

# Master Thesis:

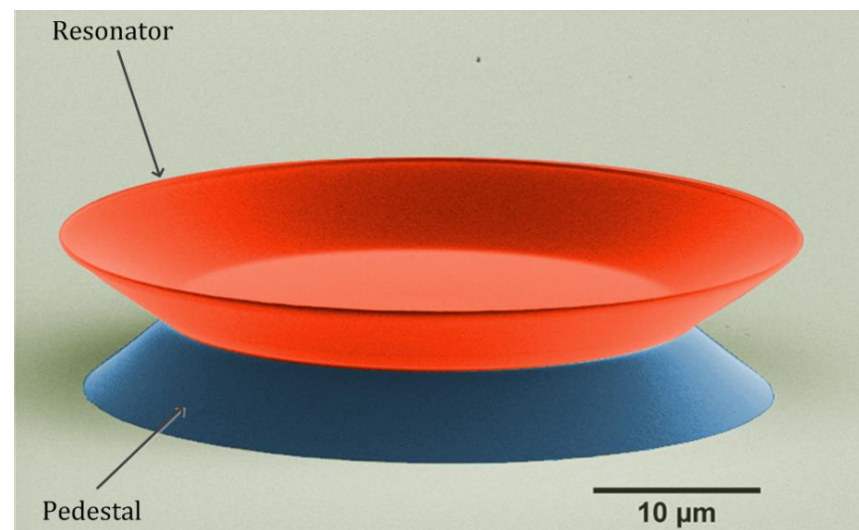
## Life-time enhancement of WGM lasers

Our group works on the fabrication of polymer-based whispering-gallery mode (WGM) lasers as biosensing elements in lab-on-a-chip systems. These are microgoblet-like resonator structures where light is confined in the periphery by total internal reflection. These laser cavities are fabricated from polymers doped with organic dyes. Free space pumping is used to excite the lasers.

Photodegradation of laser dyes is an issue impeding long-term operation. This thesis targets addressing this problem via incorporation of light stabilizing agents as well as employing alternative dyes.

### Your tasks:

- Investigation of additives and alternate dyes
- Preparation of dye-doped polymer solutions
- Fabrication of WGM lasers using the functional polymers in a state-of -the art clean room
- Optical characterization of the devices
- Optimization of the fabrication process to enhance device performance



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