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## Status of the electron lens for space charge compensation in SIS18

*Tuesday, 9 May 2023 16:30 (2 hours)*

A prototype electron lens for space charge compensation in the synchrotron SIS18 that could pave the way for pushing the space charge limit of hadron synchrotrons is currently under development at GSI. Accompanied by beam transport simulations, a 3D construction model is being worked out as well as the integration into the existing accelerator facility. The electron gun and collector conceptual design studies are completed and their technical design is ongoing.

In a continuing collaboration with GSI, an electron lens test stand was designed and constructed at Goethe-University Frankfurt in order to commission major parts of the electron lens e.g. electron gun, collector and diagnostics. The demonstration of beam extraction from a tungsten cathode heated by an arc discharge, technically realized in the IRME-gun that was developed within the ARIES collaboration\*, is under preparation and first results of this new heating concept look very promising.

In this contribution, the conceptual layout of the electron lens and its major components will be outlined as well as its preliminary technical layout. Furthermore, first measurements of the electron beam extracted from the IRME-Gun will be presented.

### Funding Agency

### Footnotes

- ARIES, <https://aries.web.cern.ch>.

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Yes

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