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Extracting the ANCs for ^{23}Al$\rightarrow^{22}$Mg + p from the mirror system ^{23}Ne$\rightarrow^{22}$Ne + n TARIQ AL-ABDULLAH, X. CHEN, H.L. CLARK, C. FU, C.A. GAGLIARDI, Y.-W. LUI, G. TABACARU, Y. TOKIMOTO, L. TRACHE, R.E. TRIBBLE, Cyclotron Institute, Texas A&M Univ., F. CARSTOIU, Institute of Physics and Nuclear Engineering, Bucharest, Romania, S. PISKOR, Institute of Nuclear Physics, Prague, Czech Republic — Data from γ-ray space telescopes suggest that ^{22}Na is under produced in ONe novae compared to model calculations. This could be explained if the parent ^{22}Mg is depleted by the ^{22}Mg(p,γ)^{23}Al reaction. We are determining the asymptotic normalization coefficients (ANCs) for ^{23}Al$\rightarrow^{22}$Mg+p to estimate this reaction rate. The neutron transfer reaction ^{13}C(^{22}Ne,^{23}Ne)^{12}C, $\theta_{C.M}$ =3^o-34^o, was measured using a 264 MeV ^{22}Ne beam from the Texas A&M K500 cyclotron to extract the ANCs for the ground and first excited states in ^{23}Ne, and then transpose to the corresponding states of the mirror nucleus ^{23}Al. Another experiment was carried out to obtain the ANC for ^{13}C$\rightarrow^{12}$C+n, $\theta_{C.M}$ =3^o-38^o, which is the other vertex in the above reaction. Elastic scattering angular distributions for both reactions were also measured to obtain reliable optical potential parameters that will be used in DWBA calculations. New results will be presented and discussed.

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