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Book of abstracts

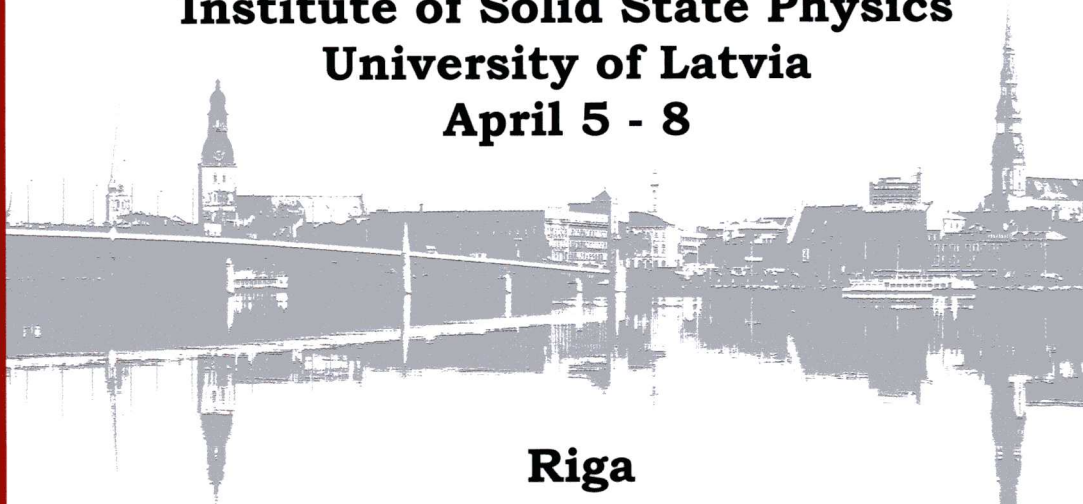
International conference



**Functional
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Polyvinylacetate-Nanostructured Carbon Composite Ethanol Vapour Sensitivity

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There is need for new sensor materials, because global technological development is increasing. For this reason we search for compact sensor material, which could be produced with minimal expenses. Here we present polyvinylacetate – nanostructured carbon composite (PVAc-NCC) as a sensor material for ethanol vapour detection. When the composite senses the ethanol vapour the composite electrical resistance increases in short time (30s) and relaxes fully, when the composite is removed from vapour. This composite material was made from PVAc matrix and defined mass parts of carbon black (CB) nanoparticle filler. Samples with varying thickness have been produced and ethanol sensor effect has been determined (see Fig.1.). As thinner is the sample of PVAc-NCC, as better sensor effect it has.

Various content of plasticizer was added to PVAc-NCC to improve the sensitivity of PVAc – NCC. When 1% of plasticizer di-n-octyl sebacate (DOS) was added to PVAc-NCC, an improvement in ethanol sensitivity has been noticed. But the best sensitivity have been determined for PVAc – NCC with 15% DOS.

We also tried to make composite material with polyethylene glycol with molecular weight 6000 (PEG6000), but a smooth coating of PEG6000 did not form. So we used matrix of both PVAc and 20% PEG6000 and another composite with the same materials with inverse proportional content of matrix components. In this case better sensitivity for PEG 6000 with 20% PVAc has been determined.

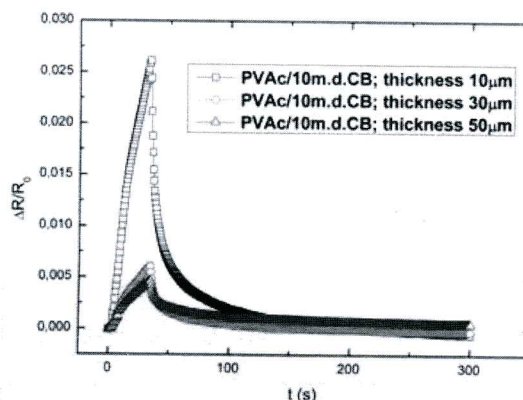


Fig. 1. Relative electrical resistance change in time for PVAc-NCC with various thickness