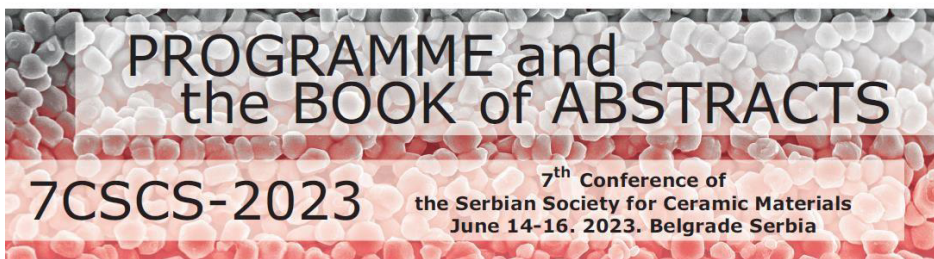


The Serbian Society for Ceramic Materials  
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Institute of Physics, University of Belgrade  
Center of Excellence for the Synthesis, Processing and Characterization of  
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Faculty of Mechanical Engineering, University of Belgrade  
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**Branko Matović**  
**Jelena Maletaškić**  
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Dr Branko Matović  
Dr. Jelena Maletaškić  
Prof. Vladimir V. Srdić

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# **PROGRAMME AND THE BOOK OF ABSTRACTS**

**7<sup>th</sup> Conference of The Serbian Society for  
Ceramic Materials**

**June 14-16, 2023**  
**Belgrade, Serbia**  
**7CSCS-2023**

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**Branko Matović**  
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**Vladimir V. Srdić**

P-22

**SUPERCAPACITIVE PROPERTIES OF CARBON MATERIALS  
ACTIVATED BY ALKALI METAL HYDROXIDES OBTAINED  
FROM SUCROSE**

Sanja Krstić, Vladimir Dodevski, Maria Čebela, Milena Rosić,  
Marija Egerić, Radojka Vujasin, Darko Jaćimovski

*Laboratory for Material Science, Institute of Nuclear Sciences "Vinča",  
National Institute of the Republic of Serbia, University of Belgrade,  
P.O. Box522, 11001 Belgrade, Serbia*

The main aim of this research is to show influence of different hydroxides, applied in carbon materials activation process on the electrochemical properties of activated carbon samples. The carbon material samples were prepared by hydrothermal treatment of sucrose and thermally activated using KOH, NaOH and LiOH by chemical activation method. The electrochemical properties of the obtained carbon material samples were examined by cyclic voltammetry and electrochemical impedance spectroscopy and correlated to their physicochemical properties. Investigated samples showed characteristic capacitor-like behavior. The best result of specific capacitance was obtained for the sample synthesized treated by KOH, while the increase in capacitance follows the arrangement of the growth of ionic radius of a metal from an alkali which is used for activation. Dependence on the type of hydroxide is due to differences in the radii of a metal. The alkalis with larger radii of metal produce wider pores and consequently the structure of a porous layer become more accessible and available to the charge transfer of capacitive response.

*Keywords:* active carbon; sucrose, alkali-treated carbon materials; hydrothermal obtained carbons; electrochemical capacitance distribution.