

Submitted to CHEP04—Track 2

Update On the Status of the FLUKA Monte Carlo Transport Code

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The FLUKA Monte Carlo transport code is a well-known simulation tool in High Energy Physics. FLUKA is a dynamic tool in the sense that it is being continually updated and improved by the authors. Here we review the progresses achieved in the last year on the physics models. From the point of view of hadronic physics, most of the effort is still in the field of nucleus--nucleus interactions. The currently available version of FLUKA already includes the internal capability to simulate inelastic nuclear interactions beginning with lab kinetic energies of 100 MeV/A up to the highest accessible energies by means of the DPMJET-II.5 event generator to handle the interactions for >5 GeV/A and rQMD for energies below that. The new developments concern, at high energy, the embedding of the DPMJET-III generator, which represent a major change with respect to the DPMJET-II structure. This will also allow to achieve a better consistency between the nucleus-nucleus section with the original FLUKA model for hadron-nucleus collisions. Work is also in progress to implement a third event generator model based on the Master Boltzmann Equation approach, in order to extend the energy capability from 100 MeV/A down to the threshold for these reactions. In addition to these extended physics capabilities, structural changes to the programs input and scoring capabilities are continually being upgraded. In particular we want to mention the upgrades in the geometry packages, now capable of reaching higher levels of abstraction. Work is also proceeding to provide direct import into ROOT of the FLUKA output files for analysis and to deploy a user-friendly GUI input interface.