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Book of abstracts

IEGULDĪJUMS TAVĀ NĀKOTNĒ

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## International conference

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-153

# Sensing Effects in Polymer/Thermoexfoliated Graphite and Polymer/Multiwall Carbon Nanotube Composites

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Recently we have elaborated polyisoprene/high structured carbon black composites with excellent piezoresistivity effect [1] as well as chemoresistivity effect [2]. The task of this study is to test the thermoexfoliated graphite (TEG) as well as multiwall carbon nanotubes (with high (LMWCNT) and low (SMWCNT) aspect ratio) for their application in design of new sensitive polymer composites. TEG has been synthesized in Department of Physics of KNTSU. Polyisoprene/TEG and polyisoprene /MWCNT composites were prepared in Institute of Technical Physics of RTU.

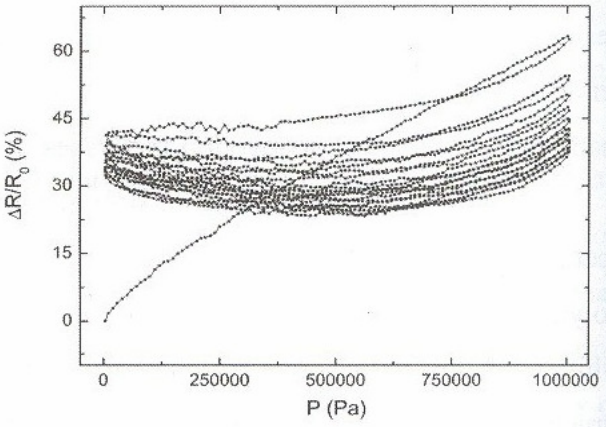


Fig. 1 Piezoresistivity DC test of polyisoprene/TEG composite by 10 cycles of loading at room temperature. 10 phr TEG.

Piezoresistivity (Fig. 1) and chemoresitivity (Fig. 2) DC and AC tests of composites show promising results. Polyisoprene/TEG composite has higher sensitivity to chemicals (Fig.2) then polyisoprene/LMWCNT. It allows to expect all the better sensitivity of polymer/single graphene composites in future.

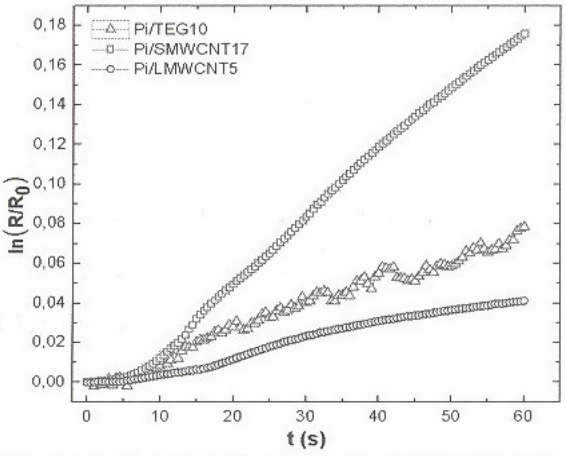


Fig. 2 Chemoresistivity DC test of polyisoprene/TEG composite and polyisoprene/MWCNT composites at room temperature for ethyl acetate vapour.

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