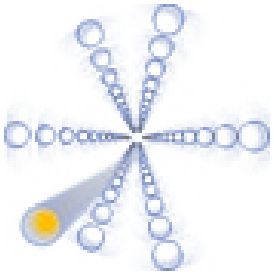

Contribution ID: **83** Type: **Oral**

A Crystal Routine for Collimation Studies in Circular Proton Accelerators

Friday, 10 October 2014 10:50 (15 minutes)

A routine has been developed to simulate interactions of protons with bent crystals in the collimation version of SixTrack. This routine is optimized in view of producing high-statistics tracking simulations for the highly efficient LHC collimation system. The routine has recently been reviewed after detailed comparison with experimental data, benchmark with other codes and improved modelling of low-probability interactions. The data taken with 400 GeV proton beams at the CERN-SPS North Area are used, including the results of a more recent analysis. Comparisons with other simulations tools are used to benchmark the scaling of our models to higher energies relevant for the LHC and not covered by experimental data. The predicted beam loss patterns for the first crystal-assisted collimation tests at the LHC are also discussed.

Primary author: Mr MIRARCHI, Daniele (CERN)

Co-authors: Dr TARATIN, Alexander (Joint Institute for Nuclear Research); Dr YAZYNIN, Igor (IHEP); Mr ROSSI, Roberto (CERN); Dr REDAELLI, Stefano (CERN); Dr SCANDALE, Walter (ROMA1)

Presenter: Mr MIRARCHI, Daniele (CERN)

Session Classification: S6: Crystal Simulation Routines for Particle Accelerators: Comparison and Benchmarking with Experimental Data