

# ACCELERATOR PLANS AT GSI AND PLASMA PHYSICS APPLICATIONS

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In November 2001 the Conceptual Design Report presented the concepts for "An International Accelerator Facility for Beams of Ions and Antiprotons".

The main accelerator stage of the proposed facility is the synchrotron complex SIS100/300 consisting of two separate synchrotron accelerator rings with a maximum rigidity of 100 and 300 Tm at the same circumferences of 1083m, which shall provide beams of protons and heavy ions with high intensities and at high energies. The existing GSI accelerators UNILAC and SIS18 will serve as injector facility for the SIS100/300.

The SIS100 will be used for the acceleration of high intensity heavy ion beams to deliver up to  $1\text{-}2\cdot 10^{12}$   $U^{28+}$  - ions with energies ranging from 400 to 2700 MeV/u with one machine cycle every second. These beams of heavy and also of lighter ions shall be used for the production of secondary beams of radioactive ions, but may also provide unique properties for high energy density in matter experiments.

The status of the technical planning and the design studies will be presented. Special emphasis will be on the experiences with intermediate charge-state operation of heavy ions gained by preparing the SIS18 as a booster for SIS100.