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## 235 U(n,f) fragment study with the FALSTAFF setup at SPIRAL2/NFS

In its two-arm geometry, the FALSTAFF spectrometer will aim at determining the energy dependence of neutron-induced fission observables such as the fragment characteristics (mass, charge and kinetic energy) and reconstructed quantities like total kinetic energies or prompt-neutron multiplicities, which require the detection in coincidence of both fission fragments. FALSTAFF is based on the known 2v-2E detection technique.

In fall 2022 FALSTAFF has been used in a one-arm configuration at the Neutron-For-Science (NFS) facility of SPIRAL2. The 40 MeV deuteron beam impinging on a thick

$^9\text{Be}$  converter produced a broad-energy-spectrum neutron-beam. The  $^{235}\text{U}(n,f)$  reaction was studied in the range [0.5, 40] (MeV). In particular, it was possible to determine event-by-event the time of flight of the incoming neutron which induced the detected fission reaction. This permitted an accurate neutron-energy dependence study of the fragment characteristics.

In this paper, the detection setup and the scientific program with the FALSTAFF setup at the NFS facility will be discussed. Preliminary results for the fragment velocity, energy, mass and charge distributions will be presented and experimental details given.

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