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Preliminary results coupling SMF and BLOB with Geant4

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Despite their frequent use, the hadronic models implemented in Geant4 have shown severe limitations in reproducing the measured yield of secondaries in ions interaction below 100 MeV/A, in term of production rates, angular and energy distributions [1,2,3]. We will present a benchmark of the Geant4 models with double-differential cross section and angular distributions of the secondary fragments produced in the 12C fragmentation at 62 MeV/A on thin carbon target; such a benchmark includes the recently implemented model INCL++ [4,5]. Moreover, we will present the preliminary results, obtained in simulating the same interaction, with SMF [6] and BLOB [7]. Both, SMF and BLOB are semiclassical one-body approaches to solve the Boltzmann-Langevin equation. They include an identical treatment of the mean-field propagation, on the basis of the same effective interaction, but they differ in the way fluctuations are included.
In particular, while SMF employs a Uehling-Uhlenbeck collision term and introduces fluctuations as projected on the density space, BLOB introduces fluctuations in full phase space through a modified collision term where nucleon-nucleon correlations are explicitly involved. Both of them, SMF and BLOB, have been developed to simulate the heavy ion interactions in the Fermi-energy regime. We will show their capabilities in describing 12C fragmentation coupled with the de-excitation phase of Geant4, as their implementation in Geant4 is foreseen.
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