

FLUKA-Geant4 Benchmark

Master or PhD Thesis, Monte Carlo Simulation

Abstract:

ELI Beamlines will be home of the ELIMAIA beamline. ELIMAIA aims at accelerating protons and ions. While the final target is to accelerate protons up to a few hundreds of MeV, during the commissioning and the initial operations it is expected to accelerate protons up to a few tens of MeV. Two Monte Carlo radiation transport codes, FLUKA and Geant4, are being used to assess different issues related to ELIMAIA (e.g. beam transport and material activation). Nevertheless, a comparison between the two codes at these energies is not available in literature and would be of interest to the scientific community. Such comparison would be the subject of this thesis. First it would be necessary to search in literature available data for the energies of interest. Then it would be needed to prepare and run the simulations, and then analyze the results.

This work would be done in collaboration with the INFN-LNS group based in Catania, Italy. For a PhD thesis, it would then be possible to participate in the experimental activities of the ELIMAIA group, in order to benchmark the results of the simulations with new experimental data.

Contact:

Roberto Versaci, PhD

E-mail: Roberto.Versaci@eli-beams.eu