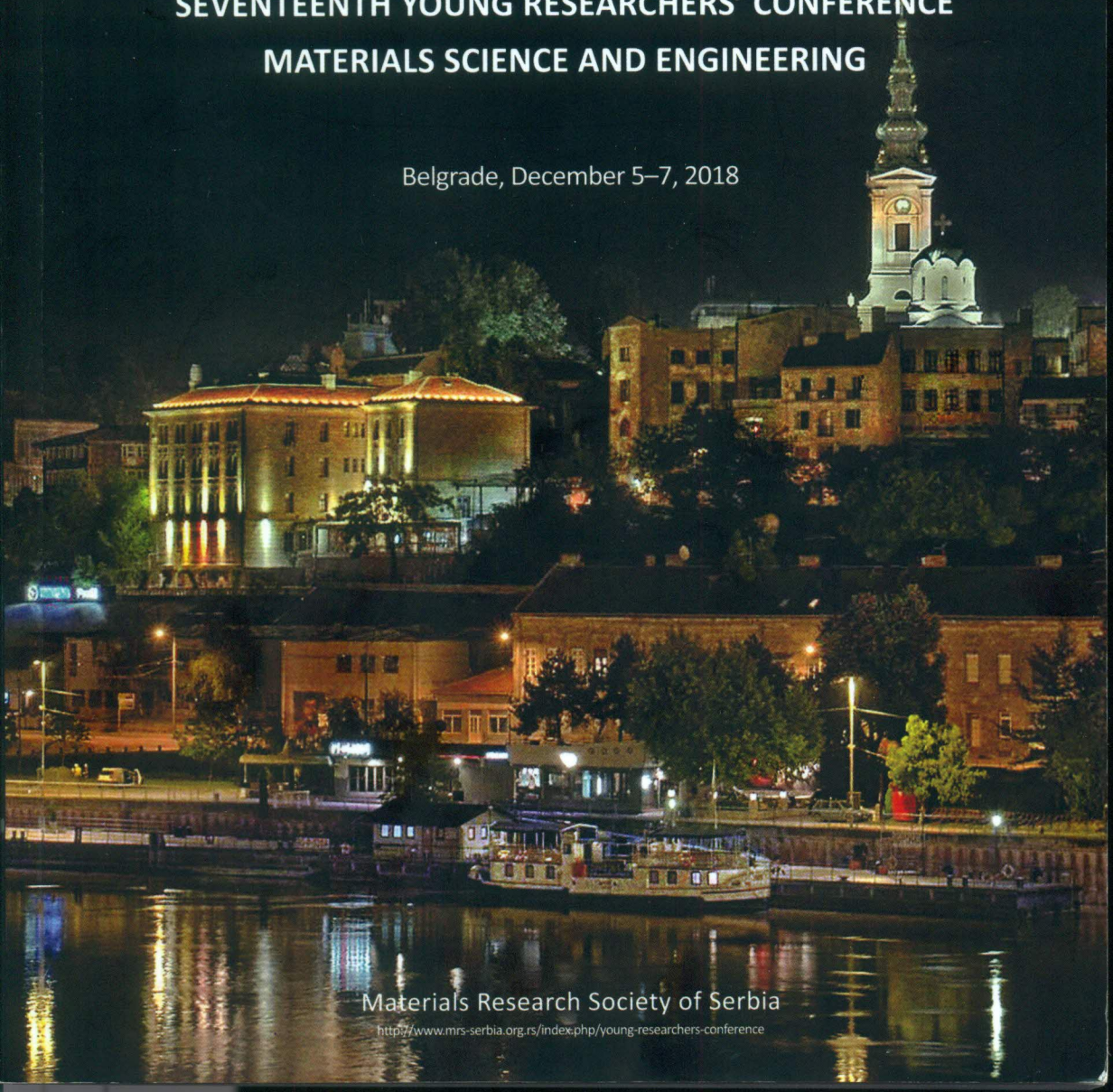
MATERIALS RESEARCH SOCIETY OF SERBIA
INSTITUTE OF TECHNICAL SCIENCES OF SASA

Programme and the Book of Abstracts

SEVENTEENTH YOUNG RESEARCHERS' CONFERENCE MATERIALS SCIENCE AND ENGINEERING

Belgrade, December 5–7, 2018



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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 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 2019.

Sponsors

ANALYSIS
LABORATORY EQUIPMENT

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Programme
Seventeenth Young Researchers Conference
Materials Science and Engineering

Wednesday, December 5, 2018

09.00 – 09.30 Opening Ceremony

09.30 – 11.30 1st Session – Biomaterials I
Chairpersons: Prof. Dr. Bojana Obradović and Milena Radenković

09.30 – 09.45 Subcutaneous tissue reaction to collagen-based membranes of different origin
Milena Radenković[1], Sanja Stojanović[1,2], Jelena Živković[1,2], Vladimir Cvetković[3], Žarko Mitić[4], Shahram Ghanaati[5], Stevo Najman[1,2]
[1]University of Niš, Faculty of Medicine, Scientific Research Center for Biomedicine, Department for Cell and Tissue Engineering, 18000 Niš, Serbia, [2]University of Niš, Faculty of Medicine, Department of Biology and Human Genetics, 18000 Niš, Serbia, [3]University of Niš, Faculty of Sciences and Mathematics, Department of Biology and Ecology, 18000 Niš, Serbia, [4]University of Niš, Faculty of Medicine, Department of Pharmacy, 18000 Niš, Serbia, [5]Medical Center Goethe-University Frankfurt am Main, Department for Oral, Cranio-Maxillofacial and Facial Plastic Surgery, FORM-lab, 60590 Frankfurt am Main, Germany

09.45 – 10.00 Antibiotic loaded bioactive orthopedic implant coating
Milena Stevanović[1], Ana Janković[1], Marija Đošić[2], Maja Vukašinović-Sekulić[1], Vesna Kojić[3], Vesna Mišković-Stanković[1]
[1]Faculty of Technology and Metallurgy, Karnegijeva 4, Belgrade, Serbia, [2]Institute for Technology of Nuclear and Other Mineral Raw Materials, Bulevar Franš d'Eperea 86, Belgrade, Serbia, [3]Oncology Institute of Vojvodina, Faculty of Medicine, University of Novi Sad, Put Dr Goldmana 4, Sremska Kamenica, Serbia

10.00 – 10.15 Production of composite hydrogels based on poly(vinyl alcohol) and β-tricalcium-phosphate for potential applications in bone tissue implants
Natalija Stojanović, Jasmina Stojkovska, Đorđe Veljović, Bojana Obradović
Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

10.15 – 10.30 Characterization of porous alginate hydrogels with bioactive hydroxyapatite precursor particles for bone tissue engineering
Jovana Skenderija, Nataša Tomašević, Jasmina Stojkovska, Đorđe Veljović, Bojana Obradović
Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

12-6

Sorption of Pb^{2+} ions from wastewater by Paulownia leaves and their hydrochar

Marija R. Koprivica, Jelena T. Petrović, Marija S. Petrović, Marija L. Mihajlović, Jelena V. Milojković, Marija M. Kojić, Mirjana D. Stojanović
Institute for Technology of Nuclear and Other Mineral Raw Materials, 86 Franchet d` Esperey St., 11000 Belgrade, Serbia

It is of great importance to treat wastewaters, which contain heavy metals in concentrations harmful to the environment, before their discharge into watercourses. The biosorption is powerful tool for the removal of heavy metals from wastewaters. Paulownia leaves become biowaste during wood processing in industry and represent possible biosorbent or source for production of efficient adsorbents. In this study, Paulownia leaves and Paulownia leaves hydrochar produced at 180 °C were used as adsorbents of Pb^{2+} ions and their efficiency was determined. Paulownia leaves and hydrochar, before and after adsorption of Pb^{2+} ions, were characterized by FTIR spectroscopy. It was observed that oxygen functional groups might were crucial for adsorption of Pb^{2+} ions. The preliminary adsorption test showed that leaves without structural changes had better adsorption capacity which was q=34.53 mg/g than hydrochar produced at 180°C, q=10.57 mg/g. Therefore, Paulownia leaves could be considered as efficient adsorbent for Pb^{2+} removal.

13-1

Adsorption study of cadmium ions on modified kaolinite by some amino a

Nataša Mladenović[1], Marija Ivanović[2], Ljiljana Kljajević[2], Jelena Gulicovski[2], Snežana Nenadović[2], Katarina Trivunac[1]
[1]*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Se*
[2]*Laboratory for Materials Sciences, Vinča Institute of Nuclear Sciences, Univer Belgrade, Belgrade, Serbia*

Continuous development of new technologies leads to increasing pollution of v creating the need for new materials that could be used in the processes of their pu Therefore, adsorbents prepared from agricultural waste, resins, silica gels, zeoli flying ash, aluminosilicates and other materials are being investigated as potentia Recently research has focused on improving the adsorption capacity by mod material by binding or impregnating inorganic and organic molecules on the surfa paper, the kaolinite modification with amino acids, histidine and cysteine, was pe improve the efficiency of adsorption of heavy metal ions (Cd, Pb, Zn). Weighed kaolinite was immersed in 0.1 mol/dm^3 solution of amino acid (histidine or cys stirred for 24 hours. The precipitate was washed and dried at a temperature of remove excess water. Cation exchange capacity (CEC) of raw and modified determined by titration with methylene blue. The influence of operating paramet adsorption time, pH value of the solution, initial metal concentration and tempera capacity and adsorption efficiency were examined. Better agreement of experime with Freundlich's adsorption isotherm and the pseudo-second order kinetics mo that the adsorption of cadmium ions on the investigated adsorbents takes plac chemisorption mechanism. The change of Gibbs free energy has a negative valu adsorbents, which shows that the adsorption process is spontaneous. By com achieved results for raw and modified kaolin, it can be concluded that histidin kaolin can be successfully used for adsorption of heavy metal ions from aqueous s