



Contribution ID: 33

Type: poster

The Potential of Resonance Islands combined with Bent Crystals for Slow Extraction in Circular Hadron Accelerators

Monday, 9 September 2024 11:50 (15 minutes)

Recent advances in accelerator physics have expanded the array of techniques available for manipulating charged-particle beams. The successful implementation of adiabatic trapping and transport of beams in resonance islands at the CERN Proton Synchrotron has enabled multiturn extraction. The successful installation of bent crystals in the CERN Large Hadron Collider has enhanced the collimation system's cleaning performance, and in the CERN Super Proton Synchrotron it has helped reduce losses at the extraction septum during slow extraction. We explore the potential of utilising resonance islands and bent crystals together to develop an innovative method for slow extraction in circular hadron accelerators.

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Session Classification: FCC & Channeling