$^{2}H(^{14}O,^{3}He)$ 2013Fl01

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

2013Fl01: XUNDL dataset compiled by TUNL (2013).

The $^{2}H(^{14}O,^{14}O)$ elastic scattering, and $^{14}O(d,^{3}He)$ and $^{14}O(d,t)$ single nucleon transfer reactions were measured in inverse kinematics and spectroscopic factors, $C^{2}2S$, were deduced.

A 18.1 MeV/nucleon ^{14}O beam was produced at the GANIL/SPIRAL facility. The beam impinged on a 1.5 mg/cm^{2} CD_{2} target (elastic scattering) or a 0.5 mg/cm^{2} target (d,^{3}He) and the light recoil nuclei were detected in one of six MUST2 array telescopes: four covered $\theta_{cm}\approx 15^{\circ}-70^{\circ}$ for the nucleon transfer reactions while the other two telescopes were near $\theta_{lab}\approx 90^{\circ}$ and were used to extend the elastic measurements.

The angular distributions were analyzed using the FRESCO code. Spectroscopic factors are deduced using both phenomenological and microscopic overlap functions and compared with literature results for $^{16}O(d,^{3}He)$, (d,t) and $^{18}O(d,^{3}He)$.

See further analysis in (2018Fl03).

^{13}N Levels

J,$C^{2}S$: From FRESCO coupled-reactions channel analysis of spectroscopic factors in (2013Fl01).

E(level)	J^{π}	Comments
0.0	$1/2^{-}$	$C^{2}S$(phenomenological)=1.14 *16*(exp.) *15*(analysis), also see $C^{2}S$(microscopic)=1.58 *22*(exp.) *2*(analysis).
3.5×10^{3}	$3/2^{-}$	$C^{2}S$(phenomenological)=0.94 *19*(exp.) *7*(analysis), also see $C^{2}S$(microscopic)=1.00 *20*(exp.) *1*(analysis).