NINTH YOUNG RESEARCHERS CONFERENCE
MATERIALS SCIENCES AND ENGINEERING

December 20-22, 2010, Belgrade, Serbia
Serbian Academy of Sciences and Arts, Knez Mihailova 35

Program and the Book of Abstracts

Materials Research Society of Serbia
and
Institute of Technical Sciences of the
Serbian Academy of Sciences and Arts

December 2010, Belgrade, Serbia

Book title:
Ninth Young Researchers Conference - Materials Sciences and Engineering: Program and the Book of Abstracts

Publisher:
Institute of Technical Sciences of the Serbian Academy of Sciences and Arts
Knez Mihailova 35/IV, 11000 Belgrade, Serbia
Tel: +381-11-2636994, fax: 2185263
http://www.itn.sanu.ac.rs

Editor:
Prof. Dr. Nenad Ignjatović

Technical Editor:
Aleksandra Stojičić

Printer:
Copy Planet
Brankova 12, 11000 Belgrade, Serbia
Tel: +381-11-3036545, fax: 3036546
http://www.copyplanet.rs

Edition:
130 copies

CIP – Каталогизација у публикацији
Народна библиотека Србије, Београд

66.017/.018(048)

YOUNG Researchers Conference Materials Sciences and Engineering (9 ; 2010 ; Beograd)

Program ; #and the #Book of Abstracts / Ninth Young Researchers Conference Materials Sciences and Engineering, December 20–22, 2010, Belgrade, Serbia ; [organized by] Materials Research Society of Serbia and Institute of Technical Sciences of the Serbian Academy of Sciences and Arts ; [editor Nenad Ignjatović]. – Belgrade : Institute of Technical Sciences of SASA, 2010 (Belgrade : Copy Planet). – XIV, 50 str. ; 30 cm

Tiraž 130. – Registar.

ISBN 978–86–80321–26–4 (ITNSANU)
1. Materials Research Society (Beograd) 2. Institute of Technical Sciences of SASA (Beograd)

a) Наука о материјалима - Апстракти b) Технички материјали – Апстракти
COBISS.SR-ID 180427276

III/1

The influence of powder characteristics on two-step sintering behavior of hydroxyapatite

Miodrag Lukić[1], Zoran Stojanović[1], Ljiljana Veselinović[1], Srečo D. Škapin[2], Ines Bračko[2], Smilja Marković[1], Dragan Uskoković[1]

[1]Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia,
[2]Jožef Stefan Institute, Ljubljana, Slovenia

Fabrication of full dense ceramic materials on the basis of hydroxyapatite (HAp) and biphasic calcium phosphate (BCP) with controllable microstructural and compositional characteristics attracts considerable efforts. Various synthesis and sintering methods were applied in order to achieve desirable material properties. In this study different nanopowders were produced and processed via two-step sintering (TSS) approach. Characterization of synthesized nanopowders were done by XRD, BET, FE-SEM, TEM and thermal analysis methods, while microstructural and chemical characterizations of sintered samples were performed through FE-SEM and XRD analysis. A possibility for obtaining full dense ceramics with suppressed grain growth is discussed on the basis of inherent nanopowders characteristics. Certain attention would be paid on thermal behavior of Ca-deficient HAp systems.

III/2

Green synthesis of PGA-capped silver nanoparticles and their characterization

Igor Savanović[1], Magdalena Stevanović[1], Srečo Škapin[2], M. Marković[3], Dragan Uskoković[1]

[1]Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia,
[2]Jožef Štefan Institute, Ljubljana, Slovenia, [3]Vinča Institute of Nuclear Sciences, Belgrade, Serbia

Owing to their persistent antibacterial properties, Ag nanoparticles are increasingly used in clinical practice and investigated in recent laboratory research. Although there are a number of methods for the synthesis of Ag nanoparticles, recent research trends comply with the requirements of Non-toxic Environmental Chemistry.

In this study, the synthesis of silver nanoparticles was based on the principles of green chemistry. In order to improve their antibacterial properties and biocompatibility, Ag nanoparticles can be coated with various biocompatible and biodegradable polymers that can ensure their better interaction with cells and more favourable size distribution. Poly(α, γ-glutamic acid) is one of the polymers that have the required properties; it also serves as particle stabilizer. The synthesis of Ag nanoparticles was performed by a modified chemical reduction method with glucose as the reducing agent. The samples were characterized by UV/ Vis spectroscopy, FESEM and Zeta potential measurements.