^{106}Cd and ^{112}Sn: α-induced cross section measurements and improvement of the α-optical potential for the astrophysical p-process

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The simulation of p-process nucleosynthesis requires thousands of reaction rates. These rates are typically calculated with the statistical Hauser Feshbach Model (HF-Model) which depends critically on the reliability of the optical nucleus potential. In particular, the predicted (α,γ) cross sections at low energies (below 20 MeV) are sensitive to the choice of the alpha potential.

There is a discrepancy between the experimental cross section measurements and the theoretical values (NONSMOKER). This is largely due to the lack of experimental data of the alpha potential for neutron deficient nuclei. Currently, only a few α-induced reaction rates have been measured.

Both ^{106}Cd(α, γ)^{110}Sn and ^{112}Sn(α, γ)^{116}Te cross sections were measured at the Notre Dame FN Tandem Van de Graaff over the energy range of 8.0 to 12 MeV in 0.5 MeV increments. First results are presented and discussed.