ON NEUTRON INELASTIC-SCATTERING CROSS SECTIONS OF ^{232}Th, ^{233}U, ^{235}U, ^{238}U, ^{239}Pu and ^{240}Pu

by

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ABSTRACT

Differential-neutron-emission cross sections of ^{232}Th, ^{233}U, ^{235}U, ^{238}U, ^{239}Pu and ^{240}Pu are measured between $\approx$ 1.0 and 3.5 MeV with the angle and magnitude detail needed to provide angle-integrated emission cross sections to $\lesssim$ 3% accuracies. Emitted-neutron resolutions are quantitatively defined and vary from $\approx$ 0.1 to 0.35 MeV. The experimental results are corrected for fission-neutron contributions to obtain pseudo-elastic-neutron-scattering cross sections which, together with the neutron total cross sections, define the non-elastic cross sections to within well specified energy resolutions. These results imply inelastic-neutron-scattering cross sections which are compared with comparable quantities derived from ENDF/B-V. Good general agreement is noted for ^{232}Th, ^{233}U, ^{235}U and ^{238}U inelastic-scattering values, poor agreement is observed for ^{240}Pu, and a serious discrepancy exists in the case of ^{239}Pu.