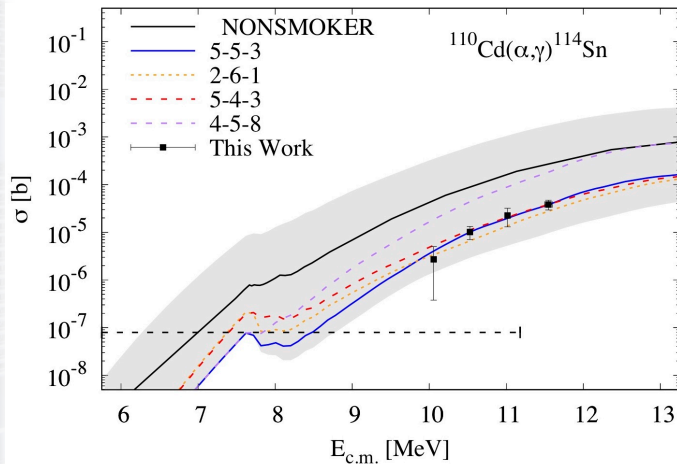


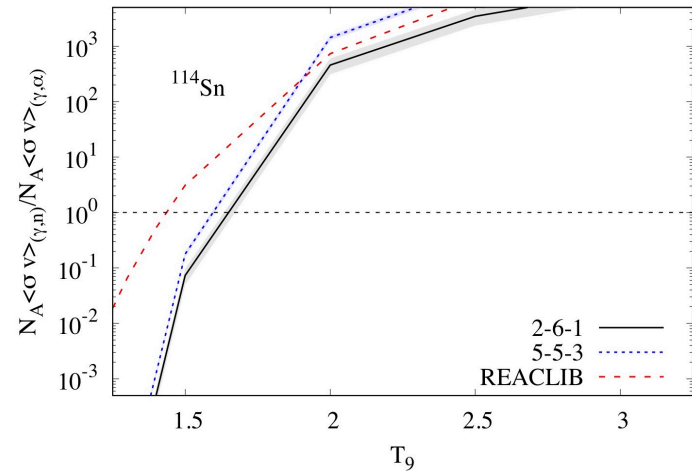
$(\gamma, \alpha)/(\gamma, n)$ branching points relevant to the γ -process nucleosynthesis



In order to improve the description of the reaction flow in the astrophysical γ -process, the (α, γ) cross sections were measured for ^{90}Zr , ^{102}Pd , ^{108}Cd , and ^{110}Cd using a γ -ray summing detector, HECTOR, to pinpoint the nuclei at which the (γ, α) become dominant over the (γ, n) reactions and redirect the nucleosynthesis path towards lighter nuclei. As a result a new branching point at ^{114}Sn was identified for $T_9 < 1.7$ GK.



Measured cross sections for $^{110}\text{Cd}(\alpha, \gamma)^{114}\text{Sn}$ and comparisons to different theoretical models from Talys 1.9 and NON-SMOKER used to calculate the reaction rate.



Ratios of the $(\gamma, n)/(\gamma, \alpha)$ reaction rates using various models for ^{114}Sn . The numbers refer to level density - α optical potential - γ strength function models available in TALYS 1.9. We see that the (γ, α) reaction dominates at higher temperatures than previously assumed.

