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Bmad Based Particle Tracking Simulation for Slow Resonant Extraction

Slow resonant extraction plays a crucial role in delivering a high-quality continuous beam to experiments. Simulating extraction and transport of charged particle beams from a synchrotron to a transport line require a process of careful modeling and experimentation. There are various particle tracking simulation tools available to use and each has its merits and deficiencies. In this work we have used a long-term tracking program built atop the Bmad software toolkit to run third integer resonant extraction simulations in the booster synchrotron at Brookhaven National Laboratory. In this presentation, we will present results of detailed slow extraction, multi-particle tracking simulations, and we will describe the features that make Bmad a useful tool for this work.

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