

Measurement of effective cross-sections is important for nuclear data validation. Whether it is spectral averaged cross-sections (SACS) i.e. the cross-sections averaged over the neutron spectrum (measured at reactors) or differential cross-sections (measured at accelerator neutron sources). Spectral averaged cross-sections usually have the advantage of less uncertainty than differential cross-sections and are thus used for validation of programs describing neutron field transport and interactions. This doctoral thesis describes a method for measuring both the differential cross-sections measured at the accelerator and the method for measuring the spectral averaged cross-sections at the reactor. It includes several experiments and results that have also been published. Both methods used are based on gamma spectrometry of activation foils. The thesis aims to show significant synergies in their joint use.