

Abstract Submitted
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Event-by-Event Fission Modeling with FREYA¹ RAMONA VOGT, LLNL, JORGEN RANDRUP, LBNL — The recently developed code FREYA (Fission Reaction Event Yield Algorithm) generates large samples of complete fission events, consisting of two receding product nuclei as well as a number of neutrons and photons, all with complete kinematic information. Thus it is possible to calculate arbitrary correlation observables whose behavior may provide unique insight into the fission process. Concentrating on $^{239}\text{Pu}(n, f)$ and $^{252}\text{Cf}(sf)$, we discuss the neutron multiplicity correlations, the dependence of the neutron energy spectrum on the neutron multiplicity, and the relationship between the fragment kinetic energy and the number of neutrons and their energies. We also suggest novel fission observables that could be measured with modern detectors.

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