

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

**Serbian Ceramic Society**  
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**PROGRAM AND THE BOOK OF ABSTRACTS**

**Serbian Academy of Sciences and Arts, Knez Mihailova 35**  
**Sep 29<sup>th</sup> - Oct 1<sup>st</sup>, 2014, Belgrade, Serbia**

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

**Publisher:**

Serbian Ceramic Society

**Editors:**

Prof.dr Vojislav Mitić

Prof. dr Olivera Milošević

Dr Nina Obradovic

Dr Lidija Mančić

**Technical Editor:**

Prof. dr Olivera Milošević

**Printing:**

Serbian Academy of Sciences and Arts,

*Knez Mihailova 35, Belgrade*

Format

*Pop Lukina 15, Belgrade*

**Edition:**

150 copies

**Sculptural Concretes:** Rajko D. Blažić, High School-Academy for Arts and Conservation, Serbian Orthodox Church, Belgrade, Serbia

CIP - Каталогизacija у публикацији

Народна библиотека Србије, Београд

666.3/.7(048)

66.017/.018(048)

SERBIAN Ceramic Society (Belgrade). Conference (3rd ; 2014 ; Beograd) Advanced Ceramics and Application : new frontiers in multifunctional material science and processing : program and the book of abstracts / III Serbian Ceramic Society Conference, 29th September - 1st October, Belgrade, 2014 ; [organized by] Serbian Ceramic Society ... [et al.] ; [editors Vojislav Mitić ... et al.]. - Belgrade : Serbian Ceramic Society, 2014 (Belgrade : Serbian Academy of Sciences and Arts). - 139 str. ; 30 cm

Tiraž 150.

ISBN 978-86-915627-2-4

1. Serbian Ceramic Society (Belgrade)

a) Керамика - Апстракти b) Наука о

материјалима - Апстракти c) Наноматеријали

- Апстракти

COBISS.SR-ID 209985036

**OR3**

### **Influence of Sm<sub>2</sub>O<sub>3</sub> on the Microstructure and Dielectric Characteristics of Codoped BaTiO<sub>3</sub> Ceramics**

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The samples of Sm/Mn codoped BaTiO<sub>3</sub> ceramics, prepared by conventional solid state procedure with dopant concentrations ranged from 0.1 up to 5.0 at%, were investigated in this paper. The specimens were sintered at 1290°C and 1350°C in an air atmosphere for two hours.

The low doped samples demonstrated the mainly uniform and homogeneous microstructure with average grain sizes ranged from 0.3 μm to 5.0 μm. The appearances of secondary abnormal grains in fine grain matrix and core-shell structure were observed in highly doped Sm/BaTiO<sub>3</sub> sintered at 1350°C.

Dielectric measurements were carried out as a function of temperature up to 200°C. The low doped samples, sintered at 1350°C, display the high value of dielectric permittivity ( $\epsilon_r=6800$ ) at room temperature. A nearly flat permittivity-response was obtained in specimens with 5.0 at% additive content. Using a modified Curie-Weiss law the Curie-like constant  $C'$  and a critical exponent  $\gamma$  were calculated. The obtained values of  $\gamma$  pointed out the diffuse phase transformation in heavily doped BaTiO<sub>3</sub> samples.