$^{1}H(^{24}O,p')$ 2012Ts03,2012La23

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia, Anagha Chakraborty	NDS 186, 2 (2022)	31-Mar-2022

Reaction: $^{1}H(^{24}O,p')^{23}O+n$.

2012Ts03 (also 2011Ts08,2011Ts10): secondary ^{24}O beam at E=62 MeV/nucleon primary beam on a Be production target. Target=159 mg/cm^2 *3* LH_2. Experiment performed at RIPS facility at RIKEN. Neutrons detected by plastic scintillator neutron counter. Bρ-tof-ΔE method was used to identify charged fragments. Reconstructed ^{24}O decay energy spectrum from measured four momenta of ^{23}O and neutron; n(^{23}O)-coin, σ, $\sigma(\theta)$. Deduced levels, J, π, β_2, configurations. Shell-model calculations.

2012La23: Secondary ^{24}O beam at 263 MeV/nucleon produced from 345 MeV/nucleon ^{48}Ca beam on 15-mm thick ^{9}Be target followed by separation of charged fragments by Bρ-tof-ΔE method. Target: polypropylene $(CH_2)_n$. Measured scattered proton spectra and angular distributions. Deduced levels, J, π. Optical model analysis.

All data are from 2012Ts03 unless otherwise stated.

^{24}O Levels

E(level)[†]	J^π	Comments
0.0	0^+	
4.75×10^3 *21*	2^+	E(level): From decay energy (resonance) of 0.56 MeV *5* (2012Ts03). Other: 5.1 MeV *3* (2012La23). J^π: From $\sigma(\theta)$ distribution and DWBA analysis. β_2=0.15 *4* (2012Ts03). σ=2.6 mb *11* (2012Ts03). Configuration: $\nu 1s^{-1}_{1/2}\otimes\nu 0d^{1}_{3/2}$.
5.25×10^3 *22*	1^+	E(level): from decay energy (resonance) of 1.06 MeV *10* (2012Ts03). J^π: From $\sigma(\theta)$ distribution and DWBA analysis. σ=2.2 mb *12*. Configuration: $\nu 1s^{-1}_{1/2}\otimes\nu 0d^{1}_{3/2}$.
$\approx7.4\times10^3$	$(^-)$	E(level): group of states from decay energy (resonance) of ≈3.2 MeV (2012Ts03). Other: 6.9 MeV *3* (2012La23). Configuration: $\nu 1s^{-1}_{1/2}\otimes\nu(fp)^1$.
8.3×10^3?[‡] *3*		
9.5×10^3?[‡] *4*		

[†] From E(resonance or decay energy)+S(n)(^{24}O)=4190 *200* (2021Wa16). 2012Ts03 used S(n)=4.09 MeV *13* from 2007Ju03, thus all excitation energies quoted in 2012Ts03 have been adjusted upward by 0.1 MeV.

[‡] From 2012La23, preliminary result. The level has not been adopted.