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β-delayed fission of neutron-rich actinides

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Beta-delayed fission (βDF) is a two-step process where a parent nucleus β-decays into a daughter that fissions [1]. βDF plays a role in the termination of the r-process nucleosyn- thesis [2], and so it is of particular interest in the neutron-rich side of the nuclide chart, where only a few studies have been performed. Aiming at expanding the limited infor- mation in this region, an experimental campaign was performed at the ISOLDE facility (CERN, Switzerland) to study the βDF in 230,232,234Ac [3]. A new upper limit for the βDF probability (PβDF) of 230Ac was deduced to be two orders of magnitude lower than the previously measured PβDF value of 1.19(40)·10−8 [4]. Upper limits for PβDF were also deduced for 232,234Ac and updated values were found for 230,232Fr.
Theoretical calculations of PβDF are ongoing, using the PyNEB code [5] to calculate the fission paths. The aim is to benchmark the models used with reliable experimental values found on the neutron-deficient side of the nuclide chart [1] and then to extend the calculations to the neutron-rich side. The results obtained from the ISOLDE cam- paign will be discussed in this contribution, along with future prospects of a combined experimental and theoretical campaign to study βDF.
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