



Contribution ID: 2506 Contribution code: WEPA074

Type: **Poster Presentation**

BDSIM v1.7.0 developments for the modelling of accelerators and their environment

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

Beam Delivery Simulation (BDSIM) is a program based on Geant4 that creates 3D radiation transport models of accelerators from a simple optical description in a vastly reduced time with great flexibility. It also uses ROOT and CLHEP to create a single simulation model that can accurately track all particles species in an accelerator to predict and understand beam losses, secondary radiation, dosimetric quantities and their origins. We present a broad overview of new features added to BDSIM in version 1.7. In particular, the ability to transform and reflect field maps as well as visualise the fields in Geant4 are presented. A new “CT” object is introduced to allow DICOM images to be used for simulations of Phantoms in proximity to a beamline. For experiments such as FASER, SHADOWS and NA62, a muon production biasing scheme has been added and is presented.

Funding Agency

STFC grants: JAI ST/P00203X/1, HL-LHC-UK1 ST/N001583/1, HL-LHC-UK2 ST/T001925/1, and ST/P003028/1

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: NEVAY, Laurence (European Organization for Nuclear Research)

Co-authors: ABRAMOV, Andrey (European Organization for Nuclear Research); HERNALSTEENS, Cédric (European Organization for Nuclear Research); RAMOISIAUX, Elliott (Universite libre de Bruxelles); GNACADJA, Eustache (Universite libre de Bruxelles); LEFEBVRE, Helena (John Adams Institute); TESSE, Robin (Universite libre de Bruxelles); ALDEN, Siobhan (John Adams Institute); GIBSON, Stephen (Royal Holloway, University of London); BOOGERT, Stewart (John Adams Institute); WALKER, Stuart (Deutsches Elektronen-Synchrotron); SHIELDS, William (Royal Holloway, University of London)

Presenter: SHIELDS, William (Royal Holloway, University of London)

Session Classification: Wednesday Poster Session

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