

Bachelor / Master Thesis:

Light-Driven Actuation of Microstructures

Actuation of microstructures plays key role in several applications including sensing and beam deflection, for example, Light Detection and Ranging (LIDAR) and Scanning probe microscopy (SPM). In contrary to actuation by means of thermal, electrical or magnetic forces, light offers the advantage of contact-free actuation. Optical actuation is performed by means of opto-mechanical effect utilizing opto-thermal effect, optical force (e.g. optical tweezers) or opto-chemical effect. Opto-mechanical actuators exploiting novel actuation mechanisms are expected to deliver efficiency, flexibility and/or faster response compared to conventional techniques. In the scope of this interdisciplinary thesis you will demonstrate optical actuation of microstructures by novel actuation mechanisms. You will access the microfabrication and characterization facilities at IMT. You will be supported by the experts from respective fields during the course of this thesis.

Your tasks:

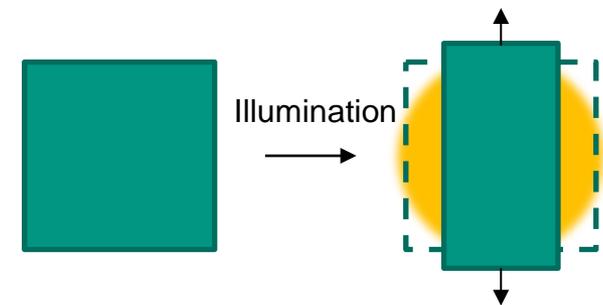
- Familiarize with the principles of opto-mechanical actuation
- Fabricate and functionalize actuatable microstructures
- Characterize actuation of test structures
- Design new structures for sensing applications
- Identify active photo-chromic materials for optimum device performance

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Expansion of structure upon illumination