

Abstract Submitted
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Fusion cross section of ${}^3\text{He}(\alpha, \gamma){}^7\text{Be}$ ANTONIOS KONTOS¹, JOACHIM GÖRRES, ANDREAS BEST, RICHARD DEBOER, ETHAN UBERSEDER, MICHAEL WIESCHER, Department of Physics and the Joint Institute for Nuclear Astrophysics, University of Notre Dame — The ${}^3\text{He}(\alpha, \gamma){}^7\text{Be}$ reaction is important for the neutrino production in the sun's core and the production of ${}^7\text{Li}$ during the big bang nucleosynthesis. Due to the low level density of ${}^7\text{Be}$, the reaction mechanism is dominated by a strong direct capture component at the relevant energies. Recent experiments have improved the uncertainty of the reaction but some discrepancies still exist. In the present work, a relatively wide energy window was measured, $E_{CM} = 0.300 - 1.450$ MeV, by detecting the prompt gamma-rays from the reaction. The experiments were carried out at the Nuclear Science Laboratory, University of Notre Dame and utilized a compact helium jet gas target (HIPPO) to ensure a sufficiently high gamma-ray detection efficiency. The results are compared with literature.

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