Abstract Submitted for the DNP12 Meeting of The American Physical Society

¹⁸Ne level structure and the ¹⁴O(α ,p) reaction rate WAN-PENG TAN, S. ALMARAZ-CALDERON, A. APRAHAMIAN, B. BUCHER, A. ROBERTS, M. WIESCHER, University of Notre Dame, C. BRUNE, T. MASSEY, Ohio University, N. OZKAN, R. GURAY, Kocaeli University, H. MACH, Uppsala University — On one of the hot CNO waiting points, the ¹⁴O(α ,p) reaction plays an important role in explosive hydrogen burning environments like X-ray bursts. It proceeds through the resonances (above the alpha-decay threshold) in ¹⁸Ne. The level structure of ¹⁸Ne above the alpha-decay threshold has been studied using the ^{16O}(³He,n) reaction at Notre Dame. A coincidence measurement of neutrons and charged particles decaying from populated states in ¹⁸Ne has been made. Decay branching ratios were measured for six resonances and used to calculate the ¹⁴O(α ,p)¹⁷F reaction rate. The new experimental information combined with previous experimental and theoretical information provides a more accurate calculation of the reaction rate.

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Date submitted: 02 Jul 2012

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