



The Center for Advanced Laser Applications (CALA) in Garching-Forschungszentrum is home to the most powerful laser in Germany. Peak powers of 2.5 – 3 PW, at a repetition rate of 1 Hz, allow cutting-edge research in the fields of medical physics, accelerator physics and attosecond physics. To support our groups working on high-intensity laser diagnostics and experiments, we are looking for talented and motivated students.

We are offering various:

## Master Theses

Examples for potential research topics:

- Full spatio-temporal characterization of a laser beam
- Machine learning for laser-accelerator alignment and optimization
- Correlation measurements in laser wakefield accelerators
- Correlation of laser parameter measurements
- Automation and active feedback-loop correction for laser stabilization
- Gas target characterization by interferometry and wavefront sensing
- Setup and software development for a multi-GeV electron spectrometer
- Target development for multi-GeV electron acceleration
- Measuring femtosecond electron bunches using a transition radiation spectrometer
- Betatron X-ray emission from GeV electron beams

Your requirements are:

- good physical intuition, good E3 (optics) grade, lab working experience, basic programming skills
- love for daily experimental work including setting up and aligning optics, using measurement instruments, programming, ...
- ability to acquire new skills, being open to face challenges and learning and working independently

If you are already interested or would like to learn more about our topics, just stop by or write us an email:

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