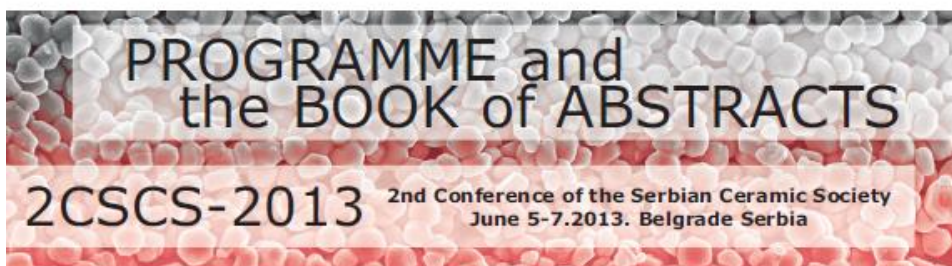


The Serbian Ceramic Society
The Academy of Engineering Sciences of Serbia
Institute for Multidisciplinary Research - University of Belgrade
Institute of Physics - University of Belgrade
Vinča Institute of Nuclear Sciences - University of Belgrade



Edited by:
Snežana Bošković
Vladimir V. Srdić
Zorica Branković

Programme and Book of Abstracts of The Second Conference of The Serbian Ceramic Society **publishes abstracts from the field of ceramics, which are presented at international Conference.**

Editors-in-Chief

Dr Snežana Bošković
Prof. Vlaimir V. Srdić
Dr. Zorica Branković

Publisher

Institute for Multidisciplinary Research, University of Belgrade
Kneza Višeslava 1, 11000 Belgrade, Serbia

For Publisher

Prof. Dr Sonja Veljović Jovanović

Printing layout

Vladimir V. Srdić

Press

FUTURA, Novi Sad, Serbia

CIP – Каталогизација у публикацији
Народна библиотека Србије, Београд

666.3/.7(048)

66.017/.018(048)

SERBIAN Ceramic Society. Conference (2nd ; 2013 ; Beograd)

Program ; and the Book of Abstracts / 2nd Conference of the Serbian Ceramic Society, 2CSCS-2013, June 5-7, 2013, Belgrade, Serbia ; [organizers] The Serbian Ceramic Society ... [et al.] ; edited by Snežana Bošković, Vladimir Srdić, Zorica Branković. - Belgrade : Institute Multidisciplinary Research, 2013 (Novi Sad : Futura). - 102 str. ; 24 cm.

Tiraž 120. – Registar.

ISBN 978-86-80109-18-3

1. Bošković, Snežana [urednik] 2. Serbian Ceramic Society (Beograd)
- a) Керамика - Апстракти b) Наука о материјалима – Апстракти
- c) Наноматеријали - Апстракти

COBISS.SR-ID 198593292

**The Serbian Ceramic Society
The Academy of Engineering Sciences of Serbia
Institute for Multidisciplinary Research-University of Belgrade
Institute of Physics-University of Belgrade
Vinča Institute of Nuclear Sciences-University of Belgrade**

PROGRAMME AND THE BOOK OF ABSTRACTS

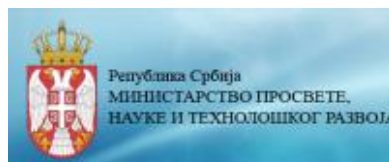
2nd Conference of The Serbian Ceramic Society

**June 5-7, 2013
Belgrade, Serbia
2CSCS-2013**

Edited by:
**Snežana Bošković
Vladimir Srdić
Zorica Branković**

SPECIAL THANKS TO

**Ministarstvo prosvete, nauke i
tehnološkog razvoja Republike Srbije**
Nemanjina 22-26
11000 Beograd, Srbija



Real S
Ulica Kralja Petra I bb,
22320 Indija, Srbija
Direktor: Miodrag Stević,
office@real-s.net



Bomex Refractory
Gavrila Principa 57,
11000 Beograd, Srbija,
Direktor: Gorica Avramović, dipl.inž.,
gorica.avramovic@bomex.co.rs



NT-MDT Co.
Post Box 158 Building 317-A, Zelenograd,
Moscow 124482, Russia
Phone: +7 (499) 735-7777
Fax: +7 (499) 735-6410
E-mail: spm@ntmdt.ru
www.ntmdt.com



Mikrolux d.o.o.
Ljudevita Gaja 35
HR 10290 Zaprešić, Hrvatska
mob: +385 91 59 63 596
tel.-fax: +385 1 33 98 905
mail: mikrolux@email.t-com.hr
mikrolux.d.o.o@zg.t-com.hr



Committees

Organizer

- The Serbian Ceramic Society
- The Academy of Engineering Sciences of Serbia
- Institute for Multidisciplinary Research-University of Belgrade
- Institute of Physics-University of Belgrade
- Vinča Institute of Nuclear Sciences-University of Belgrade

Scientific Committee

1. Dr. Zoran Bačkalić, *Nexe Group, Bečej, Serbia*
2. Dr. Snežana Bošković, *Institute of Nuclear Sciences "Vinča", Belgrade, Serbia*
3. Dr. Goran Branković, *Institute for Multidisciplinary Research, Belgrade, Serbia*
4. Dr. Zorica Branković, *Institute for Multidisciplinary Research, Belgrade, Serbia*
5. Dr. Zorana Dohčević-Mitrović, *Institute of Physics, Zemun, Serbia*
6. Prof. Đorđe Janačković, *Faculty of Technology and Metallurgy, University of Belgrade, Serbia*
7. Dr. Miroslav Komnenović, *Institute for Multidisciplinary Research, Belgrade, Serbia*
8. Dr. Branko Matović, *Institute of Nuclear Sciences "Vinča", Belgrade, Serbia*
9. Prof. Ljubica Nikolić, *Faculty of Technology, University of Novi Sad, Serbia*
10. Prof. Rada Petrović, *Faculty of Technology and Metallurgy, University of Belgrade, Serbia*
11. Dr. Zoran Popović, *Institute of Physics, Zemun, Serbia*
12. Prof. Vladimir V. Srdić, *Faculty of Technology, University of Novi Sad, Serbia*
13. Prof. Biljana Stojanović, *Institute for Multidisciplinary Research, Belgrade, Serbia*
14. Dr. Maja Šćepanović, *Institute of Physics, Zemun, Serbia*
15. Prof. Tatjana Volkov-Husović, *Faculty of Technology and Metallurgy, University of Belgrade, Serbia*
16. Prof. Aleksandra Zarubica, *Faculty of Sciences and Mathematics, University of Niš, Serbia*

Advisory Committee

1. Prof. Slavko Bernik, *Institute "Jožef Štefan", Ljubljana, Slovenia*
2. Prof. Lidija Curković, *University of Zagreb, Croatia*
3. Dr. Viktor Fruit, *Institute of Physical Chemistry „IlieMurgulescu”, Romanian Academy, Romania*
4. Prof. Vladimir Krstić, *Queens University, Kingston, Canada*
5. Prof. Ravi Kumar, *Indian Institute of Technology – Madras, Chennai, India*
6. Prof. Cristina Leonelli, *Faculty of Engineering, University of Modena and Reggio Emilia, Italy*
7. Prof. Miladin Radović, *Texas A&M University, TX, USA*
8. Prof. Sandro Santucci, *University of L'Aquila, L'Aquila, Italy*
9. Prof. Yano Toyohiko, *Tokyo Institute of Technology, Japan*
10. Prof. Eniko Volceanov, *University Politehnica of Bucharest, Romania*
11. Dr. Vladimir Urbanovich, *Centre of Science and Practice of Materials, Belarus Academy of Sciences, Minsk, Belarus*
12. Prof. Katsumi Yoshida, *Tokyo Institute of Technology, Japan*

Organizing Committee

1. Dr. Dušan Bučevac, *Institute of Nuclear Sciences "Vinča", Belgrade, Serbia*
2. Dr. Mirjana Cocić, *Technical Faculty, Bor, Serbia*
3. Dr. Mirjana Grujić-Brojčin, *Institute of Physics, Zemun, Serbia*
4. Prof. Radmila Jančić-Heinemann, *Faculty of Technology and Metallurgy, University of Belgrade, Serbia*
5. Dr. Marija Milanović, *Faculty of Technology, University of Novi Sad, Serbia*
6. Dr. Zorica Marinković-Stanojević, *Institute for Multidisciplinary Research, Belgrade, Serbia*
7. Dr. Sanja Martinović, *ITNMS Belgrade, Serbia*
8. Dr. Snežana Nenadović, *Institute of Nuclear Sciences "Vinča", Belgrade, Serbia*
9. Dr. Marijan Randjelović, *Faculty of Sciences and Mathematics, University of Niš, Serbia*
10. Dr. Ivan Stjepović, *Faculty of Technology, University of Novi Sad, Serbia*
11. Dr. Mirjana Vijatović-Petrović, *Institute for Multidisciplinary Research, Belgrade, Serbia*
12. Dr. Milica Vlahović, *ITNMS Belgrade, Serbia*

Dear ceramists,

On behalf of all committees of the 2nd Conference of The Serbian Ceramic Society (2CSCS-2013), and also on behalf of the co-organizers of this Conference i.e. Academy of Engineering Sciences of Serbia, Institute for Multidisciplinary Research - University of Belgrade, Institute of Physics - University of Belgrade, Vinča Institute of Nuclear Sciences - University of Belgrade, it is our great pleasure to welcome you to Belgrade and Serbia on June 5-7th 2013.

The Serbian Ceramic Society is national society which brings together the scientists and engineers working in the fields of research and application of ceramic materials. There is rather large ceramic community in Serbia since it has long tradition which involves both traditional and advanced ceramic materials. The members of The Serbian Ceramic Society, are professionally dealing with very attractive topics like nanostructured ceramics, ceramics in energy conversion, eco- and bio-ceramics, as well as, ultra high temperature ceramic composites. The activities of The Serbian Ceramic Society include organizing highly interesting lectures for the members, but also Students Meetings, which has taken place in Novi Sad under the sponsorship of the European Ceramic Society each year since 1998. In addition, the Serbian Ceramic Society publishes, since 2007, the Journal "Processing and Application of Ceramics" which is becoming ever more attractive to authors from abroad.

The aim of the 2CSCS-2013 is to bring together the scientists working in the field of ceramic materials for the exchange of attractive results in the areas of the development, characterization and application of ceramic materials as well as, to improve contacts for future scientific cooperation.

The abstracts of the papers that are going to be presented at the 2nd Conference of The Serbian Ceramic Society are summarized in this book. They are divided according to topic to which the papers belong, i.e. into:

1. **Ceramic Powders, Characterization and Processing** (chemical routes, hydrothermal synthesis, non-conventional routes, dispersion and processing aids, wet processing, spray-drying, plastic forming, net shape forming and porous products)
2. **High Temperature Phenomena, Sintering and Microstructure Design** (high temperature reactions, phase diagrams, densification and grain growth, tailoring microstructure to properties, hard coatings and wear)
3. **Electro and Magnetic Ceramics** (ferroelectric and relaxors, piezoelectric, films, multilayer devices, interfaces, capacitor, microwave ceramics, varistors, conducting ceramics and electrodes, ionic conductors, resistors)
4. **Ceramic Composites, Membranes and Multimaterials** (ceramic matrix composites, fibres, nanocomposites and polymer transformation, laminates, biocomposites)
5. **Refractories, Cements, Glass and Corrosion** (raw materials and engineering, emission control, environment, recycling)
6. **Ceramic Heritage**

Four plenary lectures, fourteen invited lectures, twenty-two oral and fifty-seven poster presentations will be presented at the Conference. This book contains, as mentioned, all the received abstracts, and some of the papers, after regular peer review will be published in the international journal *The Processing and Application of Ceramics*.

June 5-7th, 2013.
Belgrade, Serbia

starting from the Na₂CO₃, Co₃O₄ and CuO powders. Each powder mixture was mechanically activated by grinding for 3 h in a planetary ball mill with ball to powder mixture ratio 20:1, at the basic disc rotation speed of 360 rpm. The as-prepared powders were pressed into disc-shaped pellets and subsequently subjected to a heat treatment at 880 °C for 24 h in inert argon atmosphere. Changes in structural characteristics of the samples and particle morphology, caused by Co substitution by Cu, were characterized using X-ray diffraction and scanning electron microscopy, respectively. It should be emphasized that milling process reduced the time necessary for obtaining pure sodium cobaltite. From the results obtained in this study, observed changes in microstructure were correlated with changes in the lattice parameters, indicating the influence of Cu ion incorporation in NaCo₂O₄ crystal lattice.

P-55

NANOINDENTATION OF NICKEL MANGANITE CERAMICS OBTAINED BY COMPLEX POLIMERIZATION METHOD

Slavica Savić¹, Goran Stojanović², Sanja Pršić¹, Dragana Vasiljević²,
Goran Branković¹

¹*Institute for multidisciplinary Research-University of Belgrade, Serbia*

²*Faculty of Technical Sciences-University of Novi Sad, Serbia*

Nickel manganite is very interesting NTC material due to its outstanding properties and wide field of applications mainly in microelectronics and optoelectronics and lately in the mobile phone industry. In this work, chemical synthesis of this material was performed by complex polymerization method (CPM). The presence of pure nickel manganite phase was confirmed by X-ray analysis. The obtained fine nanoscaled powders were uniaxially pressed and sintered at different temperatures: 1000 °C -1200°C for 2h. Microstructure development during sintering was observed by scanning electron microscope (SEM). Indentation experiments were carried out using a three sided pyramidal (Berkovich) diamond tip. Young's modulus of elasticity at various indentation depths and hardness of NTC ceramics were calculated. It was found that the highest hardness and elastic modulus exhibit the ceramics sintered at highest temperature.