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## Experimental investigations of proton-capture reactions with $^{112,114}\text{Cd}$ at energies of astrophysical interest

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The reaction network in the neutron-deficient part of the nuclear chart around  $A \sim 100$  contains several nuclei of importance to astrophysical processes, such as the  $p$ -process. This work reports on the results from recent experimental studies of the radiative proton-capture reactions  $^{112,114}\text{Cd}(p,\gamma)^{113,115}\text{In}$ . Isotopically enriched  $^{112}\text{Cd}$  and  $^{114}\text{Cd}$  targets have been used for the determination of the cross sections, for proton beam energies residing inside the respective Gamow windows for each reaction. Two different techniques, the in-beam  $\gamma$ -ray spectroscopy and the activation method have been implemented, where the latter is considered mandatory to account for the presence of low-lying isomers in  $^{113}\text{In}$  ( $E \approx 392$  keV,  $t_{1/2} \sim 100$  min), and  $^{115}\text{In}$  ( $E \approx 336$  keV,  $t_{1/2} \sim 4.5$  h). Following the measurement of the cross sections, the astrophysical  $S$  factors have been subsequently deduced. The experimental results are compared to detailed Hauser-Feshbach theoretical calculations carried out with TALYS v1.95. The results are expected to shed light in the nucleosynthetic mechanisms of the  $p$ -process in neutron-deficient nuclei, where scarce experimental data exist.

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