

ACCELERATOR SEMINAR

Vladimir Kornilov

GSI Helmholtzzentrum für Schwerionenforschung GmbH

Thursday, 25th January at 4 p.m.

KBW lecture hall

Planckstraße 1, 64291 Darmstadt

"Beam Dynamics for SIS100 of FAIR and for the Future Circular Collider (FCC)"

The primary accelerator of the FAIR project, the SIS100 synchrotron, will be a 1 km long ring machine, able to accelerate heavy ions to energies of 1-10 GeV/u, or protons to 29 GeV. The proton beam will consist of four bunches, $5e12$ particles each. A typical SIS100 cycle will last for 3-10 sec. The Future Circular Collider (FCC), presently under consideration in a dedicated international study, should be a 100 km long proton-proton (FCC-hh) ring collider for the energy of 50 TeV. The beam should consist of ten thousand bunches, $1e11$ protons each. A typical FCC cycle will last for 2 hours. Already these few parameters show big differences between these two synchrotrons. Still, there are common beam dynamics issues for SIS100 and for FCC-hh, which are important for the successful operation and thus are the subjects of active research.



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