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Insights on fission from the neutronless channel and perspectives

I will present part of the results recently obtained by studying the radiative decay of fission fragments populated in 252Cf(sf). Fission fragments were detected and their kinetic energies measured using a twin Frisch grid ionization chamber. This compact detector was surrounded by an array of 54 large volume NaI detectors. For the particular event without neutron emission, the fragments' mass identification is very good (0.68 a.m.u.) and we are able to isolate specific fragments from the rest of the data. In this case, our data allows us to determine the total excitation energy distribution of the fragmentation. The gamma-ray spectrum measured in coincidence with that TXE distribution can be used in order to constrain the properties of the fragments at scission. I will discuss the case of the 118Pd/134Te fragmentation where we determine the excitation energy distribution between the fragments and show that it is associated with shape fluctuations at scission.

In addition, if enough time is allocated, i propose to present the future experimental program, DEFFI, we plan to perform at GANIL/NFS in order to study the radiative decay of the fission fragments produced in neutron induced fission.

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