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Determination of the Reaction Rate for ^{17}F(p,γ)^{18}Ne using the Neutron Transfer Reaction(^{17}O,^{18}O) in Mirror Nuclei. TARIQ AL-ABDULLAH, X. CHEN, C.A. GAGLIARDI, Y.-W. LUI, G. TABACARU, Y. TOKIMOTO, L. TRACHE, R.E. TRIBBLE, Y. ZHAI, Texas A&M University, F. CARSTOIU, IFIN-HH, Bucharest, Romania — Studying the reaction rate for ^{17}F(p,γ)^{18}Ne in ONe novae is important to understand the production of the elements in the HCNO cycle, and investigate the missing γ-ray from the synthesis of ^{18}F. The Gamow windows of the reaction in ONe novae imply that the reaction occurs at energies of the order of few hundreds keV. The reaction rate at low temperature is dominated by the direct capture to the lowest 2^+ states in ^{18}Ne. The ANCs for the 2^+ excited states at 1.98 MeV and 3.92 MeV in ^{18}O are sought through measuring the peripheral reaction ^{13}C(^{17}O,^{18}O*)^{12}C, and then transposed to the mirror states in ^{18}Ne. The experiment was conducted with ^{17}O and ^{18}O beams at 12 MeV/A using the MDM spectrometer of Texas A&M University. The elastic scatterings for the incoming and outgoing channels were measured separately to obtain the OMPs that are needed for the DWBA calculation to predict the angular distribution for the transfer reaction. Results will be presented and discussed.

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