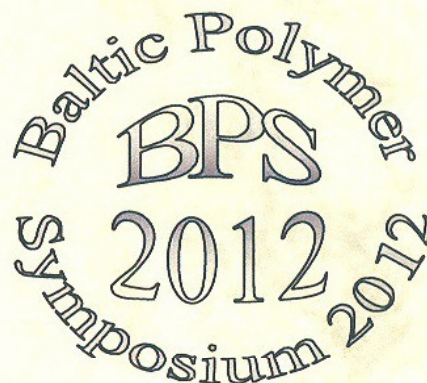
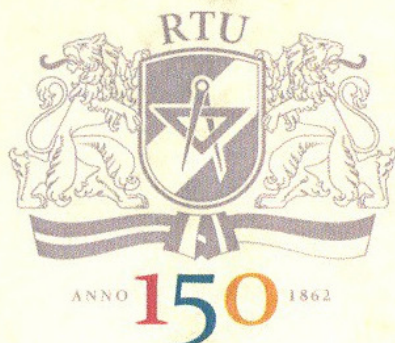




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EIROPAS SAVIENĪBA



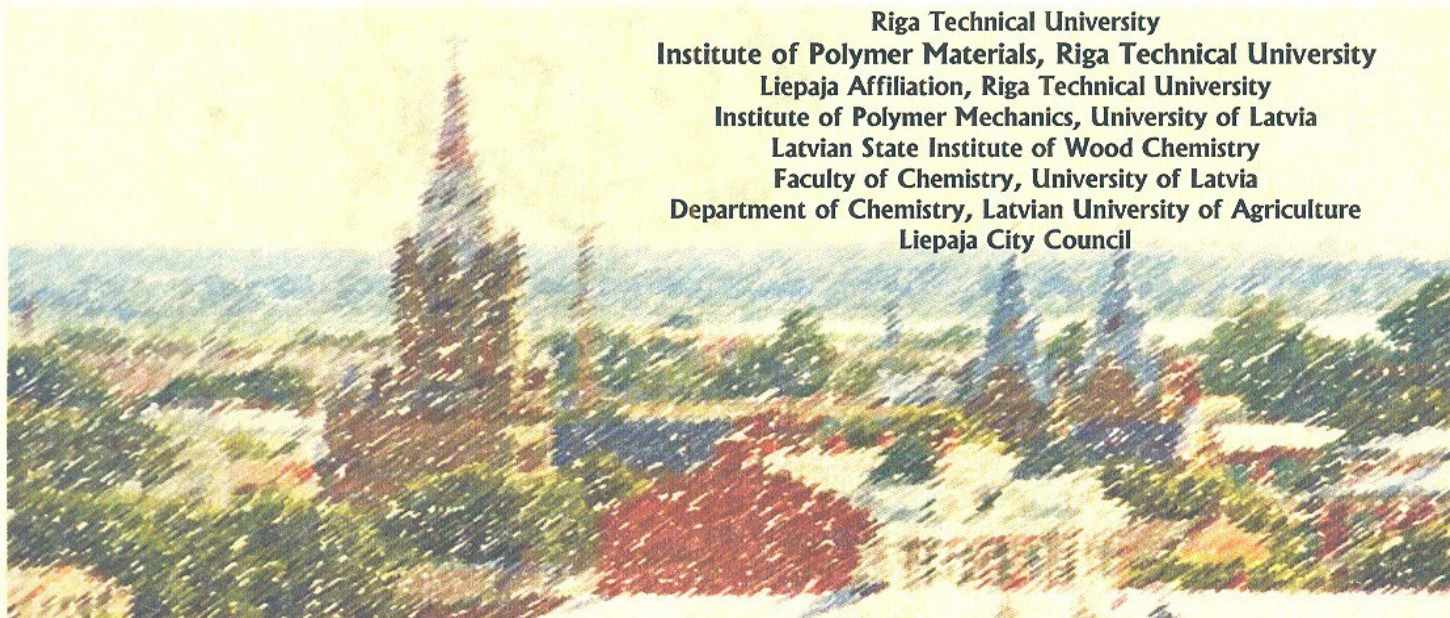
# BALTIC POLYMER SYMPOSIUM 2012

*Liepaja, Latvia*

*September 19-22*

## PROGRAMME AND PROCEEDINGS

Riga Technical University  
Institute of Polymer Materials, Riga Technical University  
Liepaja Affiliation, Riga Technical University  
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# ELECTRICAL RESISTANCE CHANGE EFFECT IN POLYISOPRENE/NANOSTRUCTURED CARBON COMPOSITE INDUCED BY LASER RADIATION

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Polyisoprene/nanostructured carbon (PNC) composites are known for their ability to change electrical resistance rapidly under the influence of mechanical strain<sup>1</sup> and vapour of volatile organic compounds<sup>2</sup>.

Previously testing of PNC composites containing carbon black (CB) filler were made to check for the possibility to sense optical radiation<sup>3</sup>. In this study attempt to determine the difference in resistance change response depending on laser wavelength was done. PNC composite samples cyclically were irradiated with laser beams of different wavelengths. Irradiation time during one cycle was 30 s. Measurements with sample containing 8 phr of CB showed that relative resistance change effect is larger when irradiating the sample with 532 nm laser beam compared to 980 nm laser beam. To clarify the mechanism for such difference in relative resistance change further PNC composite tests are being made.

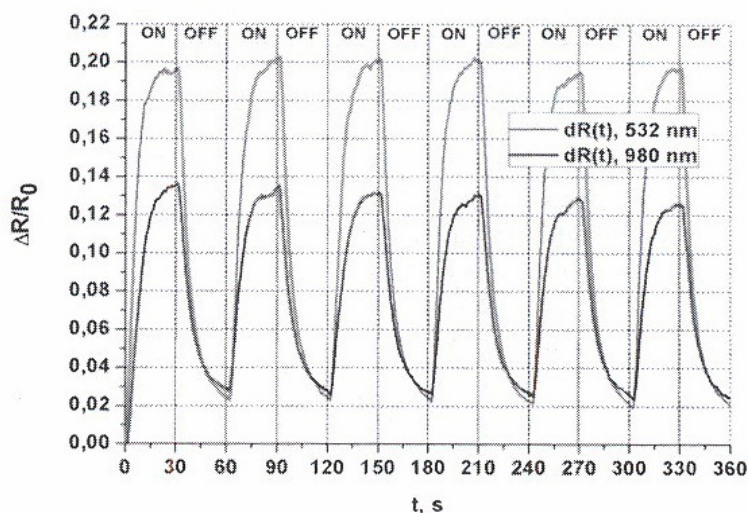


Fig.1. Relative resistance change of polyisoprene/nanostructured carbon composite with 8 phr of carbon black irradiated by 532 and 980 nm laser beam with same intensity ( $12.4 \text{ mW/mm}^2$ ).

## References

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