



Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION IV
New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials
School of Electrical Engineering and Computer Science of Applied Studies

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
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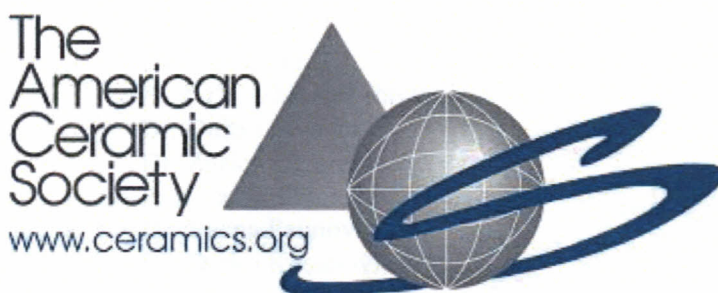
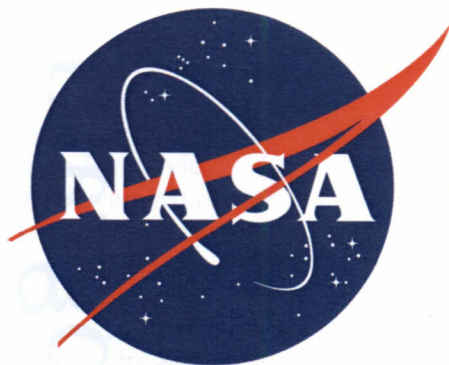
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ENDORSEMENTS



Annealed nanopowders YAG and YAG: Dy prepared by solution combustion synthesis

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Undoped yttrium aluminum garnet (YAG, $Y_3Al_5O_{12}$) and YAG doped with dysprosium ions (Dy^{3+}) nanopowders were prepared by the solution combustion synthesis (SCS) method. After synthesis, in order to achieve the full crystallinity, the YAG and YAG:Dy materials were annealed in air atmosphere at 1300 °C. Phase identification in the post-annealed powder samples were performed by X-ray diffraction, and morphology was investigated by high resolution scanning electron microscope (SEM). Photoluminescence characterization including emission spectra and lifetime analysis has also been done. Trivalent Dy^{3+} ions exhibit a very interesting luminescence and could be used for generation of white light emission in optical display systems. Several emission bands in Dy^{3+} emission spectrum were observed in the blue (470–500 nm), yellow (560–600 nm) and red (660–685 nm and 750–780 nm) regions, corresponding to $^4F_{9/2} - ^6H_{15/2}$, $^4F_{9/2} - ^6H_{13/2}$, $^4F_{9/2} - ^6H_{11/2}$, $^4F_{9/2} - (^6H_{9/2} + ^6H_{11/2})$ transitions in the 4f levels of Dy^{3+} ions, respectively.

Magnetic properties of FeCoV alloy prepared by powder injection metal PIM-technology

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In this study were magnetically characterized Fe49Co49V2 alloys toroidal samples produced by PIM technology. The feedstock for powder injection molding was prepared by mixing starting FeCoV powder with a low viscosity organic binder (wax and thermoplastic). Green samples were subjected to solvent debinding and subsequent thermal debinding followed by sintering. Sintering was performed during 3.5 hours on few different temperatures from 1370 °C to 1460 °C in hydrogen atmosphere. Magnetic properties were investigated as a function of sintering temperature on toroidal core samples by a hysteresis graph (B-H curve at different frequencies up to 10 kHz at high level of magnetic excitation up to 10 kA/m). Magnetic power losses were analysed as frequency dependent by evidence of apparent power, i.e. the magnitude of complex power S and active (real) power P . As the hysteresis losses are proportionally to the frequency ($\sim f$) and eddy-current losses are proportionally to the square of frequency ($\sim f^2$) it was performed separation between these two components of active power. Numerical fitting of this functionality on frequency were performed and analysed. The results obtained were compared with the literature data for new nanocrystalline FeCoV alloys prepared with different advanced technologies.

Conference Information:

Venue: Serbian Academy of Sciences and Arts, Great Hall (second floor) and Halls 1, 2 (first floor), Knez Mihailova 35, Belgrade, Serbia

Conference fee: Standard fee for foreign participants: 100 EUR; Standard fee for domestic participants: 50 EUR, Members of SCS and PhD Students: 30 EUR, last year winners for oral and poster presentations: free of charge.

Invoice and bank details for Conference fee payment: Banka Intesa ad Beograd, Count No. 160-380150-55, notification: Conference fee – participant name.

Abstracts and papers publication: The official language of the conference is English. Conference abstracts will be published in the Book of Abstracts Conference. Papers presented at the conference can be submitted for publishing in peer-reviewed Journals: Science of Sintering and Journal of Multifunctional Materials and Ceramics.

Type of presentation: Visuals for oral presentations should be in Microsoft PowerPoint, versions up to 2007 (.ppt or .pptx, or Adobe Acrobat Reader 9 (.pdf)). Any animation or video files must be compatible with Windows 7 and Windows Media Player. Please bring your presentation to the reception desk at the beginning of the Conference on flash memory. Posters should be prepared in dimension: 70x100 cm. The official language of the conference is English.

Additional Conference information

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