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THE FISSION CROSS SECTION RATIOS AND ERROR ANALYSIS FOR TEN THORIUM, URANIUM, NEPTUNIUM AND PLUTONIUM ISOTOPES AT 14.74 MeV NEUTRON ENERGY

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ABSTRACT

The error information from the recent measurements of the fission cross section ratios of nine isotopes, ^{230}Th, ^{232}Th, ^{233}U, ^{234}U, ^{236}U, ^{238}U, ^{237}Np, ^{239}Pu, and ^{242}Pu, relative to ^{235}U at 14.74 MeV neutron energy was used to calculate their correlations. The remaining 36 non-trivial and non-reciprocal cross section ratios and their errors were determined and compared to evaluated (ENDF/B-V) values. There are serious differences but it was concluded that the reduction of three of the evaluated cross sections would remove most of them. The cross sections to be reduced are ^{230}Th - 13 %, ^{237}Np - 9.6 % and ^{239}Pu - 7.6 %.

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