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Determination of the refractive indices of liquid crystal elastomers[1] ISRAEL LAZO, PETER PALFFY-MUHORAY, Liquid Crystal Institute, KSU — Liquid Crystal Elastomers (LCEs) are fascinating materials due to the coupling between orientational order and mechanical strain. We investigate this coupling by studying the optical properties of LCEs. We have measured the ordinary and extraordinary refractive indices of nematic LCEs as function of strain using two different techniques. In both cases, the strain is applied along the nematic director. The first technique is a Brewster's angle measurement which is based on reflection of the incident light and the second is a conoscopic Mach-Zehnder interferometer based on transmission. We present our experimental results and methods of analysis. We compare our observations with theoretical predictions.

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Michele Moreira
Liquid Crystal Institute

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