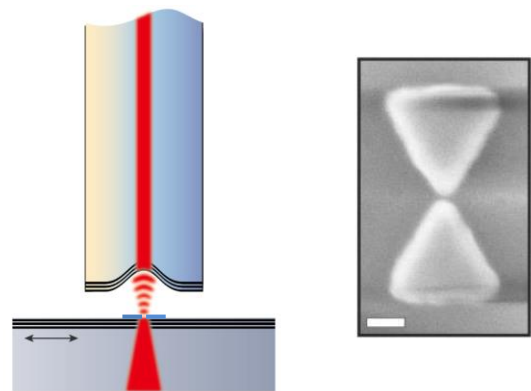


## Master Thesis

### Cascaded enhancement of light-matter interactions with nanoantennas coupled to a tunable microcavity

We are offering a position for a Master Thesis in the group of Prof. David Hunger (PHI, KIT). We are performing experiments on cavity enhancement of the fluorescence of individual solid state emitters and on cavity-enhanced microscopy and spectroscopy. Our vision is to realize efficient quantum interfaces between light and matter. Such interfaces call for ultimate spatio-temporal confinement of light, i.e. the combination of a large quality factor and a microscopic cavity mode volume. Using optical fibers with laser-machined endfacets as mirror substrates, we have realized microscopic cavities with wavelength-scale mode volumes and exceptionally high quality factors.



The combination of such cavities with metallic nano-antennas offers additional enhancement potential. The first goal of this thesis is to investigate the coupling of nanofabricated Bowtie antennas to a tunable microcavity. In a second step, enhanced light matter interactions with ensembles of emitters coupled to the cascaded photonic system will be explored.

We seek for a creative and motivated individual to advance this research project. Applications should include

- a curriculum vitae
- academic records (Bachelor, Master transcript of records)

For further inquiries and applications please contact Prof. David Hunger.