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SIS18 Operation with U28+

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In SIS18 U28+ is used to reach highest heavy ion beam intensities for FAIR-operation. The medium charge state avoids losses during stripping processes and shifts the space charge limit to higher number of particles. Nevertheless, these ions are subjected to ionization loss in collisions with residual gas particles. Via ion impact induced gas desorption a feedback between vacuum quality and beam emerges, yielding in a beam intensity limitation. The installation of a charge exchange collimator is one of the several upgrade measures which have been performed to shift this limit. They are equipped with a current measurement system to detect charge exchanged ions, which is routinely used during machine experiments.

In this proceeding we present different beam based measurements showing dynamic vacuum effects. The non-linear dependence of the extraction intensity on the number of injected particles, ramp rate, and brake-time for vacuum relaxation will be shown. Stored heavy ion beams were used for charge exchange current measurements. They allow conclusions on the vacuum conditions and are presented as well.

Footnotes

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Region represented

Europe

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