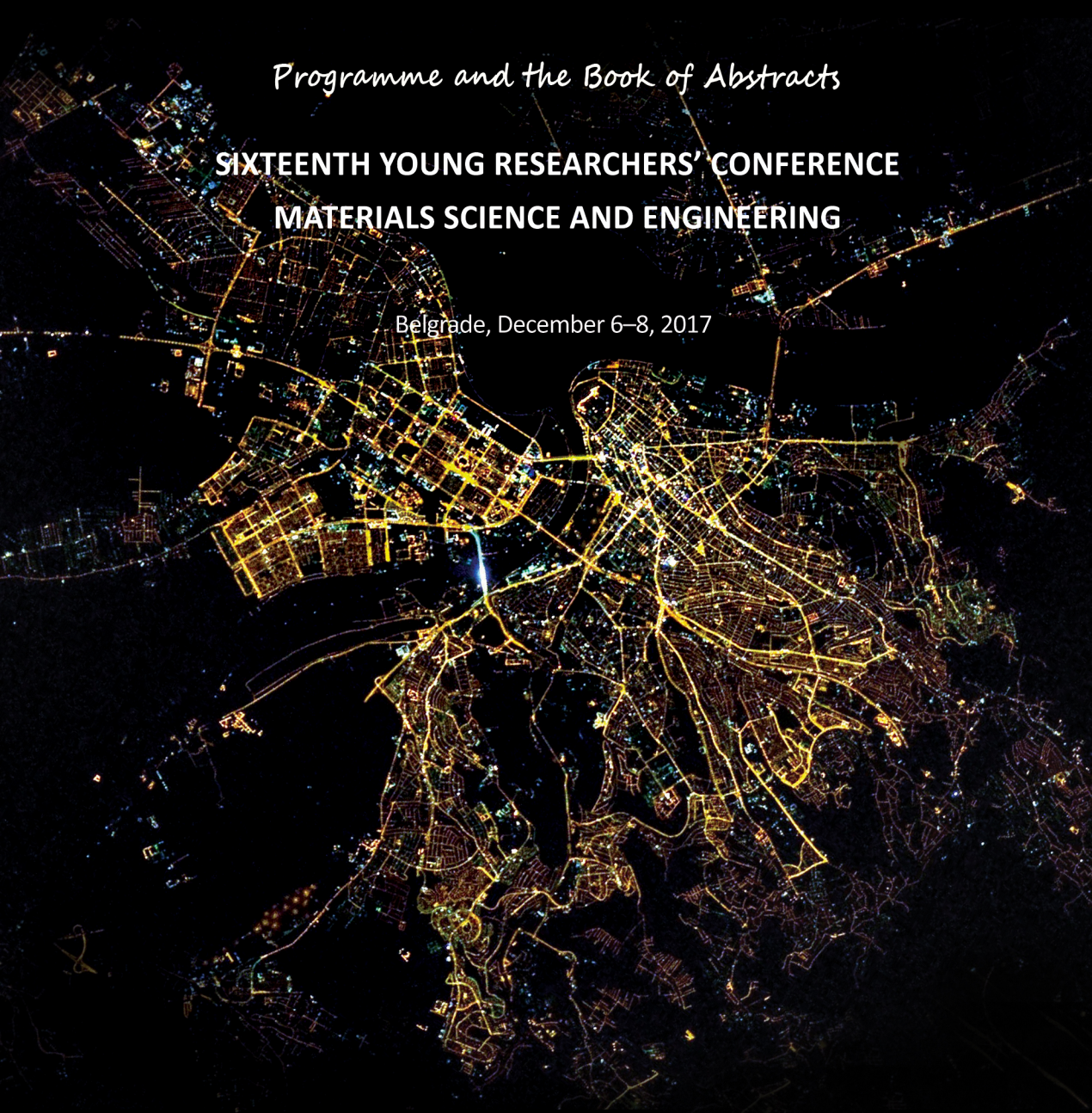


MATERIALS RESEARCH SOCIETY OF SERBIA  
INSTITUTE OF TECHNICAL SCIENCES OF SASA

*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**

**November 2017, Belgrade, Serbia**

Book title:

Sixteenth Young Researchers' Conference - Materials Science and Engineering:  
Program and the Book of Abstracts

Publisher:

Institute of Technical Sciences of SASA  
Knez Mihailova 35/IV, 11000 Belgrade, Serbia  
Tel: +381-11-2636994, 2185263, <http://www.itn.sanu.ac.rs>

Editor:

Dr. Smilja Marković

Technical Editor:

Aleksandra Stojičić

Cover page: Aleksandra Stojičić and Milica Ševkušić

Front cover: Modified photo by Anatoly Alekseyevich Ivanishin, Exploration 30 ISS Mission, NASA;  
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CC BY-SA 4.0

Printer:

Gama digital centar  
Autoput No. 6, 11070 Belgrade, Serbia  
Tel: +381-11-6306992, 6306962, <http://www.gdc.rs>

Edition:

130 copies

CIP - Каталогизација у публикацији - Народна библиотека Србије, Београд

66.017/.018(048)

YOUNG Researchers Conference Materials Sciences and Engineering (16 ; 2017 ; Beograd)

Program ; and the Book of Abstracts / Sixteenth Young Researchers' Conference Materials Sciences and Engineering, December 6-8, 2017, Belgrade, Serbia ; [organized by] Materials Research Society of Serbia & Institute of Technical Sciences of SASA ; [editor Smilja Marković]. - Belgrade : Institute of Technical Sciences of SASA, 2017 (Beograd : Gama digital centar). - XVIII, 78 str. ; 23 cm

Tiraž 130. - Registar.

ISBN 978-86-80321-33-2

1. Društvo za istraživanje materijala Srbije (Beograd) 2. Institut tehničkih nauka SANU (Beograd)

a) Наука о материјалима - Апстрактти b) Технички материјали - Апстрактти

COBISS.SR-ID 250864908

## **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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### Acknowledgement

The editor and the publisher of the Book of abstracts are grateful to the Ministry of Education, Sciences and Technological Development of the Republic of Serbia for its financial support of this book and The Sixteenth Young Researchers' Conference - Materials Sciences and Engineering, held in Belgrade, Serbia.

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**Spectral analysis of external magnetic field influence  
on magnetic oxide nano-particles in ferrofluid**

Ljubica Anđelković,<sup>1</sup> Marija Šuljagić,<sup>2</sup> Aleksandar S. Nikolić<sup>2</sup>

<sup>1</sup>*Department of Chemistry, IChTM, University of Belgrade, Studentski Trg 12-16, 11000 Belgrade, Serbia,* <sup>2</sup>*Faculty of Chemistry, University of Belgrade, Studentski Trg 12-16, 11000 Belgrade, Serbia*

Light transmitting measurements of white light and laser beam propagating through  $\text{FeFe}_2\text{O}_4$ ,  $\text{CoFe}_2\text{O}_4$  and  $\text{MgFe}_2\text{O}_4$  nanoparticles coated with starch, citric and oleic acid, under the influence of an external magnetic field in the range of 30-400 mT, were presented. The unexpected and unusually large changes of transmitted light occurred. This can be explained by the model based on ordering of magnetic moments of nano-particles along the lines of magnetic field into magnetic chains and organization of magnetic chains into spatial structure - a quasi-lattice.

Under the influence of external magnetic field, a precipitation of all studied samples was obtained. To the best of our knowledge, the field-induced precipitation effect of ferrites in ferrofluid was not analysed so far and its significance and influence on the further laser treatment of patients previously exposed to ferrite-based MRI agents is not well recognized. This should be of great importance, since neglecting of the precipitation effect would lead to inappropriate response when patients are exposed to diagnostic and/or therapy procedures.