

## Fast proton-induced fission of $^{238}\text{U}$ from threshold to 70 MeV

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The fast proton-induced fission cross-sections of  $^{238}\text{U}$  have been analyzed from the threshold up to 70 MeV. Calculations were performed on fission variables such as cross-sections, mass distributions, and prompt neutron emission. For the analysis, Talys and programs written by authors were used to describe the fission process using a Brosa model. As a result, we estimate the contribution of different nuclear reaction mechanisms (direct, pre-equilibrium, compound nucleus) to cross-sections, prompt neutron production, and other fission parameters. Different nuclear reaction mechanisms contribute to the interaction of fast protons with any target nucleus, excited residual nuclei by mean of  $(p,p')$ ,  $(p,xn)$ ,  $(p,xp)$ ,  $(p,xa)$  ( $x=1,2,\dots,n$ ) and other processes. In the case of  $^{238}\text{U}$ , excited residual nuclei can also fission, contributing in this way to the investigated variables and isotope production. Theoretical results were compared with previous experimental data found in the literature. The comparison allowed us to extract parameters of the optical potential, fission barrier height and width, and type of nucleus deformation. Fission cross sections and yields for produced fission isotopes (as Mo, I, Xe, Sr and other fission fragments) along the whole energy range were determined for all types of incident channels and then agreed with available data from the EXFOR database.

### References

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