

Recent developments in Geant4 pre-compound and deexcitation modules

Friday 4 July 2025 11:20 (20 minutes)

The Geant4 [1-3] low energy nuclear models are used to simulate final states in hadron- and ion-induced inelastic collisions with nuclei in high and moderate energy generators. The pre-compound model [4] ensures a seamless transition from the kinetic reaction stage (governed by high energy inelastic interaction) to the equilibrium phase (described by statistical deexcitation models). The deexcitation models [5] are responsible for sampling of the final state.

This contribution presents recent developments in the Geant4 pre-compound and de-excitation modules. These processes have a significant impact on hadronic shower development, energy deposition profiles, and the performance of hadronic calorimeters. Presented results are based on the recent Geant4 public release 11.3 and new developments for future release 11.4.

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Session Classification: 2. Experimental and theoretical studies of nuclear reactions

Track Classification: Section 2. Experimental and theoretical studies of nuclear reactions.