

## HILITE - ion trap to study interaction of ions with photons

*Monday, 19 September 2016 18:00 (2 hours)*

The HILITE experiment is designed to produce well-defined ion targets, specifically of highly charged ions, and to make them available for studies at high-intensity lasers. It features a cryogenic Penning trap and methods to control the ion cloud composition, size, shape, position and density. Educts and products of the ion-laser interaction can be studied destructively and non-destructively, supporting studies for example of non-linear ionization processes. Besides the capability to capture, store, manipulate and detect ions, we plan to employ the well-defined magnetic field inhomogeneity to transport photoelectrons out of the trap center to a time- and position-sensitive detector which is not irradiated by the laser. We show how this offers the opportunity to measure the momentum of emitted electrons by evaluating the time of flight and the impact position on the detector. The system is currently entering the stage of commissioning, we present the concept, setup and first characterizing measurements.

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