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

Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials
School of Electrical Engineering and Computer Science of Applied Studies

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 21st-23rd September 2016.

SERBIAN CERAMIC SOCIETY CONFERENCE
ADVANCED CERAMICS AND APPLICATION V
New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society
Institute of Technical Science of SASA
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials
School of Electrical Engineering and Computer Science of Applied Studies

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 21-23. September 2016.

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

Publisher:
Serbian Ceramic Society

Editors:
Prof.dr Vojislav Mitić
Dr Lidija Mančić
Dr Nina Obradović

Technical Editors:
Dr Lidija Mančić
Dr Nina Obradović
Adriana Peleš

Printing:
Serbian Ceramic Society

Circulation:
140 copies

CIP - Каталогизација у публикацији -
Народна библиотека Србије, Београд

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

SERBIAN Ceramic Society Conference - Advanced Ceramics and Application
(5 ; 2016 ; Beograd)
Advanced Ceramics and Application : new frontiers in multifunctional material science and processing : program and the book of abstracts / V Serbian Ceramic Society Conference, Belgrade, 21-23. September 2016. ; [organized by] Serbian Ceramic Society ... [et al.] ; [editors Vojislav Mitić, Lidija Mančić, Nina Obradović]. - Belgrade : Serbian Ceramic Society, 2016 (Belgrade : Serbian Academy of Sciences and Arts). - 82 str. ; 30 cm

Tiraž 140.

ISBN 978-86-915627-4-8

1. Serbian Ceramic Society (Beograd)
a) Керамика - Апстракти b) Наука о материјалима - Апстракти c) Наноматеријали - Апстракти
COBISS.SR-ID 225924876

INV1

Curie-Weiss Law Fractal Corrections and Clausius-Mossotti Equation

Vojislav V. Mitić[1,2], Ljubiša M. Kocić[1], Vesna V. Paunović[1]
[1]University of Niš, Faculty of Electronic Engineering, Niš, Serbia
[2] Institute of Technical Sciences of SASA, Belgrade, Serbia

The Clausius–Mossotti relation emerged as a combination of the analysis of indices of refraction (by Rudolf Clausius) and the relationship between the dielectric constants of two different media (Ottaviano-Fabrizio Mossotti). Since it connects dipole's polarizability with the electric permittivity of a material made of those dipoles, it is one of the fundamental relationship that can be derived from Maxwell's conductivity equation. Also, it is tightly connected both the Curie and Curie–Weiss laws which are correlation relations. Using fractal approach in Curie–Weiss equation and fractal correction applied recently by the authors, the Clausius–Mossotti relation is also subjected to modification with respect to ferroelectric materials fractal nature. The correction is operationally performed by introducing fractal correction factor $a_0 > 1$, as a multiplier to the usual dielectric constant e_r to gain the bigger value $a_0 e_r$. This shows that the Clausius–Mossotti relation is also "permeated" by fractal nature being inherited from the material's morphology. Our experiments were carried out on $BaTiO_3$-ceramics as characteristic representative of perovskites but the conclusions can be applied on any other ceramics materials as well as on thin film layers and coating in general. By shapes control and contact surfaces numbers on the entire BaTiO3-ceramic sample level, the control over structural properties of these ceramics can be done, with the aim of correlation between material electronic properties and corresponding microstructure. The fractal correction has wide consequences on many phenomena like PTC, ferroelectrics, ferromagnetics, piezo- and optoelectronic properties as well as electrochemical thermodynamic and fluid dynamics parameters.

INV2

Resonant ultrasound spectroscopy in the study of relaxation processes in tetragonal tungsten bronzes

Andrei Rotaru[1-3]
[1]INFLPR – National Institute for Laser, Plasma and Radiation Physics, Laser Department,
Bvd. Atomistilor, Nr. 409, Măgurele (Ilfov), Bucharest, Romania
[2]University of Craiova, Faculty of Sciences, Str. A.I. Cuza, Nr. 13, Craiova, Jud. Dolj, Romania
[3]University of Cambridge, Department of Earth Sciences,
Downing Street, Cambridge, United Kingdom

Tetragonal tungsten bronze (TTB) structures offer some promise as lead-free ferroelectrics and have an advantage of great flexibility in terms of accessible composition ranges due to the number of crystallographic sites available for chemical substitution. The ferroic properties of interest are coupled with strain, which will be important in the context of stability, switching