Measurement of Neutron Capture Cross Sections of ^{139}La, ^{152}Sm and ^{191,193}Ir at 55 and 144keV

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Abstract: The neutron capture cross sections of ^{139}La, ^{152}Sm and ^{191,193}Ir at average energies of 55keV and 144keV have been measured relative to the standard capture cross sections of ^{197}Au by means of the activation method. The neutron beams were derived by filtered techniques from the horizontal channel No.4 of the research reactor at the Dalat Nuclear Research Institute, Vietnam. A fast-digital gamma-ray spectroscopy in compacted with a 58% efficient HPGe detector has been used for measurements of gamma-ray spectra from activated samples. The correction factors for multi-scattering, self-shielding and resonance capture effects of neutron in the irradiating samples were calculated by Monte-Carlo technique. The present results have been compared with the previous measurements, and the evaluated data from ENDF/B-6.8 library.

Key words: *neutron, capture cross section, nuclear reaction data, filtered neutron beam, resonance neutron capture, correction*