Abstract Submitted
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Recent results for capture reactions of interest in nuclear astrophysics[1] GERALD M. HALE, Theoretical Division, Los Alamos National Laboratory — We report recent results for the $^{1}\mathrm{H}(n,\gamma)^{2}\mathrm{H}$ and $^{12}\mathrm{C}(\alpha,\gamma)^{16}\mathrm{O}$ capture reactions that are of interest to nucleosynthesis in the Big Bang, and during the Helium Burning phase of red giant stars, respectively. New data for these reactions are being analyzed in R-matrix analyses of the $^{2}\mathrm{H}$ and $^{16}\mathrm{O}$ systems that use a new approach to including photon channels in the theory. Results for the E1 part of the $^{12}\mathrm{C}(\alpha,\gamma)$ reaction are also constrained by measurements of the β-delayed α spectrum from the decay of $^{16}\mathrm{N}$. Comparisons with previous results will be made, and uncertainty estimates will be given for both types of capture cross sections.

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