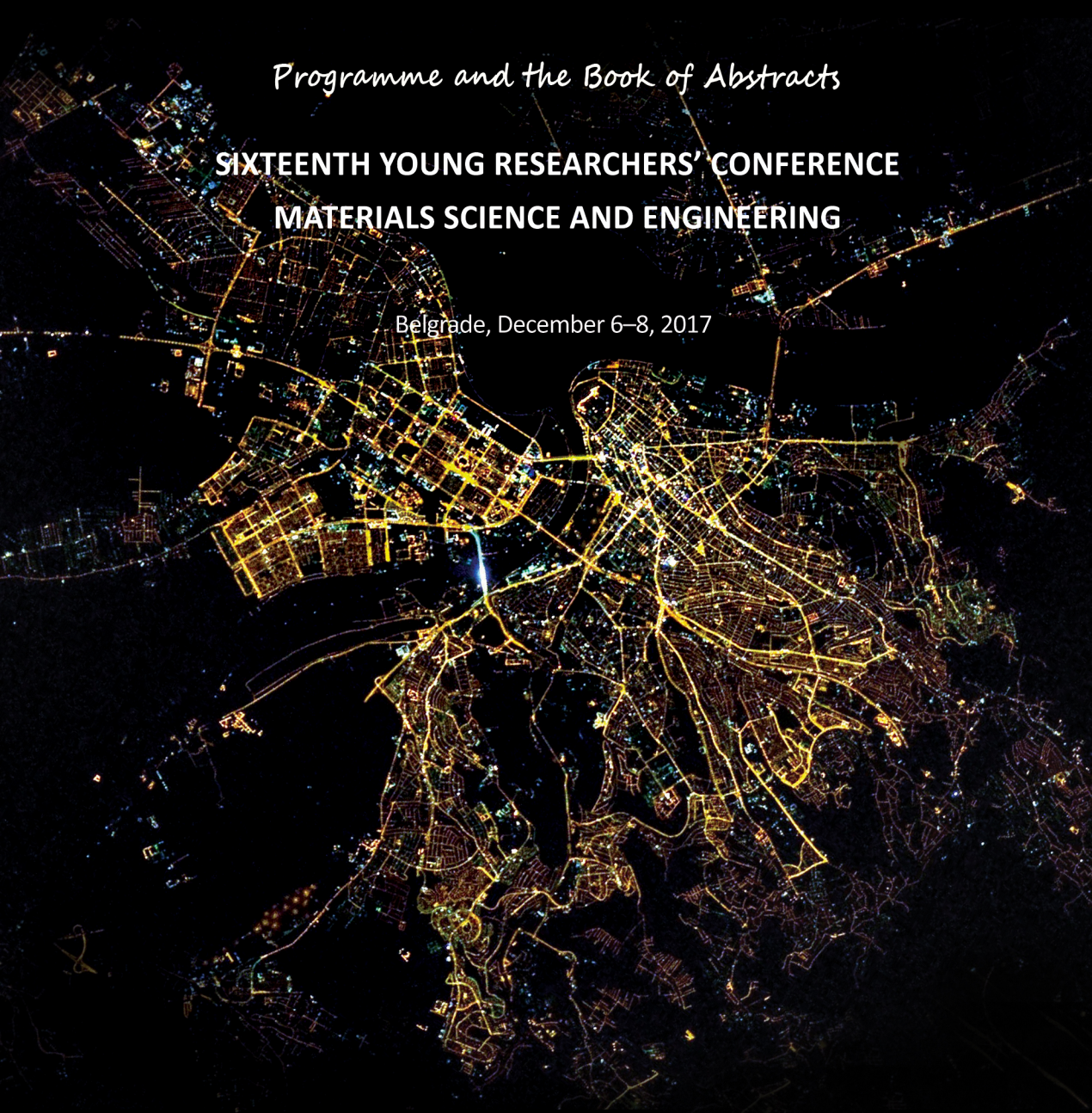


MATERIALS RESEARCH SOCIETY OF SERBIA
INSTITUTE OF TECHNICAL SCIENCES OF SASA

Programme and the Book of Abstracts

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

Belgrade, December 6–8, 2017



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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
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 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. Part of the award is free-of-charge conference fee at YUCOMAT 2018.

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**Surface chemistry, thermal stability and structural properties
of graphene oxide/12-tungstophosphoric acid nanocomposite**

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In recent years the nanocomposites of graphene oxide (GO) and different inorganic and organic compounds have shown great potential for charge storage applications. In present work we have investigated the influence of 12-tungstophosphoric acid (WPA) on surface chemistry of graphene oxide and thermal stability of nanocomposite. For this purpose nanocomposites with different mass ratios of GO and WPA were prepared. The thermal stability of nanocomposites was investigated by thermogravimetric and differential thermal analysis (TGA-DTA) while changes in surface chemistry of GO and structural properties of WPA were investigated by Fourier transform infrared spectroscopy (FTIR) and temperature programmed desorption (TPD) method. The TGA-DTA measurements of composites have shown that the major mass loss, due to carbon combustion, is shifted to higher temperatures (~500 °C vs. 380 °C of pure GO). Furthermore, when the amount of WPA is higher than 25 mass percent the nanocomposites start to act like individual components, which was also confirmed by FTIR analysis. The amount of surface oxygen groups, monitored by both TPD and FTIR methods, showed "V" shaped dependence from the quantity of WPA with minimum at about 12 mass percent of WPA. At the same time, the FTIR spectra revealed the structural changes of WPA, displayed as shifting and splitting of characteristic bands of Keggin anion structure.