Contribution ID: **16**   Type: **Oral**

A Model for the Interaction of High-Energy Particles in Straight and Bent Crystals Implemented in Geant4

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

Monte Carlo simulations of the interaction of particles with matter are usually done with downloadable toolkits such as Geant4 and Fluka. We present a general model for the simulation of orientational effects in straight and bent crystals for high energy charged particles. It allows the manipulation of particle trajectories by means of straight and bent crystals and the scaling of the cross sections of hadronic and electromagnetic processes for channeled particles. Based on such a model, an extension of the Geant4 toolkit has been developed. The extension of the Geant4 and the model have been validated by comparison with published experimental data.

Primary author: BAGLI, Enrico (FE)

Co-authors: Dr DOTTI, Andrea (SLAC); Dr BRANDT, Daniel (SLAC); Dr WRIGHT, Dennis H (SLAC); Dr ASAI, Makoto (SLAC); GUIDI, Vincenzo (FE)

Presenter: BAGLI, Enrico (FE)

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