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Cross Section Measurements of (p,γ) Reactions in A=100-110 region relevant to the p-process ORLANDO OLIVAS-GOMEZ, ANNA SIMON, University of Notre Dame, PATRICK MILLICAN, Ohio State University, REBEKA KELMAR, University of Notre Dame, EMILY CHURCHMAN, NC State University, ADAM CLARK, SAMUEL HENDERSON, SEAN KELLY, DANIEL ROBERSTON, EDWARD STECH, WANPENG TAN, University of Notre Dame
— How to accurately model and predict the observed abundances of the 35 stable p-nuclei remains an open question in the field of nuclear astrophysics. Recent sensitivity studies with regard to reaction network models predicting p-nuclei abundances have identified several radiative capture reactions whose uncertainties have the largest impact on the network model. In order to constrain those uncertainties, the ^{102}Pd$(p,\gamma)^{103}$Ag,^{108}Cd$(p,\gamma)^{109}$In, and ^{110}Cd$(p,\gamma)^{111}$In reaction cross sections were measured at the University of Notre Dame Nuclear Science Laboratory. The measurements were performed at lab energies $E_p = 3-8$ MeV using the HECTOR detector and γ-summing technique. Our results are compared to various theoretical models from the Talys 1.9 and NON-SMOKER reaction codes as well with previous measurements. The theoretical model that best fits the experimental data is used to calculate the inverse $(\gamma,p),(\gamma,n)$ reaction rates. Discrepancies with the new reaction rates compared to older theoretical calculations which may have an impact on the reaction network are discussed. This work is supported by the NSF under grants: PHY-1614442, PHY-1713857 (NSL) and PHY-1430152 (JINA-CEE).

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