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Simulations of Neutron Unbound Physics for Geant4

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The study of neutron unbound systems via the invariant mass technique is the primary focus of the MoNA Collaboration, which built and operates the Modular Neutron Array (MoNA) and the Large multi-Institutional Scintillator Array (LISA) at FRIB. Advancements in nuclear structure from theory and experiment along the neutron dripline have presented opportunities to understand the nature of unbound systems in higher mass nuclei. The GEometry And Tracking (Geant4) platform has been used in high-energy and nuclear physics to simulate particle interaction with as much detail as the user desires. Geant4 currently does not have a physics class to simulate neutron unbound systems. Given the advancement of accelerator facilities and active searches along the neutron dripline, detailed simulations to study the breakup of neutron unbound systems, are necessary. The implementation of the breakup of neutron unbound systems in Geant4 will be presented.

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