MASTER THESIS

Computational studies on Laser-acceleration of elements from low to high atomic numbers

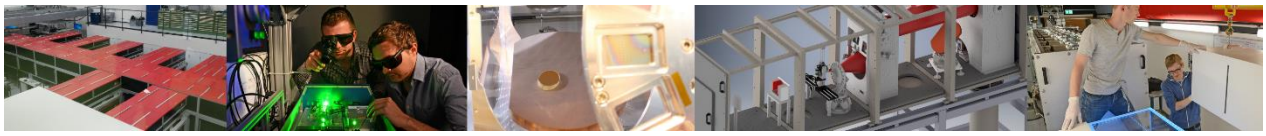
LMU teams in Garching operate one of the world's most powerful short-pulse, high-power lasers at the Centre for Advanced Laser Applications (CALA), and the Forschungszentrum in Garching hosts the Leibniz Supercomputing Centre (LRZ). To support our team in the simulations of laser-particle acceleration, we are looking for a talented and motivated

MASTER STUDENT

In the framework of your thesis, you will familiarize yourself with running simulations on the clusters of the LRZ Supercomputing centre to investigate numerically the generation of laser-driven heavy ion sources.
You will join the simulation team of CALA in Garching and build up base knowledge of the particle-in-cell (PIC) code EPOCH, and its methodology. You will get familiar with the **acceleration of ions and their analysis**. Targets with mid to high atomic numbers such as plastic, aluminum, copper and gold will be investigated to cover a whole range of atomic numbers to address different physical processes that may play a role in the acceleration of heavy ions such as binary collisions, recombination, etc.
In the scope of your work, you will gain experience with the PIC code EPOCH, python programming, data analysis, and interpretation. We will support the development of your **presentation skills** and encourage the **publication of results**.
Basic knowledge of laser-plasma interactions is beneficial, but not mandatory. Enjoyment of work and great motivation for team work are major prerequisites.
We look forward to your application (transcript of records and CV). You are always welcome to visit us in Garching for a chat in person.

Laser-driven ION (LION) acceleration

LION acceleration has been an active research field since its first realization more than two decades ago. We use modern ultra-short high-power lasers, applying technology awarded with the 2018 Nobel Prize in Physics. Focused on solid density targets, highly energetic ions are accelerated. Beams from this source feature unique properties that will drive manifold applications, from radiation biology to astro-particle physics and the evolution of elements.



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