
THERMAL NEUTRON CROSS SECTION MEASUREMENTS FOR THE $^{209}\text{Bi}(\text{n}, \gamma)^{210\text{m}}\text{Bi}$ AND $^{209}\text{Bi}(\text{n}, \gamma)^{210\text{g}}\text{Bi}$ AT THE BUDAPEST PGAA-NIPS FACILITY

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The $^{209}\text{Bi}(\text{n}, \gamma)^{210\text{m}}\text{Bi}$ and $^{209}\text{Bi}(\text{n}, \gamma)^{210\text{g}}\text{Bi}$ cross-sections are important nuclear data, for the operation of Accelerator Driven Systems and long-term disposal aspects. These two reactions contribute significantly to the short- and long-term radiotoxicity of the spallation target via the production of ^{210}Po ($T_{1/2} = 138.376$ d) and $^{210\text{m}}\text{Bi}$ ($T_{1/2} = 3.04 \times 10^6$ y), both alpha-emitters. Since experimental data are very scarce, additional measurements are required. The IRMM and CEA Saclay started a collaboration to determine the cross sections and corresponding branching ratio in an energy region between thermal and 500 keV. To cover such an energy region measurements at a reactor beam and at GELINA are scheduled. The first experimental results at thermal energy were obtained at the ILL in 2002. The results deviate by about 25 % from the most recent evaluated data. To confirm the data obtained at the ILL, measurements at the cold neutron PGAA-NIPS facility, Budapest Neutron Centre were performed and will be reported.