PROMPT-FISSION-NEUTRON SPECTRA OF ^{233}U, ^{235}U, ^{239}Pu AND ^{240}Pu RELATIVE TO THAT OF ^{252}Cf*

by

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ABSTRACT

The prompt-neutron-induced-fission spectra of ^{233}U, ^{235}U, ^{239}Pu and ^{240}Pu are measured relative to the prompt-spontaneous-fission-neutron spectrum of ^{252}Cf. The fission of ^{233}U, ^{235}U, and ^{239}Pu is induced by $\approx$550 keV neutrons and that of ^{240}Pu by $\approx$850 keV neutrons. The emitted fission neutrons are observed over the energy range $\lesssim$ 0.5-10.0 MeV using time-of-flight techniques. Analysis of the measured values indicates that the average-fission-neutron energies are -123±30(^{233}U), -157±24(^{235}U), -76±29(^{239}Pu) and -46±29(^{240}Pu) keV relative to that of ^{252}Cf. The experimental results are compared with those of ENDF/B-V and a simple behavior of average-prompt-fission-neutron energies is suggested.

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