

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

Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute of Chemistry Technology and Metallurgy
Institute of Physics
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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Oxygen Reduction Reaction on Palladium Modified Zeolite 13X

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Palladium was dispersed over zeolite NaX by procedure of impregnation/thermal degradation of palladium acetylacetonate salt.

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Samples characterization was performed by X-ray diffraction and SEM analysis. XRD analysis results showed that decomposition of palladium acetylacetonate in air produced palladium oxide. According to the EDX analysis Pd content in palladium modified zeolite was 3.7 – 4.0 wt.

Electrochemical behavior of synthesized material was investigated in 0.1 M NaOH. The influence of addition of carbon black to composite electrode on its electrocatalytic performance was also investigated. Composite electrodes with and without carbon black were tested for oxygen reduction reaction. According to Koutecky-Levich slope the oxygen reduction reaction followed $4e^-$ mechanism on both electrodes. The onset of ORR on the electrode with added carbon black was shifted toward more positive potentials for about 40 mV in comparison to the electrode without carbon black. The addition of carbon black to 13XPd enhanced the activity of electrode without changing the ORR overall mechanism.

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