

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>

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

December 4-6, 2019, Belgrade, Serbia

Program and the Book of Abstracts

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

November 2019, Belgrade, Serbia

Book title:

Eighteenth 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

Cover: Modified Photo by Miloš Stošić; Wikimedia Commons

(<https://commons.wikimedia.org/wiki/File:Бедџи - поглед на Ушће.jpg>); Creative Commons Attribution-Share Alike 3.0 Unported license

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 (18 ; 2019 ; Beograd)

Program ; and the Book of abstracts / Eighteenth Young Researchers' Conference Materials Sciences and Engineering, December 4-6, 2019, 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, 2019 (Belgrade : Gama digital centar). - XX, 102 str. : ilustr. ; 23 cm

Tiraž 130. - Registar.

ISBN 978-86-80321-35-6 (ITSSASA)

a) Наука о материјалима -- Апстракти б) Технички материјали – Апстракти

COBISS.SR-ID 281006348

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

Scientific and Organizing Committee

Committee President

Smilja Marković Institute of Technical Sciences of SASA, Belgrade, Serbia

Vice-presidents

Dragana Jugović Institute of Technical Sciences of SASA, Belgrade, Serbia
Magdalena Stevanović Institute of Technical Sciences of SASA, Belgrade, Serbia
Đorđe Veljović Faculty of Technology and Metallurgy, Belgrade, Serbia

Members

Nadica Abazović Institute of Nuclear Sciences “Vinča”, Belgrade, Serbia
Jasmina Dostanić Institute of Chemistry, Technology and Metallurgy, Belgrade, Serbia

Branka Hadžić Institute of Physics, Belgrade, Serbia
Ivana Jevremović Norwegian University of Science and Technology, Trondheim, Norway

Sonja Jovanović Institute of Nuclear Sciences “Vinča”, Belgrade, Serbia;
Institute Jožef Stefan, Ljubljana, Slovenia

Ralph Kraehnert Technical University of Berlin, Germany
Snežana Lazić Universidad Autónoma de Madrid, Spain

Miodrag Lukić Institute of Technical Sciences of SASA, Belgrade, Serbia
Lidija Mančić Institute of Technical Sciences of SASA, Belgrade, Serbia
Marija Milanović Faculty of Technology, Novi Sad, Serbia
Nebojša Mitrović Faculty of Technical Sciences, Čačak, Serbia
Irena Nikolić Faculty of Metallurgy and Technology, Podgorica, Montenegro
Marko Opačić Institute of Physics, Belgrade, Serbia
Rafał Poręba Institute of Macromolecular Chemistry AS CR, v.v.i., Prague 6, Czech Republic

Vuk Radmilović Faculty of Technology and Metallurgy, Belgrade, Serbia
Srečo Škapin Institute Jožef Stefan, Ljubljana, Slovenia
Boban Stojanović Faculty of Sciences, Kragujevac, Serbia

Ivana Stojković-Simatović	Faculty of Physical Chemistry, Belgrade, Serbia
Vuk Uskoković	University of California, Irvine, USA
Rastko Vasilic	Faculty of Physics, Belgrade, Serbia
Siniša Vučenović	Faculty of Sciences, Department of Physics, Banja Luka, B&H
Marija Vukomanović	Institute Jožef Stefan, Ljubljana, Slovenia

Conference Secretary

Aleksandra Stojičić Institute of Technical Sciences of SASA, Belgrade, Serbia

Conference Technical Committee

Milica Ševkušić, Miloš Milović, Ivana Dinić, Marina Vuković, Vladimir Rajić, Željko Mravik, Vukašin Ugrinović

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

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 Eighteenth Young Researchers' Conference - Materials Sciences and Engineering, held in Belgrade, Serbia.

14-4

Kaolin modified with cationic surfactant as a potential adsorbent for ketoprofen

Milena Obradović¹, Aleksandra Daković¹, George E. Rottinghaus²,
Milica Spasojević¹, Marija Marković¹

¹*Institute for Technology of Nuclear and Other Mineral Raw Materials, Franše d' Epere 86, 11000 Belgrade, Serbia,* ²*Veterinary Medical Diagnostic Laboratory, College of Veterinary Medicine, University of Missouri, Columbia, MO 65211, USA*

The contamination of the natural aquatic environment by pharmaceuticals is a serious environmental problem due to their extensive use in human health and animal husbandry. One of the most efficient technique for removal of pharmaceuticals from water is their adsorption on activated carbons, clays and zeolites. In this study adsorption of ketoprofen (KETO), widely used non-steroidal anti-inflammatory drug, on modified kaolin was investigated. The natural kaolin (from Rgotina, Serbia) was modified with cationic surfactant hexadecyltrimethyl ammonium bromide in amounts equivalent to 50% and 90% of kaolin cationic exchange capacity. FTIR and DTA/TGA were used for characterisation of materials. The obtained data showed that adsorption of KETO by modified kaolin increased with increasing the amount of surfactant, as well as with increasing the amount of solid phase in the suspension (0.5 – 5.0 mg/ml). According to obtained results modified kaolin may be used as adsorbent for removal of KETO from contaminated water.