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Numerical studies of the electron beam optics of REXEBIS

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During LS1 an incremental upgrade of the REX-ISOLDE charge breeder along with its regular maintenance is foreseen. The goal is to increase the ion acceptance, pulse frequency and intensity by minor changes in the electron optics and operation settings.
In this contribution we present a complete simulation of the electron beam transport through the entire EBIS. Reliable results can be achieved only with very fine mesh and time step resolving Larmor motion of the electrons (10 μm, 1E-13 sec). In this contribution we demonstrate how such a problem can be reduced to a practical solvable size. Preliminary results on new, modified electron beam optics for REXEBIS are presented.

Primary author: MERTZIG, Robert Christian (Technische Universitaet Dresden (DE))

Presenter: MERTZIG, Robert Christian (Technische Universitaet Dresden (DE))

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