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ABSTRACT BOOK

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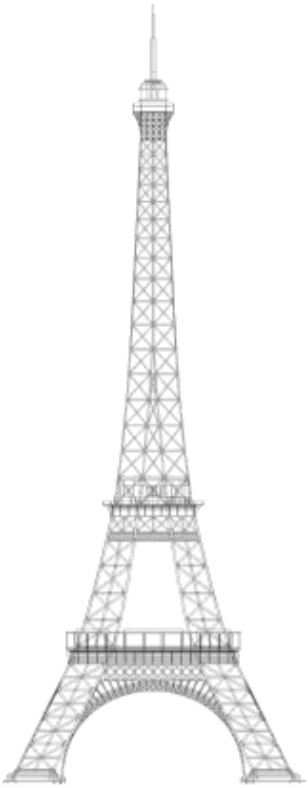

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DSL510
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Electrical, Swelling and Diffusion Properties of Polyisoprene/Multiwall Carbon Nanotube Composites in Atmosphere of Organic Solvent Vapours

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In our previous work [1] we discussed multifunctional properties of polyisoprene/multiwall carbon nanotube composites (PMCNC). In present paper the results of elaboration and investigation of polyisoprene/multiwall carbon nanotube composites (PMCNC) have been reported with a purpose to develop a new prospective soft materials for organic solvent vapors (OSV) sensing. A home made computerized setup was used for simultaneous measurement of 1) absorbed OSV mass in the PMCNC, 2) swelling induced elongation of the sample and 3) electrical resistance changes versus time of PMCNC sample in the OSV definite ambience. The corresponding time dependences for PMCNC with 12 phr of MWCNT in ambience of ethyl acetate vapors are shown in Figure 1.

Basing on analyses of the in-situ measurements of the electrical resistance, elongation of the sample and absorbed OSV mass the sensing mechanism has been developed.

[1] M. Knite, K. Ozols, J. Zavickis, V. Tupureina, I. Klemenoks, R. Orlovs, J. Nanosci. and Nanotechnol., 9, 3587 (2009)
[2] J.S. Chiou, D.R. Paul. Polym. Eng. Sci., 26, 1218 (1986)

Special Session 5

DSL512
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Aging Effects on Physical and Electrical Properties of Nano-structured MgZnO Thin Films for Carbon Nanotube Applications

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We report the use of MgZnO thin films as a new catalyst for growing carbon nanotubes. A sol gel spin coating technique was used to prepare nano-structured MgZnO thin films with the Mg content varied from 0.1 to 0.5 M. The films were deposited on platinized (100) silicon substrates and annealed at 900 °C in