To strengthen our experimental team at the recently finished Centre for Advanced Laser Applications (CALA) at the Forschungszentrum Garching we are looking for a talented and motivated

Master Student

to support us in our new laboratory dedicated to the investigation of laser-driven accelleration of heavy ions. Our group aims at the development of ultra-dense, laser-accelerated heavy ion bunches and the study of their interaction with matter. This is preparatory work for the realization of a novel reaction mechanism ('fission-fusion') in nuclear astrophysics for the generation of extremely neutron-rich isotopes.

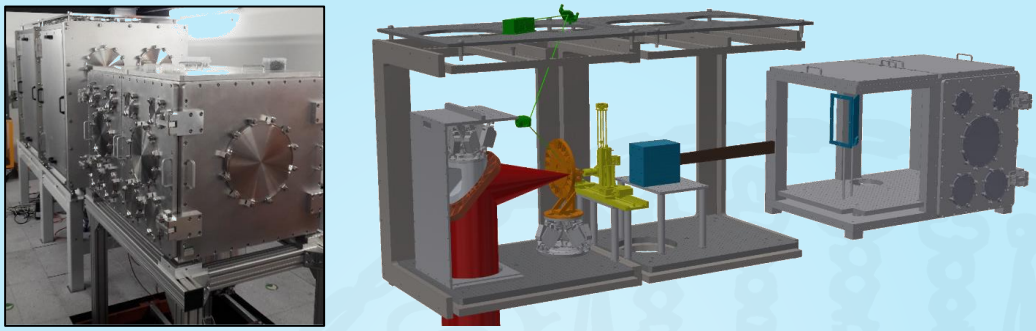

Figure 1. Left: Vacuum chambers in experimental cave for laser-driven heavy ion acceleration. Right: Schematic setup for laser-driven heavy ion acceleration.

In the framework of your thesis you will be responsible for the:

- Setup of a radiative heating system for thin metal foils, acting as laser targets, at our new laboratory, the High Fields (HF) beamline at CALA. For the realization of laser-driven heavy ion acceleration, surface contaminants need to be removed from the target foils. This will be achieved using a Watt-class continuous wave laser
- realization of the measurement and control of the target temperature
- design, implementation and operation of various laser diagnostic components at our HF setup
- investigation of the influence and effectiveness of the radiative target heating on the heavy ion bunch parameters
- participation in high-power laser-driven experiments

Previous knowledge in laser ion acceleration and optics is beneficial, but not mandatory. A background in Python or Matlab coding is desirable. Enjoyment of both experimental and desk (programming) work is major prerequisite.

If we caught your attention, we would be happy to receive your application including your transcript of records and your curriculum vitae to both email addresses listed below. You are always welcome to visit us in Garching for a lab tour and a chat in person.

Contact data:

PD Dr. Peter Thirolf, Tel.: 089 289 14064
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florian.lindner@physik.lmu.de

Further reading:

D. Habs et. al. Appl. Phys. B 103, 471 (2011)
F. H. Lindner et al. Nucl. Instrum. Methods Phys. Res. B 402, 354 (2017)
F. H. Lindner et al. Plasma Phys. Control. Fusion 61, 055002 (2019)