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Recent Developments in the Geant4 Precompound and Deexcitation Models

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The final stages of a number of generators of inelastic hadron/ion interactions with nuclei in Geant4 are described by native pre-equilibrium and de-excitation models. The pre-compound model is responsible for pre-equilibrium emission of protons, neutrons and light ions. The de-excitation model provides sampling of evaporation of neutrons, protons and light fragments up to magnesium. Fermi break-up model is invoked for decay of light fragments ($Z < 9$, $A < 17$) whereas statistical multifragmentation and fission are invoked for heavier ones. Photon emission has a chance for all excited fragments. Recently, model improvements in Fermi break-up and photon evaporation as well as changes in the logic of the de-excitation handler have been made. New sets of experimental data have been included in the validation, which are presented.

Submitted on behalf of Hadronic Physics Working Group of the Geant4 Collaboration

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