

THIRTEENTH ANNUAL CONFERENCE

YUCOMAT 2011

Herceg Novi, Montenegro, September 5–9, 2011

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Programme and The Book of Abstracts

Organised by:

Materials Research Society of Serbia

under the auspices of

Federation of European Materials Societies (FEMS)

and

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POSTER SESSION III

Thursday, September 8, 2011, 20³⁰-22⁰⁰

SYMPOSIUM C: NANOSTRUCTURED MATERIALS

P.S.C.1. LOW-TEMPERATURE ELECTRON TRANSPORT PROPERTIES OF CARBON NANOTUBES

V. Egorushkin, N. Melnikova, A. Ponomarev, N. Bobenko
Institute of Strength Physics and Materials Science Siberian Branch of Russian Academy of Sciences, Tomsk, Russia

P.S.C.2. MAGNETIC CRYSTALLITES ENCLOSED IN CARBON MATRIX FOR PROSPECTIVE BIOMEDICAL APPLICATION

M. Izydorzak, M. Leonowicz
Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland

P.S.C.3. MULTIPLE SPIN DYNAMICS IN $\text{Co}_{1+y}\text{Al}_{2-y}\text{O}_4$ SPINEL DILUTED IN AMORPHOUS SiO_2

D. Milivojević¹, B. Babić-Stojić¹, V. Jokanović¹, Z. Jagličić², D. Branković¹, N. Jović¹, S. Čupić¹, D. Kojić³
¹*Vinča Institute of Nuclear Sciences, Belgrade, University of Belgrade, Serbia,*
²*Institute of Mathematics, Physics and Mechanics, Ljubljana, Slovenija,* ³*Faculty of Mechanical Engineering, Belgrade, University of Belgrade, Serbia*

P.S.C.4. ACCELERATED POLYMORPHOUS TRANSFORMATION OF ALUMINA IMPREGATED COPPER ALUMINATE SPINEL FORMATION

E. Kiss, G. Bošković, S. Ratković, Dj. Vujičić
Faculty of Technology, Novi Sad, Serbia

P.S.C.5. TRANSFORMATIONS AND MICROMECHANICAL INSTABILITY BEHAVIOR OF POROUS CERAMIC

E.S. Kalatur¹, S.P. Buyakova^{1,2}, S.N. Kulkov^{1,2}
¹*Institute of Strength Physics and Material Science, Tomsk, Russia*
²*Tomsk State University, Tomsk, Russia*

P.S.C.6. THE ANALYSIS OF STABILITY OF THE ELECTROSPINNING PROCESS OF FORMING PVB-SiO₂ NANOCOMPOSITE FIBERS

V. Obradović, D. Stojanović, A. Kojović, I. Živković, R. Jančić-Hajneman, P. Uskoković, R. Aleksić
Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

Poster Presentation

P.S.C.5.

**TRANSFORMATIONS AND MICROMECHANICAL INSTABILITY BEHAVIOR
OF POROUS CERAMIC**

E.S. Kalatur¹, S.P. Buyakova^{1,2}, S.N. Kulkov^{1,2}

¹*Institute of Strength Physics and Material Science, Tomsk, Russia*

²*Tomsk State University, Tomsk, Russia*

It has been studied the mechanical behavior under compression test zirconia ceramics. It was found a micromechanical instability of rod-like structures formed after sintering of nanopowders and it was shown a high micro quasi-elastic deformation this material up to 2% without fracture.

P.S.C.6.

**THE ANALYSIS OF STABILITY OF THE ELECTROSPINNING PROCESS
OF FORMING PVB-SiO₂ NANOCOMPOSITE FIBERS**

V. Obradović, D. Stojanović, A. Kojović, I. Živković,

R. Jančić-Hajneman, P. Uskoković, R. Aleksić

Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

The PVB-SiO₂ composite nanofibers were obtained by the electrospinning process. The experiments were carried out with PVB solution in concentration of 10 wt% where as the solvent was used ethanol. The silica nanoparticles were added in the solution in different content of 1, 3 and 5 wt% SiO₂, and they were both modified and unmodified with amino-silane. The impact of the parameters of the electrospinning process on the produced PVB-SiO₂ nanocomposite fibers was tested. The structures of the PVB-SiO₂ nanocomposite fibers were investigated using scanning electron microscopy (SEM) and characterized by Fourier transform infrared spectroscopy (FTIR), differential scanning calorimetry (DSC) and thermogravimetric (TG) analysis. The morphology and distribution of the resulting nanofibers were analyzed using software Image - Pro Plus.