



**Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION II
New Frontiers in Multifunctional Material Science and Processing**

**Serbian Ceramic Society
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials
Institute for Testing of Materials
Archeological Institute of SASA**

PROGRAM AND THE BOOK OF ABSTRACTS

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Dear Colleagues, dear friends, we have great pleasure to welcome you to the Advanced Ceramic and Application Conference II organized by the Serbian Ceramic Society in cooperation with the Institute of Chemistry Technology and Metallurgy, Institute for Technology of Nuclear and Other Raw Mineral Materials, Institute for Testing of Materials and Archeological Institute of SASA. This conference brings together researchers from academia and industry to present the latest advances in synthesis and characterization in the field on new ceramic structures. The chosen Conference topics opening the new frontiers in designing of advanced ceramic materials since they cover fundamental theoretical research, modeling and simulation, controlled nanostructured materials synthesis and optimization of the consolidation process, which all together should provide practical realization of the new ideas towards device miniaturization, energy-materials-information integration and preservation of cultural heritage.



Prof. Dr Vojislav Mitić
President of the Serbian Ceramic Society
World Academy Ceramics Member

General Conference topics included:

- Basic Ceramics Science
- Nano-, Bio- and Opto-ceramic Nanotechnologies
- Multifunctional Materials
- Magnetic and Amorphous Materials
- Construction and Eco-ceramic
- Composites, Catalysis, Electro-catalysis
- Artistic Ceramic and Design, Archeological Heritage
- Young Researchers
- **Sintering processes**
 - kinetics
 - microstructure
 - thermodynamics
 - modeling

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O15

Functionalized porous nanocomposite as phenol derivatives sorbent

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Nanocomposite of poly (glycidyl methacrylate-*co*-ethylene glycol dimethacrylate) and acid modified bentonite was prepared by radical suspension copolymerization. The porosity of the obtained nanocomposite was confirmed by mercury porosimetry. In order to be tested as sorbent for phenol derivatives the composite was functionalized with diethylene triamine and denoted CP-S_A-deta. Sorption at constant temperature (25 °C) was performed on water solutions of three phenol derivatives: 4-nitrophenol (4NP), 2-nitrophenol (2NP) and 2-chloro-4-nitrophenol (2Cl4NP). The influence of pH, sorption time and initial concentration of sorbates on sorption efficiency of CP-S_A-deta was studied. The isotherm data were best fitted with Langmuir model, while the sorption dynamics obeyed the pseudo-second-order kinetic model for all derivatives. Under the same experimental conditions the sorption capacity of CP-S_A-deta toward phenol derivatives increased in the following order $q_{\max}(2NP)=0.34 \text{ mmol g}^{-1} < q_{\max}(4NP)=0.58 \text{ mmol g}^{-1} < q_{\max}(2Cl4NP)=0.70 \text{ mmol g}^{-1}$. On the other hand the sorption rate was similar for 2NP and 4NP, but somewhat slower for 2Cl4NP. The synthesized functionalized nanocomposite can be regarded as promising sorbent for phenol derivatives.