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Scission configuration of nuclei in self-consistent models

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The scission configuration is intuitively defined in the moment of the fission process when the mother nucleus breaks into two nascent fragments. In the continuous fission process, this configuration may be defined in various ways depending on the applied model. Nevertheless, as many observables are fixed at this point, the definition is important for properly reproducing the experimental data. In the constrained self-consistent calculations, the discontinuity on the potential energy surface exists at scission. It is the so-called scission cliff: a rapid change of energy that accompanies the neck rupture. With the help of the neck thickness parameter, the scission may be described as a continuous process of disappearing the neck. We will describe changes in the distribution of the nuclear matter during the neck rupture and its impact on the scission point.

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