$^{2}H(^{12}N,^{13}O)$ 2013Gu04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu and J. E. Purcell	NDS 198,1 (2024)	1-Aug-2024

2013Gu04: XUNDL dataset compiled by TUNL, 2013.

A beam of 72 MeV ^{12}N ions was produced via the $^{3}He(^{10}B,^{12}N)$ reaction at the RIKEN RI Beam facility. The trajectory of beam particles was tracked onto a 1.5 mg/cm^2 deuterated polyethylene foil, where $^{2}H(^{12}N,^{13}O)$ reactions occurred. Interacting ^{12}N ions were identified by their time of flight relative to the cyclotron rf. The ^{13}O ejectiles were identified by ΔE-E in a telescope array.

The data are normalized by the $^{2}H(^{12}N,^{12}N)$ elastic scattering reaction. The code FRESCO was used to analyze the cross section angular distributions and to deduce the ANC′s. Values of $(C_{p1/2})^2$=3.4 fm^{-1} *13* and $(C_{p3/2})^2$=0.54 fm^{-1} *20* yield a total ANC of $(C_{tot})^2$=3.9 fm^{-1} *13*. An earlier measurement at RIKEN is mentioned in (2010LiZW).

Discussion is given on the astrophysical implications to the $^{1}H(^{12}N,^{13}O)$ reaction. See also (2022Du11).

^{13}O Levels

E(level)†	Jπ†
0.0	3/2$^-$

† From Adopted Levels.