

**NINTH YOUNG RESEARCHERS CONFERENCE  
MATERIALS SCIENCES AND ENGINEERING**

**December 20-22, 2010, Belgrade, Serbia  
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**Program and the Book of Abstracts**

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

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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.

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### **Green synthesis of PGA-capped silver nanoparticles and their characterization**

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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( $\alpha$ ,  $\gamma$ -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.