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Toward a consistent calculation of prompt and beta decay observables from fission fragment

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Accurate fission product yield (FPY) data consistent with fission observables in the evaluated nuclear data library are required for a broad range of nuclear energy applications in a wide energy range. For instance, delayed neutron yields, and gamma and beta decay energies released from the neutron-rich fission product undergoing beta decay should be consistent with the independent FPY.

In the nuclear reaction code, TALYS, a new feature to apply the Hauser-Feshbach statistical decay theory to the de-excitation of the fission fragment has been implemented by importing theoretical or phenomenological fission fragment distributions. The calculated independent FPY data are further assessed by examining beta-decay observables such as cumulative FPY, decay heat, and delayed neutron yields.

We present recent developments and calculated results by TALYS and beta-decay code.

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