

**ADDITIONAL ABSTRACTS**

P.S.A.23

**MAGNETIC PROPERTIES OF NANOSTRUCTURED  $\text{Ca}_{0.9}\text{Gd}_{0.1}\text{MnO}_3$   
OBTAINED BY MODIFIED GLYCINE- NITRATE PROCEDURE**

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$\text{Ca}_{0.9}\text{Gd}_{0.1}\text{MnO}_3$  nanopowders with perovskite type crystal structure were synthesized by modified glycine nitrate procedure. Nanopowders were prepared by combining glycine with metal nitrates and/or metal acetates in their appropriate stoichiometric ratios. Modification of the procedure was performed by partial replacement of nitrates by acetates, in order to control the burn-up reaction. Obtained  $\text{Ca}_{0.9}\text{Gd}_{0.1}\text{MnO}_3$  powders were calcinated in the temperature interval from 850 °C to 950 °C for 10 min. Properties such as phase evolution, lattice parameters, chemical composition and magnetic properties were monitored by DTA, X-ray diffraction, SEM/EDS and magnetic measurements. Magnetic measurements performed at the sample with the smallest crystallite size showed that a 10% of  $\text{Gd}^{3+}$  substituted  $\text{Ca}^{2+}$  ions changes antiferromagnetic properties of  $\text{CaMnO}_3$  by the introduction of ferromagnetic interaction due to a double exchange between  $\text{Mn}^{3+}$  and  $\text{Mn}^{4+}$  ions. Presence of competing interactions and their randomness lead to a formation of a spin glass state below Neel temperature  $T_N = 110$  K. From the high temperature magnetic susceptibility measurements effective magnetic moment of manganese ions is determined which lies between the values for  $\text{Mn}^{3+}$  and  $\text{Mn}^{4+}$  ions.

P.S.A.24

**COMPARISON OF STRUCTURE AND HOMOGENITY OF MINERALS IN BALKAN PENINSULA**

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The origin of nanoclay mineral goods from Balkan's Peninsula are in volcanic ash that crystallized and became crystalline minerals. Under the different circumstances these minerals had become nanoclays as are bentonite (montmorillonite) and others aluminosilicates (zeolite).

This paper intends to contribute a further research and engineering applications by comparison of structure and homogeneity, of minerals in Balkan Peninsula, examined by spectroscopy, microscopy, dielectric investigation and similar types, as their main properties of our interest.

P.S.B.52

**IMPORTANCE OF ALLOYING ELEMENTS DURING LASER PROCESSING  
OF HIGH-TEMPERATURE MATERIALS**

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The materials with high-temperature capability consist alloying elements added to improve mechanical and physical properties of material. The investigation was carried out on high-temperature materials with different chemical compositions. The yield strength, tensile strength and elongation were determined by tensile strength tests. The samples were exposed to ruby laser beam with following characteristics: wavelength of 694.3 nm, pulse duration of 30 ns, laser pulse energy of 1J. The damages arisen by interaction of ruby laser beam with high-temperature materials were analyzed by a scanning electron microscope (SEM) and an energy-dispersive x-ray spectrometry (EDS). In this paper, the effect of Nb and Cr to the microstructural changes arisen by ruby laser beam action was discussed, with the aim to determine the optimal regime that provides good chemical and mechanical properties of researched superalloys.

*Key words:* high-temperature material, laser, microstructure, carbides, TCP phases, SEM, EDS.

P.S.D.6

**THE EFFECTS OF THE BIOMATERIALS BASED ON HYDROXILAPATITE  
ON THE VIABILITY OF HELA CELLS IN CULTURE**

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Hydroxylapatite (HA) is mineral form of naturally occurring calcium apatite, chemically similar to a mineral component of mammals bone. The effect of composite biomaterials based on HA on viability of HeLa cells in culture was examined. The suspensions of porous hydroxylapatite (HA) and porous hydroxylapatite with alginate (HA+A), cellulose (HA+C), starch (HA+S) and

poly-L-lactid acid (HA+PLLA) in the effective concentrations: 0.25, 0.025 and 0.0025 mg/ml were applied. After 24 hours of incubation with those materials, cell viability was estimated by MTT test. Measured absorbances of reduced MTT in almost all tested specimens were higher than in a control, which indicates their good biocompatibility properties. Lower values of MTT test for the highest concentration of HA and the lowest concentration of HA+C than in a control indicates slight cytotoxic effects of those specimens.

## CHANGES IN YUCOMAT 2011 CONFERENCE PROGRAM

- Please note that "Additional abstracts" are included in the program as posters, instead of the cancelled ones that will not be presented at the conference.
- Oral presentation in Symposium E by R. Rudolf is transferred to P.S.A.45.
- Plenary lectures by E.A. Stach and A.A. Kornyshev will not be presented.

### Cancelled abstracts:

#### **UNDERSTANDING THE MECHANISMS OF CARBON NANOTUBE GROWTH TERMINATION USING REAL TIME ENVIRONMENTAL TRANSMISSION ELECTRON MICROSCOPY**

S.-M. Kim<sup>1</sup>, C.L. Pint<sup>2</sup>, P.B. Amama<sup>3,4</sup>, R.H. Hauge<sup>5</sup>, B. Maruyama<sup>3</sup>, E.A. Stach<sup>1,6</sup>

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#### **3D NANOSTRUCTURED OXIDES MATERIALS GROWN AT THE SURFACE OF LIQUID METALLIC ALLOYS**

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National Research Center "Kurchatov Institute", Moscow, Russian Federation

#### **THE REVOLUTIONARY RTILs - ROOM TEMPERATURE IONIC LIQUIDS AT ELECTRIFIED INTERFACES: FROM UNDERSTANDING TO APPLICATIONS**

A.A. Kornyshev

Department of Chemistry, Faculty of Natural Sciences, Imperial College London, London, United Kingdom

#### **LINEAR AND NONLINEAR OPTICAL SPECTRA FOR INTERSUBBAND TRANSITIONS OF CORE/SHELL (CdSe/ZnS BASED) SPHERICAL QUANTUM DOTS**

R. Kostić, D. Stojanović

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#### **EFFECT OF ELECTRIC FIELD ON GROUND AND EXCITED STATES D<sup>0</sup> BINDING ENERGY IN CdTe/ZnTe SPHERICAL QUANTUM DOT**

D. Stojanović, R. Kostić

University of Belgrade, Institute of Physics, Belgrade, Serbia

#### **STRUCTURAL CHARACTERIZATION OF MECHANICALLY ACTIVATED MgO-TiO<sub>2</sub> SYSTEM**

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#### **ELECTRICAL PROPERTIES INVESTIGATION IN POLYSTYRÈNE/POLYANILINE COMPOSITES**

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