Photoelastic Response of Polycarbonate in NIR

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Abstract. In the paper we present the results of an experimental investigation of photoelasticity of polycarbonate which is subject to compressive stress. For investigation, we used a homemade plane polariscope and determined the residual birefringence of unloaded samples, prior to the investigation itself. After that we gradually applied the load on the samples under investigation and recorded the spectra of light transmitted through the polariscope as function of load and the displacement of the head of the loading apparatus, as well. As the result we obtained the normalized intensity of light as function of engineering strain which provided information on the photoelastic birefringence as function of the strain.