Conference program

Book of abstracts

IEGULDĪJUMS TAVĀ NĀKOTNĒ

ERAF
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EIROPAS SAVIENĪBA

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FM&NT

Functional materials and nanotechnologies 2012

Institute of Solid State Physics
University of Latvia
April 17 - 20

Riga
2012

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The Organizing Committee sincerely hopes that the conference will give all the participants new insights into the wide spread development of functional materials and nanotechnologies and will enhance the circulation of information released at the meeting.

On behalf of FM&NT-2012 organizers thank you all for coming and we wish you most successful and enjoyable conference.

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Po-73

Influence of Laser Radiation on Electrical Resistivity of Polyisoprene/Nanostructured Carbon Composites

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It is known that polymer/carbon nanotube composites are being tested for their potential use in optoelectronic devices [1]. It is also known that polyisoprene/nanostructured carbon (PNC) composites have a pronounced resistance change under the influence of mechanical strain and vapour of volatile organic compounds [2,3]. The goal of this study was to test PNC composites for their potential use as optoelectronic materials. Measurements of relative resistance change of polyisoprene/nanostructured carbon black composites irradiated by semiconductor laser beam were conducted. One illustration of composites photoresistivity measurements at different intensities of laser radiation is given in Fig.1. Two competing mechanisms of composites resistivity change, induced by laser radiation, have been proposed: 1) photoconductivity of carbon nanostructures and 2) exponential reduction of tunnelling currents between carbon nanostructures in composite caused by to thermo-optically induced matrix expansion. Further photoresistivity and optical studies of PNC composites are in progress.

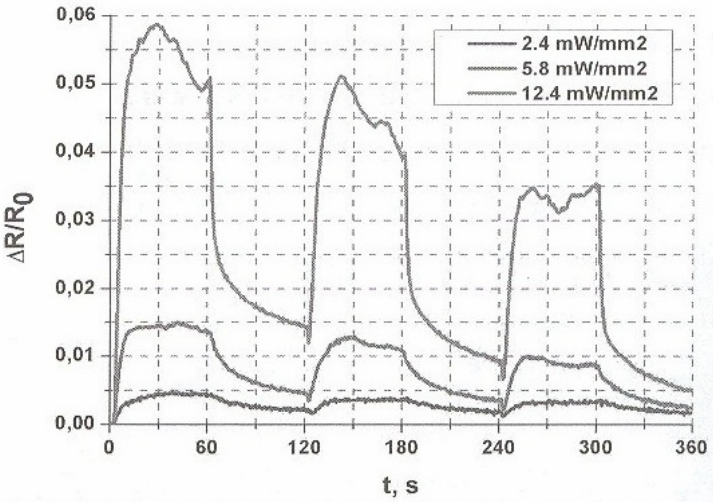

Fig.1 Relative resistance change of polyisoprene/nanostructured carbon composite with 8 m.p. of carbon black irradiated by 532 nm laser beam of different intensity.

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