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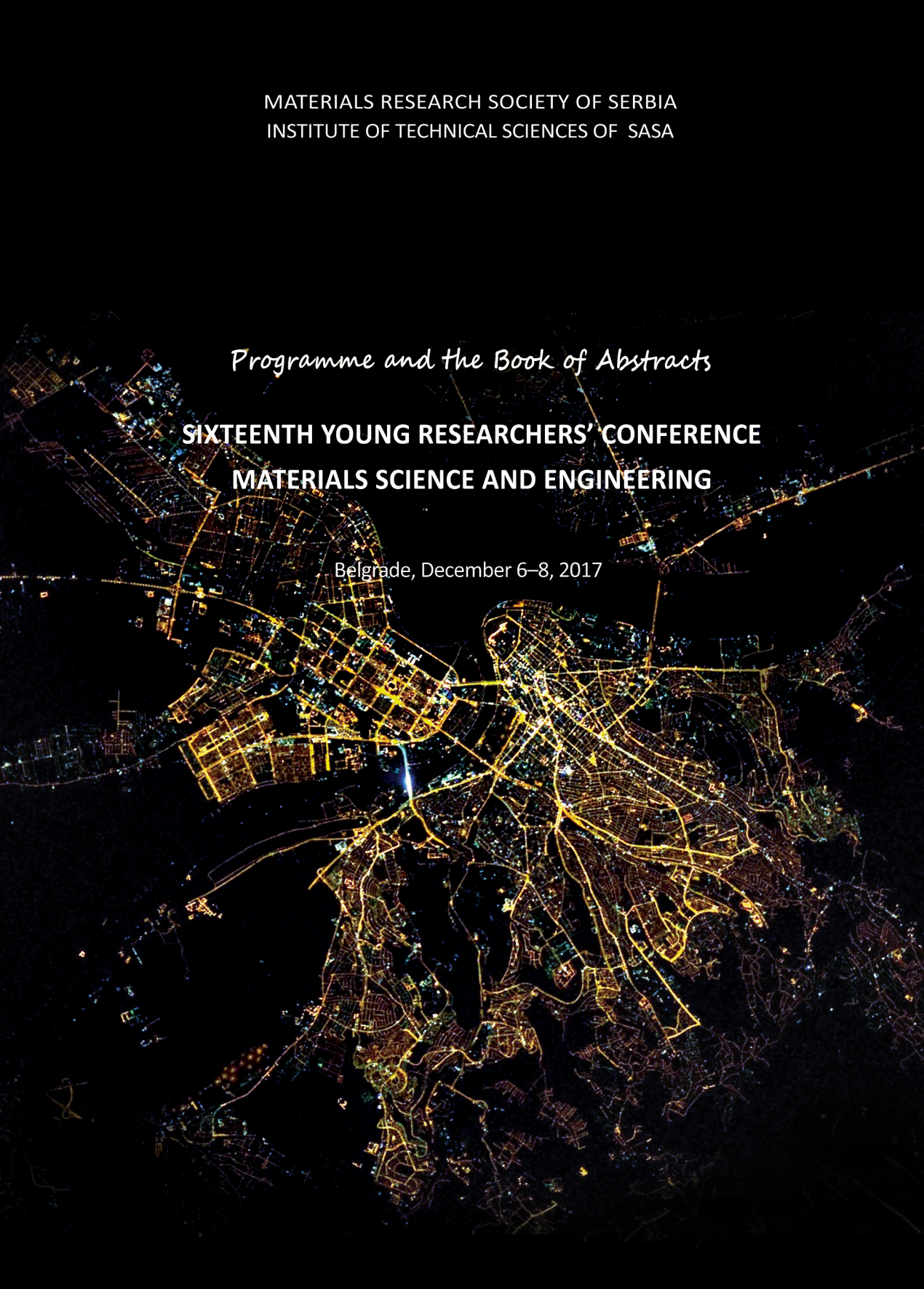

Programme and the Book of Abstracts

SIXTEENTH YOUNG RESEARCHERS' CONFERENCE
MATERIALS SCIENCE AND ENGINEERING

Belgrade, December 6–8, 2017

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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.

Sponsors

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10-5

Is WO_3 catalyst for hydrogen desorption?

Tijana Pantić,[1] Igor Milanović,[1,3] Miodrag J. Lukić,[2] Jasmina Grbović Novaković,[1] Sandra Kurko,[1] Nikola Biliškov,[3] Sanja Milošević[1]
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Magnesium hydride, as hydrogen storage material, meets the requirements such as high gravimetric hydrogen capacity (7,6 wt%), low cost and weight, abundance and H_2 absorption/desorption cycling possibility. Given that the oxide additives show the good impact on desorption properties, mechanical milling of MgH_2 with addition of 5, 10 and 15% wt. WO_3 was performed. The microstructure and morphology of composites were analysed by XRD, PSD and SEM and correlated to hydrogen desorption properties which have been investigated by DSC. The results have shown that WO_3 has a positive effect on the desorption kinetics as well as on the change of the desorption mechanism.

10-6

Polycaprolactone beads and foams substrates modified with colloidal TiO_2 nanoparticles for application in photocatalysis

Darka Marković,[1] Stoja Milovanović,[2] Marija Radoičić,[3] Željko Radovanović,[1] Irena Žižović,[4] Zoran Šaponjić,[3] Maja Radetić[2]
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The aim of this study was to investigate the possibility of TiO_2 nanoparticles (NPs) immobilization onto polycaprolactone (PCL) beads and foams for potential application in photocatalysis. PCL foam (PCLf) was fabricated using the PCL beads (PCLb) by environmentally friendly treatment in supercritical carbon-dioxide. PCLb and PCLf were subsequently loaded with colloidal TiO_2 NPs and they were used as a photocatalyst (PCLb+TiO_2) and a floating photocatalyst (PCLf+TiO_2), respectively. Photocatalytic activity of both photocatalysts was investigated in an aqueous solution of textile dye which was exposed to lamp that simulates the sun light. PCLb+TiO_2 photocatalyst did not provide complete photodegradation of investigated dye even after 24 h of illumination. In contrast, the PCLf+TiO_2 was achieved complete photodegradation of dye after 24 h of illumination. Additionally, its photocatalytic activity was preserved within three repeated photodegradation cycles. Floating photocatalyst remained chemically stable.