

Master project

Tunable Aperture Based on Light-actuated Liquid Crystal Elastomer Actuators

Project

Autonomous light-actuated liquid crystal elastomer actuators

Relevant Tasks

- Cleanroom fabrication
- Test setup development
- Actuation characterization

What do we offer?

- Remunerated position
- State-of-the-art equipment
- Possibility to test new ideas
- Highly motivated working environment

Desired Skills

- Curiosity and creativity
- MATLAB / LabVIEW / Arduino / Python
- Basic optics & chemistry knowledge
- Basic cleanroom processing knowledge

Contact Person

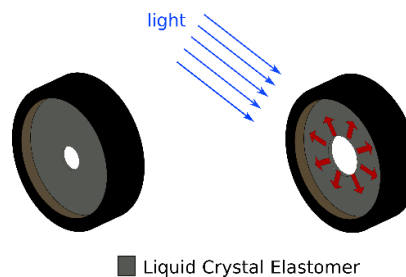
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As a part of the Excellence Cluster **livMatS**, the Gisela and Erwin Sick Chair of Micro-optics is contributing to the development of autonomous light-actuated liquid crystal elastomer (LCE) actuators. In close collaboration with the chemistry researchers in the **livMatS**, the main goal of this project is to demonstrate autonomous photoactuation of LCEs integrated in an optical component, such as an aperture and hence mimicking human iris.

LCEs are anisotropic cross-linked polymers which respond to external stimulus such as light by showing reversible deformation. Due to their large mechanical response, they offer great potential as actuators for various applications such as tunable optics.



To obtain a functional actuator, the main tasks for this project will be

- Defining necessary design parameters and constraints for tunable aperture
- Step-wise development and characterization of cleanroom fabrication process
- Optimization of processing parameters
- Optimization of actuation profile and different geometries
- Testing and characterization of final device

If you are interested in knowing more, you are studying MSE/MST, and you have some of the skills listed to the left, please send an email to jasleen.lall@imtek.de including:

- Curriculum vitae
- Transcript of records of your BSc. and MSc.
- The report of a project that you feel proud of (lab report, BSc thesis, research paper, etc.), as .pdf (optional)