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Proton Capture Reactions on ^{46}Ti , ^{64}Zn , ^{114}Sn and ^{116}Sn relevant to rp-Process RAVIN KODIKARA, MICHAEL FAMIANO, BRENNA GIACHERIO, V. SUBRAMANIAN, ASGHAR KAYANI, Western Michigan University — Radiative proton capture reactions relevant to rp-process on ^{46}Ti , ^{64}Zn , ^{114}Sn and ^{116}Sn were investigated at the Western Michigan University accelerator facility. Targets were irradiated with a monoenergetic proton beam within the energy range (1-4) MeV. Decay of daughter products was measured using two HPGe coaxial gamma detectors. (p,g)cross-sections of ^{114}Sn were measured for the first time while ^{116}Sn and ^{64}Zn cross sections were measured at a wide energy range compared to previous attempts. S-factors and thermonuclear reaction rates were calculated and compared with results from the MOST and NON-SMOKER codes. At higher energies $^{114}\text{Sn}(p,g)^{115}\text{Sb}$ results were in better agreement with the theory, indicating that any possible disagreement at lower energies may be due to shell closure effects in the Sn nuclei for the proton induced reactions.

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