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

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Sep 30th - Oct 1st, 2013, Belgrade, Serbia

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

Publisher:
Serbian Ceramic Society

Editors:
Prof.dr Voja Mitić
Dr Nina Obradovic
Dr Lidija Mančić

Technical Editor:
Dr Lidija Mačić

Printing:
Serbian Academy of Sciences and Arts,
Knez Mihailova 35, Belgrade
Format
Pop Lukina 15, Belgrade

Edition:
100 copies

Mosaics: Original Format 30x40 cm
Mirjana Milić, Vladimir Skerlić, Maja Opačić, Maša Nicić, Nina Nicić, Milica Konstantinović, Marjan Vesić - Academy od SOC for Fine Arts and Conservation

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

666.3/.7(048)
66.017/.018(048)

SERBIAN Ceramic Society. Conference (2 ; 2013 ; Beograd)
Advanced Ceramics and Application : new frontiers in multifunctional material science and processing : program and the book of abstracts / II Serbian Ceramic Society Conference, Sep 30th-Oct 1st, 2013, Belgrade, Serbia ; organized by Serbian Ceramic Society... [et al.] ; [editors Vojislav Mitić, Nina Obradović, Lidija Mančić]. - Belgrade : Serbian Ceramic Society, 2013 (Belgrade : Serbian Academy of Sciences and Arts). - XVI, 61 str. ; 30 cm

Tiraž 100.

ISBN 978-86-915627-1-7
1. Serbian Ceramic Society (Beograd)
a) Керамика - Апстракти b) Наука о материјалима - Апстракти
c) Наноматеријали - Апстракти
COBISS.SR-ID 201203212

O4

Microstructure evolution and phase transition in Er doped $BaTiO_3$ ceramics

Vesna Paunović[1], Vojislav Mitić[1,2], Miroslav Miljković[3], Ljiljana Živković[1]

[1] University of Nis, Faculty of Electronic Engineering, Aleksandra Medvedeva 14, Niš, Serbia
[2]Institute of Technical Sciences of SASA, Belgrade, Serbia
[3]Laboratory for Electron Microscopy, University of Niš, 18000 Niš, Serbia

The Er doped $BaTiO_3$ ceramics, with different Er_2O_3 content, ranging from 0.01 to 1.0 wt% Er, were investigated regarding their microstructural and dielectric characteristics in this paper. Doped $BaTiO_3$ were prepared by using conventional method of solid state sintering at 1380 ^oC for four hours. SEM analysis of Er/$BaTiO_3$ doped ceramics showed that in samples doped with a rare-earth ions low level, the grain size ranged from 20-40 μm, while with the higher dopant concentration the abnormal grain growth is inhibited and the grain size ranged between 2-10μm. Dielectric measurements were carried out as a function of temperature up to180°C at different frequencies. The low doped samples sintered at 1380 °C, display the high value of dielectric permittivity at room temperature, 2160 for 0.01 Er/$BaTiO_3$. A nearly flat permittivity-response was obtained in specimens with higher additive content. Using a Curie-Weiss low and modified Curie-Weiss low the Curie constant *C*, Curie temperature *Tc* and a critical exponent of nonlinearity γ were calculated. The Curie temperature of doped samples were ranged from 126 to 130 °C. The Curie constant for all series of samples decrease with increase of dopant concentration and the lowest values were mesured from samples doped with 0.01 wt% of aditive. The obtained value of γ pointed out that the specimens have almost sharp phase transition.