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High-resolution longitudinal beam diagnostics with a Fast Faraday Cup at the UNILAC accelerator

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At the heavy ion accelerator UNILAC at GSI Helmholtz Center for Heavy Ion Research in Darmstadt, measurements were carried out with a Fast Faraday Cup (FFC) in order to precisely measure the time structure of the particle beam. The FFC offers a highly accurate time-resolved recording of the charge distribution along the longitudinal beam profile. The data obtained in combination with a dipole magnet is used to determine the longitudinal phase space and emittance of the beam. After analyzing the measurement results, the method is integrated into the regular beam diagnostics to ensure continuous monitoring and control of the particle beam during operation. Measurement procedure and results are presented.

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

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