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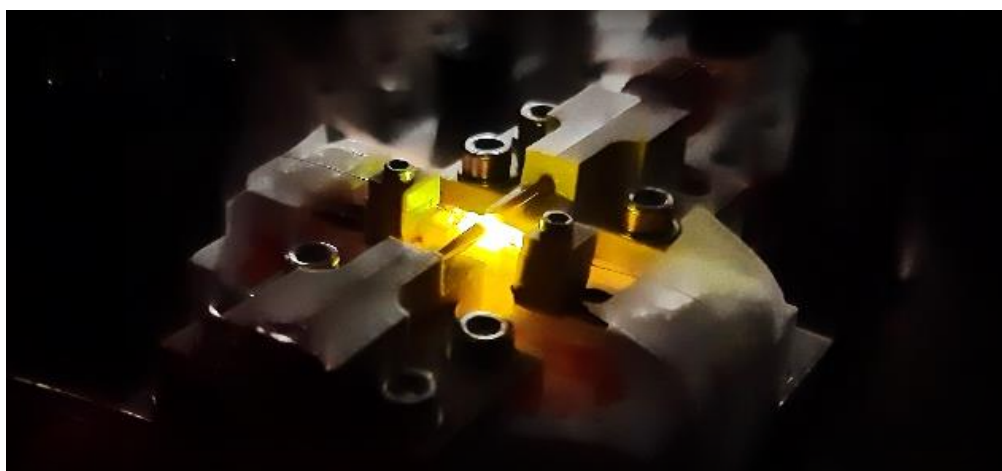
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## Master's Thesis: Optofluidic Lasing with Rare-earth Ions

**Optical microcavities** are a powerful tool for nanosensing, which have already allowed us to characterise the physical, optical and dynamical properties of **unlabelled nanoparticles** in an aqueous environment.

In this project, we build **active microfluidic optical cavities** to generate **laser emission**. Various **europium-containing hybrid nanoparticles** will be used as the laser gain medium. The lanthanides have long been known for their luminescent properties, which are advantageous for fluorescence and lasing applications. and offer several advantages in the context of **sensing**.



A dye-based optofluidic laser in operation in our lab.

Such an optofluidic microlaser could therefore provide a **powerful platform** for various sensing applications.

You will learn to operate **tunable microcavities** in a microfluidic environment, perform **spectroscopy** of lanthanide-based nanoparticles and investigate **optofluidic lasing** with suitable nanoparticles.

**We're looking for a creative and motivated Master's student for this project!**

If you'd like to be a part of this project, send your **application** (or any questions), to  
Prof. David Hunger (david.hunger@kit.edu) or  
Shalom Palkhivala (shalom.palkhivala@kit.edu).

Applications should include your **curriculum vitae** and **academic records**.