

Measurement of prompt fission gamma-ray spectrum of $^{235}\text{U}(\text{nth},\text{f})$

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Prompt γ -rays from fission fragments have information on the mechanism of the spins of a fragment, and is important to investigate the mechanism of spin population in fission. We have measured the γ -ray spectrum in $^{235}\text{U}(\text{nth},\text{f})$ using thermal neutron beam supplied from the High-Flux Reactor of ILL, Grenoble, France. By significantly improving the detection efficiency and gaining accumulated events with a factor ~ 105 in comparison to available low-energy neutron-induced data, the γ -ray spectrum up to 20 MeV was measured for the first time. The result shows a hump structure at 15 MeV. In comparison to a statistical model calculation, nuclides as a potential source of such high-energy γ -rays will be discussed.

Reference

[1] H. Makii et al., Phys. Rev. C 100, 044610 (2019).

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