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Experiments with heavy, highly charged ions –Status of the HITRAP project

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At the GSI accelerator complex, using the universal linear accelerator UNILAC and the synchrotron SIS, highly-charged ions up to $U92+$ are produced by passing a 400 MeV/u beam through a gold foil stripping off all or nearly all electrons. The HITRAP facility is built to decelerate those ions to almost rest and to provide them to the experiments.

In a number of commissioning beam times, the deceleration in the ESR, the extraction, bunching and deceleration to 0.5 MeV/u has been shown. The remaining steps, deceleration to 6 keV/u and cooling in a cryogenic Penning trap are ongoing and will be discussed.

Precision experiments for atomic and nuclear physics purpose are being prepared and range from laser spectroscopy on stored ions, collision experiments with complete kinematic analysis to high precision mass measurements on single highly charged ions. The status of those will be discussed in the contribution.

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