^{124}Sn(p,d) 1970Ca01,1982Fl02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

1970Ca01: E=30 MeV proton beam was produced from the RHEL LINAC. Reaction products were momentum analyzed with a magnetic spectrograph (FWHM=55-70 keV). Measured $\sigma(E_d,\theta)$, $\theta\leq60°$. Deduced levels, J, π, L-transfers from DWBA analysis. J-dependence of $\sigma(\theta)$ for L=2 is discussed to deduce $J^\pi=5/2^+$ or $3/2^+$ (1970Ca01).

1982Fl02: analysis of data obtained at Institut de Physique Nucleaire, Orsay in 1969 with E=20 MeV proton beam. Reaction products were momentum analyzed with a magnetic spectrometer (FWHM=25 keV). Measured $\sigma(E_d,\theta)$, θ=10° to 50°. Deduced levels, J, π, spectroscopic factors, L-transfers from DWBA analysis.

1986Ma37: E=50 MeV proton beam was produced at RCNP. Target was 0.75 mg/cm^2 96.96% enriched metallic ^{124}Sn. Reaction products were momentum analyzed with the multi-range spectrograph RAIDEN (FWHM=15-20 keV). Measured $\sigma(\theta)$ of deeply-bound hole states. Deduced average excitation energies, strength functions, spreading widths from DWBA analysis.

Others: 2020Ga03, 1982HyZZ, 1980Is01, 1979CrZY, 1973Is09.

^{123}Sn Levels

E(level)[†]	J$^\pi$[‡]	L[#]	C^{2}S[@]	Comments
0.0		5+2	4.5+3.0	E(level): Unresolved doublet (1982Fl02). C^{2}S: 4.5 *15* for L=5, 3.0 *4* for L=2 obtained by 1982Fl02 from peak angle systematics.
139		0	1.9 *2*	
899	5/2$^+$	2		
1028		(4)	2.8 *14*	
1185		2	3.2 *5*	E(level),L: from 1982Fl02. 1970Ca01 report L=2+4, suggesting a possible contribution from 7/2$^+$ level at 1155.
1484	5/2$^+$	2	2.8 *4*	
1780	5/2$^+$	2		
1900	3/2$^+$	2		
2020	3/2$^+$	2		
2080	5/2$^+$	2		
2150				
2270	3/2$^+$	2		
2350		4		
2410		0		
2620		0		
2730		4		
2850	(3/2$^+$)	(2)		
3020				
3160				
3240	3/2$^+$	2		
3300				
5640[&]		4	4.17[&]	E(level): in energy region of 3830-7000, Γ=1.90 MeV (1986Ma37).
6330[&]		1	1.55[&]	E(level): in energy region of 3830-8200, Γ=2.60 MeV (1986Ma37).
6900[&]		4	7.44[&]	E(level): in energy region of 3830-10020, Γ=3.89 MeV (1986Ma37).
7120[&]		1	2.19[&]	E(level): in energy region of 3830-10020, Γ=3.68 MeV (1986Ma37).
8520[&]		4	3.27[&]	E(level): for energy region of 7000-10020, Γ=2.02 MeV (1986Ma37).
9040[&]		1	0.63[&]	E(level): for energy region of 8200-10020, Γ=1.20 MeV (1986Ma37).

[†] From 1970Ca01, unless otherwise noted.
[‡] From J-dependence of $\sigma(\theta)$ for L=2 transfer (1970Ca01).
[#] From angular distribution analyses by 1970Ca01, unless noted otherwise.
[@] From DWBA analysis (1982Fl02), unless otherwise noted.
[&] From 1986Ma37. Quoted energy values are average excitation energies, calculated using strength functions in the indicated energy region in comments.