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S-EBIT II, a local ion source for HITRAP

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The demand for beamtime at GSI infrastructures like ESR, CRYRING or HITRAP has increased over the last years and cannot be fully covered by the GSI accelerator infrastructure. Local ion sources play an important role to close this gap and allow for 'offline operation' of experiments at GSI [1].

Electron Beam Ion Traps (EBITs) are widely known as a versatile tool for spectroscopic studies of partially ionized atomic systems. Furthermore, they can be used as small stand-alone ion sources, capable of producing beams of heavy highly charged ions of a certain charge state at reasonable intensities. The Jena S-EBIT facility are two EBITs, the former R- and S-EBIT from Stockholm [2], which both are suitable for x-ray spectroscopy studies and ion extraction.

The S-EBIT I has been used as a tool for x-ray spectroscopy, including the testing of newly developed x-ray detectors, like the magnetic metallic microcalorimeter maXs30 [3]. In addition, the setup was recently expanded by a short testing beamline, to evaluate the potential of the S-EBIT I as an ion source.

The S-EBIT II is currently in commissioning for operation as a standalone ion source for HITRAP in the near future. This will provide new opportunities for local experiments, like the ARTEMIS experiment, independently from the GSI accelerator infrastructure.

References

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