MASTER THESIS

CENTRE FOR ADVANCED LASER APPLICATIONS / HIGH FIELDS (Garching)

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

Master Student

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

- The design and realization of an aerosol transport system
- Testing and optimizing this setup with fission products
- Opportunity to test the developed setup in laser ion acceleration experiments at the CALA laser in Garching

Furthermore, you will be given the chance to participate in beamtimes, getting hands-on experience in operating the experimental device controls and diagnostics.

Vivid interest in laser particle acceleration, nuclear physics, laser physics and optics is beneficial. Knowledge in programming with Python is desirable. Enjoyment of experimental work is major prerequisite.

If we caught your attention, we would be happy to receive your application including a short cover letter, your transcript of records and your CV to the email address listed below. You are always very welcome to visit us in Garching for a lab tour. We are excited to meet you!

Laser-driven Heavy Ion Acceleration

Laser-driven ion acceleration has been an emerging research field since its first realization about two decades ago. The ion bunches, accelerated by the interaction of ultra-intense laser pulses with plasmas, exhibit unique features, promising applications in various fields of physics.

Our group aims at the development of laser-driven bunches of *heavy* ions (gold, lead, thorium) as preparation for a novel reaction mechanism ('fission-fusion') in order to generate extremely neutron-rich isotopes relevant for nuclear astrophysics.

On step towards the realization of the fission-fusion reaction mechanism is to start off with fission induced by laser accelerated ions. For analyzing the fission products, a gas-based transportation system is key,ince the strong electromagnetic pulse and radiation safety are prohibiting detecting them inside the experimental vacuum chamber.

CALA

The Centre for Advanced Laser Applications is home to one of the world's most powerful laser systems, the ATLAS-3000 laser, with a maximum power of up to 3 PW, delivered in ultra short pulses of 25 fs.

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