



Contribution ID: 1578 Contribution code: WEPA015

Type: **Poster Presentation**

Instability mitigation using octupoles in bunches with space-charge

Wednesday, 10 May 2023 16:30 (2 hours)

Octupole magnets are a central mitigation method against the transverse collective instabilities expected for the high-intensity operation of the SIS18 and SIS100 synchrotrons in the FAIR project. For these beam parameters, the self-field space-charge effect dominates the betatron footprint, and strongly modifies the instability drive and the Landau damping properties. The space-charge tune shifts are related to all three incoherent amplitudes, and is an intrinsic interaction. We consider all these effects and study Landau damping of head-tail modes due to the combination of octupoles and space-charge. Using the data from experimental instability observations, and particle tracking simulations, we provide estimations for the expected high-intensity operation of the SIS synchrotrons.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: KORNILOV, Vladimir (GSI Helmholtzzentrum für Schwerionenforschung GmbH)

Co-author: BOINE-FRANKENHEIM, Oliver (Technische Universität Darmstadt)

Presenter: KORNILOV, Vladimir (GSI Helmholtzzentrum für Schwerionenforschung GmbH)

Session Classification: Wednesday Poster Session

Track Classification: MC5: Beam Dynamics and EM Fields: MC5.D06: Coherent and Incoherent Instabilities Measurements and Countermeasures