^{1}H(^{14}O,P):LBNL 2005Gu25

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Kelley, T. Truong, C. G. Sheu	ENSDF	17-July-2016

2005Gu25:

The authors evaluated the ^{1}H(^{14}O,p) elastic scattering reaction in Thick Target Inverse Kinematics (TTIK). E_{res}, E_x, Γ and J^{π} were deduced for the ground and first excited states.

A beam of 120 MeV/nucleon ^{14}O ions, produced at the LBNL 88-Inch Cyclotron in the BEARS system, impinged on a target consisting of a Ni degrader followed by a thick 18.4 mg/cm^2 polyethylene foil that stopped the beam. Protons from elastic scattering reactions were detected around $\theta_{lab}=0°$ (±5°) in a ΔE-E Si detector telescope. The experimental resolution was about 60 keV. Two peaks were observed in the spectrum, which was analyzed using an R-matrix formalism.

The disappearance of the Z=8 proton magic number for odd Z nuclei, $T_Z=-3/2$, was discussed in light of the measured energy of $^{15}F_{g.s.}$.

^{15}F Levels

E(level)	J^{π}	Γ	L	E(p+^{14}O)$_{cm}$ (keV)	Comments
0	$1/2^+$	0.67 MeV *17*	0	1.23×10^3 *5*	Γ: The measured width was Γ=0.5-0.84 MeV.
1.58×10^3 *5*	$5/2^+$	0.30 MeV *6*	2	2.81×10^3 *2*	