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Monte-Carlo Hauser-Feshbach simulations of prompt fission gamma-ray properties[1] IONEL STETCU, PATRICK TALOU, TOSHIHIKO KAWANO, MARIAN JANDEL, Los Alamos Natl Lab — Properties of prompt fission neutrons and γ rays, emitted before the weak decays of the fission fragments toward stability, are important for both nuclear technologies and a better understanding of the fission process. In the present work, we use the Hauser-Feshbach model to simulate the de-excitation of the fully accelerated fission fragments treated as compound nuclei. Our Monte-Carlo implementation of the Hauser-Feshbach statistical model, which takes into account the competition between the neutron and γ emissions, allows the description of both average quantities, like in the Los Alamos model, and correlations between the emitted particles. Our simulations will be compared against available experimental data and current evaluations. In particular, we will compare our average γ-ray spectrum with recent measurements at the research reactor KFKI in Budapest for the ^{235}U$(n_{\rm th}, f)$ and ^{252}Cf(sf) reactions, as well as multiplicity-dependent distributions obtained at the DANCE facility at LANSCE.

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Ionel Stetcu
Los Alamos Natl Lab

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