

Opportunity for project course or thesis project: Energy deposited in material films by accelerated ions

Project length and content can be adapted to suit 5-30 ECTS

➤ Background

The interactions that result from ions passing through materials determine the damage done to irradiated targets, and the range of the ions before they are fully stopped. An important parameter is the energy deposited per unit length travelled by the ion. This “stopping power” can be measured by measuring the energy deposited in a thin foil.

➤ What's this project about?

1) Measuring stopping powers for various ion-target combinations at various energies where data is lacking. We will **make thin foils**, **characterize** their thickness and composition, and **measure the energies** of ions before and after passing through the foils.

2) Investigate **nanostructures** formed in a target during ion irradiation.

3) Look into the role of the ions' charge state and draw conclusions about the **timescales and mechanisms of electron exchange** between the ion and the target.

Topics covered: Vacuum technology, **Thin film production**, **Ion beam analysis**, **high-resolution measurements**, **nano-engineering**, **atomic physics**

