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Study of astrophysical $\alpha +$ ^{22}Ne reaction using alpha transfer with TIARA and MDM spectrometer SHUYA OTA, GREGORY A. CHRISTIAN, EAMES B. BENNETT, HESHANI JAYATISSA, JOSHUA HOOKER, CURTIS HUNT, CORDERO MAGANA, GRIGORY ROGACHEV, ANTTI SAASTAMOINEN, SRITEJA UPADHYAYULA, Texas AM University, WILTON N. CATFORD, SAM HALLAM, GAVIN LOTAY, MOHAMAD MOUHKADDAM, RYAN WILKINSON, University of Surrey — In core He burning and C-shell burning of massive stars, the ^{22}Ne(α,n)^{25}Mg reaction is considered to be a main neutron source driving the synthesis of nuclides in the A=60-90 mass range during the s process. While a variety of attempts to experimentally determine the rate for this reaction at the Gamow window corresponding to s process temperatures have been made either through direct ^{22}Ne(α,n)^{25}Mg measurements or indirect measurements, uncertainties of some resonance parameters in ^{26}Mg has remained a long-standing problem. To address this problem, we performed an experiment using the ^{6}Li(^{22}Ne,^{26}Mg)d α-transfer reaction at K150 cyclotron of Texas A&M University. A ^{6}LiF target was bombarded with a 7 MeV/u ^{22}Ne beam. Deuterons, gamma-rays, and recoil Mg ions were detected in coincidence using a large Si detector array, TIARA, HPGe clover detectors, and an MDM spectrometer backed by an ionization chamber, respectively. Preliminary data from the experiment will be presented.

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