

# ELEVENTH ANNUAL CONFERENCE

, citation and similar papers at [core.ac.uk](http://core.ac.uk)

brought to you

provided by Serbian Academy of Science and Arts Digital Library

# YUCOMAT 2009

Hotel "Plaža", Herceg Novi, Montenegro, August 31 - September 4, 2009  
<http://www.mrs-serbia.org.rs>

## Programme and The Book of Abstracts

Organised by:  
**Materials Research Society of Serbia,**  
and  
**Institute of Technical Sciences of the  
Serbian Academy of Sciences and Arts, Belgrade**

under the auspices of  
**Federation of European Material Societies**  
and  
**Materials Research Society**

**Title:** THE ELEVENTH ANNUAL CONFERENCE  
“YUCOMAT 2009”  
Programme and The Book of Abstracts

**Publisher:** Institute of Technical Sciences of the Serbian Academy of Sciences & Arts  
Knez Mihailova 35/IV; P.O. Box 377, 11000 Belgrade, Serbia  
Phone: +381 11 2185-437; Fax: + 381 11 2185-263  
<http://www.itn.sanu.ac.rs>

**Editor:** Prof. Dr. Dragan P. Uskoković

**Technical editor:** Aleksandra Stojičić

**Cover page:** Aleksandra Stojičić and Milica Ševkušić

**Copyright** © 2009 Institute of Technical Sciences of the Serbian Academy of Sciences & Arts

**Acknowledgment:**



**Printed in:** Printing office “Čigoja”  
Studentski trg 15, 11000 Belgrade  
Phones: + 381 11 2186-725; + 381 11 625-954  
Circulation: 300 copies. The end of printing: July 2009.

ISBN 978-86-80321-18-9



CIP – Каталогизacija у публикацији  
Народна библиотека Србије, Београд

66.017/.018(048)

MATERIALS Research Society (Beograd).  
Conference (11 ; 2009 ; Herceg Novi)  
Programme ; and The Book of Abstracts /  
Eleventh Annual Conference YUCOMAT 2009,  
organized by Materials Research Society of  
Serbia and Institute of Technical Sciences of  
the Serbian Academy of Sciences and Arts,  
Belgrade ; [editor Dragan P. Uskoković]. –  
Belgrade : Institute of Technical Sciences of  
SASA, 2009 (Belgrade : Čigoja).– L, 219 str.  
; 24 cm

Tiraž 300. – Registar.

ISBN 978–86–80321–18–9

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 168339724

*P.S.E.6.*

**TREATMENT OF OSTEOPOROSIS ALVEOLAR BONE WITH COBALT  
SUBSTITUTED HYDROXYAPATITE NANOPARTICLES**

Z. Ajduković<sup>1</sup>, N. Ignjatović<sup>2</sup>, Z. Stojanović<sup>2</sup>, B. Kaličanin<sup>3</sup>, V. Savić<sup>4</sup>,  
S.M. Petrović<sup>1</sup>, B.M. Petrović<sup>1</sup>, J. Miličević<sup>1</sup>, D. Uskoković<sup>2</sup>

<sup>1</sup>Faculty of Medicine, Niš, Clinic of Stomatology, Department of Prosthodontics, Niš, <sup>2</sup>Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, <sup>3</sup>Faculty of Medicine, Niš, Department of Pharmacy, Niš, <sup>4</sup>Faculty of Medicine, Niš, Institute of Biomedical Research, Niš, Serbia

In this study nanocomposite was used for reconstruction of alveolar bone defect of mandible. Specifically, the main interest for the use of magnetic nanoparticles in biomedical applications is that an inhomogeneous external magnetic field exerts a force on them, and thus they can be manipulated or transported to a specific diseased tissue by a magnetic field gradient. In addition, magnetic particles are of interest because they do not retain any magnetism after removal of the magnetic field. Specifically, inorganic biodegradable nanoparticles (including ceramics, like hydroxyapatite) will be functionalized with bioactive compounds that bond to bone of low mass. Extremely good results in the recovery of alveolar bone osteoporosis were achieved already after 6th week of the application of magnetic nanoparticles. After bonding specifically to osteoporotic bone and not healthy bone, magnetic nanoparticle systems will deliver bioactive compounds to locally increase bone mass. Implantation of magnetic nanoparticles will create bone construction and enable quick formation of new bone and become the material of choice for accelerated bone regeneration.