ACCELERATOR SEMINAR

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GSI

Thursday, 21. January 2021 at 4 pm

Online-Seminar via Zoom

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Effects of quadrupole overlapped for the HSI-RFQ transverse matching

Along many low energy beam transport (LEBT) systems transverse hadron beam matching to a subsequent radio frequency quadrupole (RFQ) is performed by magnetic quadrupole multiples. Large apertures combined with short distances between the quadrupoles lead to overlap of magnetic fields and significantly impact on the effective beam optics. Systematic measurements of beam transmission through an RFQ have been done and compared to beam dynamics simulations. In the latter simplified hard-edge quadrupole fields were replaced by measured field data. It turned out that the hard-edge model is not sufficiently accurate to achieve acceptable agreement between calculated and measured beam properties. The measurements were done at the high current injector of the UNILAC at GSI.

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