

**Serbian Ceramic Society Conference  
ADVANCED CERAMICS AND APPLICATION**

Organized by  
**Serbian Ceramic Society**  
&  
**Institute of Technical Sciences of SASA**

**PROGRAM AND THE BOOK OF ABSTRACTS**

**Serbian Academy of Sciences and Arts, Knez Mihailova 35  
May 10-11th, 2012, Belgrade, Serbia**

**Book title:** Serbian Ceramic Society Conference - ADVANCED CERAMICS AND APPLICATION: Program and the Book of Abstracts

**Publisher:**

Serbian Ceramic Society

**Editors:**

Prof. Dr. Vojislav Mitić

Dr. Nina Obradović

Dr. Lidija Mančić

**Technical Editor:**

Aleksandra Stojičić

**Printing:**

Serbian Academy of Sciences and Arts,  
*Knez Mihailova 35, Belgrade, Serbia*

Format

*Pop Lukina 15, Belgrade, Serbia*

**Edition:**

70 copies

CIP - Каталогизација у публикацији  
Народна библиотека Србије, Београд

666.3/.7(048)

66.017/.018(048)

SERBIAN Ceramic Society. Conference (1 ; 2012 ; Beograd)

Advanced Ceramics and Application : program and the book of abstracts / #[1st]  
#Serbian Ceramic Society Conference, May 10-11th, 2012, Belgrade, Serbia ; organized  
by Serbian Ceramic Society & Institute of Technical Science of SASA ; [editors Vojislav  
Mitić, Nina Obradović, Lidija Mančić]. - Belgrade : Serbian Ceramic Society, 2012  
(Belgrade : Serbian Academy of Sciences and Arts). - XII, 37 str. ; 29 cm

Tiraž 70.

ISBN 978-86-915627-0-0

1. Srpsko keramičko društvo (Beograd)

a) Керамика - Апстракти b) Наука о материјалима - Апстракти c) Наноматеријали  
- Апстракти

COBISS.SR-ID 190546188

P04

### **Structural Changes, Dielectric and Ferroelectric Properties of Tribophysically Activated BaTiO<sub>3</sub>**

V.P. Pavlović<sup>1</sup>, V.B. Pavlović<sup>2,3</sup>, J. Blanuša<sup>4</sup>, G. Branković<sup>5</sup>, M. Spreitzer<sup>6</sup>, J. Krstić<sup>7</sup>

<sup>1</sup>Faculty of Mechanical Engineering, University of Belgrade, Serbia, <sup>2</sup>FoA, Department of Physics and Mathematics, University of Belgrade, Serbia, <sup>3</sup>Institute of Technical Sciences of SASA, Belgrade, Serbia, <sup>4</sup>Vinča Institute of Nuclear Sciences, University of Belgrade, Serbia, <sup>5</sup>Institute for Multidisciplinary Research, University of Belgrade, Serbia, <sup>6</sup>Jozef Stefan Institute, Advanced Materials Department, Ljubljana, Slovenia, <sup>7</sup>Institute of Chemistry, Technology and Metallurgy, Department of Catalysis and Chemical Engineering, University of Belgrade, Serbia

In order to obtain nanocrystalline material which can be used in MLCC production, the investigations of the influence of BaTiO<sub>3</sub> powder tribophysical activation (TPA) on its structural changes, dielectric and ferroelectric properties have been performed. Microstructure development and crystal structure have been studied by mercury porosimetry method, SEM, EDS and X-ray powder diffraction analyses. The modifications of dielectric and ferroelectric properties of sintered samples have been examined and correlated with observed structural changes induced by TPA of starting powders. It has been found that dielectric and ferroelectric properties of tribophysically activated BaTiO<sub>3</sub> could be tuned by controlling the grain size and lattice strain of activated nanostructured material.

P05

### **Obtaining of Ceramic Materials by the Method of the Thermal Transformation of Cation Exchanged Zeolites**

Ana Radosavljević Mihajlović<sup>1</sup>, Jovica Stojanović<sup>2</sup>, Anja Došen<sup>1</sup>, Predrag Vulić<sup>3</sup>

<sup>1</sup>Institute of Nuclear Sciences Vinča, P. O. Box 522, University of Belgrade, 11000 Belgrade, Serbia, <sup>2</sup>Institute for Technology of Nuclear and Other Mineral Raw Materials, Franchet d Esperey 86, P.O. Box 390, 11000 Belgrade, Serbia, <sup>3</sup>Faculty of Mining and Geology, Laboratory for Crystallography, University of Belgrade, Đušina 7, 11000 Belgrade, Serbia

The method of the thermal treatment of cation exchanged zeolites (ZTIT) is shown as very acceptable for synthesis of alkaline earth and alkaline framework aluminosilicates. In this work, are presented the results of the thermally induced phase transformation of Ba, K, Ag and Pb-exchanged LTA zeolites. The phase conversions in the temperature range from room temperature to 1300 °C were investigated and followed by thermal (DTA/TGA), X-ray powder diffraction and SEM/EDAX analyses. Also, we investigated the XRD pattern line broadening and influence of the different cations to the microstructure parameters. The crystal structure and microstructural parameters were refined using Rietveld method. It is concluded that the type and valence state of the extraframework cations give rise to recrystallization of amorphous substances to the different framework topologies.  
**Keywords** - Ceramics, ZTIT synthesis, X-ray powder diffraction, microstructure.