

Abstract Submitted
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Measurement of the proton production rate of the $^{23}\text{Na}(\alpha, p)^{26}\text{Mg}$ reaction relevant for Galactic ^{26}Al ¹ S. ALMARAZ-CALDERON, M. ALBERS, C.R. HOFFMAN, C.L. JIANG, K.E. REHM, C. UGALDE, Physics Division, Argonne National Laboratory, P.F. BERTONE, Marshall Space Flight Center, M. ALCORTA, TRIUMF, C.M. DEIBEL, Department of Physics and Astronomy, Louisiana State University, S.T. MARLEY, Department of Physics, University of Notre Dame — The observation of ^{26}Al in the galactic interstellar medium via its 1809-keV gamma ray confirmed that active nucleosynthesis takes place in the Galaxy. The $^{23}\text{Na}(\alpha, p)^{26}\text{Mg}$ reaction directly influences the production of ^{26}Al in convective C/Ne burning shell of massive presupernova stars. We have performed a direct measurement of the $^{23}\text{Na}(\alpha, p)^{26}\text{Mg}$ reaction cross section at astrophysically important energies. The rate of proton production via this mechanism was found to be much higher than theoretical estimates. This change in the cross section will strongly affect the production of ^{26}Al in massive stars and the contribution to proton production from the $^{23}\text{Na}(\alpha, p)^{26}\text{Mg}$ reaction should now be correctly incorporated into the astrophysical models.

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