

## **EINLADUNG**

zum Vortrag von

**Prof. Dr. Martin Čopič**

University of Ljubljana, Faculty of Mathematics and Physics  
and Joseph Stephan Institute

### **Shaping and probing liquid crystal elastomers with light**

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**Dienstag, 1. Juni 2010, um 17.00 Uhr**

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,  
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

*Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals*

#### **Abstract:**

In liquid crystal elastomers (LCE) the nematic director is coupled to the strain of the polymer network. This leads to some interesting properties of the LC elastomers like very large length change with temperature, potentially useful as artificial muscles. Thermally excited fluctuations of the nematic director, observed by dynamic light scattering, combined with thermo-mechanical measurements allow us to determine the important parameters of the theoretical model of LCE. By doping with suitable photo-isomerisable moieties LCE also show very dramatic photo-mechanical response. At present this phenomenon promises to be the best way to use LCE in mechanical devices. We write optical diffraction gratings in photosensitive LCE that are mechanically tunable and also give us another powerful probe of the interplay of photo-isomerisation, nematic ordering and mechanical strain.

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