



Contribution ID: 1965 Contribution code: WEPA066

Type: **Poster Presentation**

Tools for integrated simulation of collimation processes in Xsuite

Wednesday, 10 May 2023 16:30 (2 hours)

The existing code for particle scattering and tracking in collimation systems integrated in SixTrack, called K2, was migrated from the current software in FORTRAN, to a new Python/C interface integrated in the Xsuite tracking code that is being developed at CERN. This is an essential step towards a full integration of collimation studies using Xtrack, and will allow profiting from GPU computing advances and the BOINC volunteer computing network. Furthermore, several improvements to the functionality of the code were introduced, for example aperture interpolation for more precise longitudinal location of particle losses in a collimator. A thorough testing of the new implementation was performed, using as case studies various collimation layout configurations for the LHC Run 3 and HL-LHC. In this paper, the challenges are outlined and the first results are presented, including simulated loss maps which are compared to the reference results generated by SixTrack.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: DEMETRIADOU, Despina (European Organization for Nuclear Research)

Co-authors: ABRAMOV, Andrey (European Organization for Nuclear Research); IADAROLA, Giovanni (European Organization for Nuclear Research); VAN DER VEKEN, Frederik (European Organization for Nuclear Research)

Presenter: ABRAMOV, Andrey (European Organization for Nuclear Research)

Session Classification: Wednesday Poster Session

Track Classification: MC5: Beam Dynamics and EM Fields: MC5.D11: Code Developments and Simulation Techniques