^{208}Pb(^{3}He,α)   **1978Ga23,1978Du13,1969Al18**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev, S. Lalkovski	NDS 112, 707 (2011)	1-Aug-2010

1978Ga23: Facility: MSU cyclotron; Beam: E(^{3}He)=70 MeV; Target: 1mg/cm^2 enriched in ^{208}Pb and evaporated on 20 μg/cm^2 carbon foil, also: self-supporting 10 mg/cm^2 enriched to 99% in ^{208}Pb; Detectors: gas counter, plastic scintillator, Enge split-pole spectrograph; Measured: E, FWHM=65 keV, dσ/dΩ; Deduced: DWBA, J^π, level energies and C^{2}S.

1978Du13,1980Gu03: Facility: ISN Grenoble; Beam: E(^{3}He)=101.7 MeV; Target: self-supporting enriched to 98.7% in ^{208}Pb; Detectors: ionization chamber, proportional chamber, plastic scintillator, QSD magnetic spectrometer; Measured: ΔE(α), ToF(n), dσ/dΩ; Deduced: level energies, J^π C2S, FWHM= 100 keV;

1969Al18: Facility: University of Rochester Tandem; Beam: E=28 MeV; Target: 160 μg/cm^2 enriched to 99.3% in ^{208}Pb, 20 μg/cm^2 carbon backing; Detectors: Engle split-pole spectrograph, emulsions; Measured: E, dσ/dΩ; Deduced: level widths and level energies, FWHM=25 keV, C^{2}S.

Others:

1969Sa28: E=47.5 MeV; 1978Ga09: E=70 MeV, FWHM=200 keV; 1978Va05: E=205 MeV, FWHM=400 keV; 1979Kn03: E(pol ^{3}He)=10 MeV; Tensor analyzing power measured for g.s. and 897 state; 1980Gu03; 1982La12: E=283 MeV, FWHM=250 keV; 1994So13: E(^{3}He)=103 MeV; 2009Sy01.

^{207}Pb Levels

E(level)[†]	J^{π}[‡]	L[@]	C^{2}S[&]	Comments
0	1/2$^-$[#]	1	2.3[d]	C^{2}S: 3.2, norm.factor=17.2 (1969Al18). configuration: ν(3p$_{1/2}$)$^{-1}$.
572 5	5/2$^-$[#]	3	6.2	C^{2}S: 6.0, norm.factor=17.2 (1969Al18). configuration: ν(2f$_{5/2}$)$^{-1}$.
899 5	3/2$^-$[#]	1	7.0[d]	C^{2}S: 6.5, norm.factor=17.2 (1969Al18). configuration: ν(3p$_{3/2}$)$^{-1}$.
1629 5	13/2$^+$[#]	6	12.0	C^{2}S: 14, norm.factor=17.2 (1969Al18). configuration: ν(1i$_{13/2}$)$^{-1}$.
2334 5	7/2$^-$[#]	3	7.3	C^{2}S: 9.7, norm.factor=17.2 (1969Al18). configuration: ν(2f$_{7/2}$)$^{-1}$.
2664[a] 10				
2704 10	7/2$^+$,9/2$^+$	4	0.25	
2729[a] 10				
3181[a] 10				
3215 5	(11/2)$^+$	(6)+(0)	0.08	C^{2}S: From 1980Gu03. configuration: ν(1i$_{11/2}$).
3307[a] 10				
3415 5	9/2$^-$	5	6.9	C^{2}S: 6.0 in 1969Al18. configuration: ν(1h$_{9/2}$)$^{-1}$.
3467[a] 10				
3582[a] 10				
3660 10	9/2$^-$,11/2$^-$	5	0.9	
3870 10	(1/2$^+$,3/2$^+$)	(2)	0.17	
4118[a] 10				
4148[a] 10				
4189[a] 10	13/2$^+$			E(level): 4200 keV in 1994So13. J^π: From DWBA in 1994So13. configuration: ν(1i$_{13/2}$)$^{-1}$.
4210[a] 10				
4225 10	11/2$^+$,13/2$^+$	6	1.16	configuration: ν(1i$_{13/2}$)$^{-1}$.
4234[a] 10				
4279[a] 10				

^{208}Pb(^{3}He,α)   1978Ga23,1978Du13,1969Al18 (continued)

^{207}Pb Levels (continued)

E(level)[†]	J$^\pi$[‡]	L[@]	C^{2}S[&]	Comments
4311[a] *10*				
4336[a] *10*				
4572 *10*	$5/2^-,7/2^-$	3	0.35	
4765 *10*	$(5/2^-,7/2^-)$	(3)	0.28	L: 1980Gu03 suggest L=6, with S=0.95.
5130 *10*		5+3	0.6+0.5	E(level): 5080 keV in 1994So13.
				J$^\pi$: From DWBA in 1994So13.
5410 *10*	$9/2^-,11/2^-$	5	1.12	configuration: $\nu(1h_{9/2})^{-1}$.
5620 *10*	$9/2^-,11/2^-$	5	1.80	
5990 *10*	$11/2^+,13/2^+$	6	0.70	C^{2}S: 2.0 from 1978Va05.
				configuration: $\nu(1i_{13/2})^{-1}$.
6370 *10*	$(5/2^-,7/2^-)$	(3)	0.90	L,J$^\pi$: L=5,(6) and J$^\pi$=9/2$^-$ in 1980Gu03 or 13/2$^+$.
7010 *20*	$9/2^-,11/2^-$	5	1.05	
7590 *20*	$9/2^-,11/2^-$	5	1.05	
7730[c]	$1/2^+$[c]			configuration: $\nu(3s_{1/2})^{-1}$.
7960 *20*	$9/2^-,11/2^-$	5	0.77	
8000[c]	$7/2^-$[c]			configuration: $\nu(2f_{7/2})^{-1}$.
8030[c]	$3/2^+$[c]			configuration: $\nu(2d_{3/2})^{-1}$.
8220 *20*	$9/2^-,11/2^-$	5	0.66	configuration: $\nu(1h_{11/2})^{-1}$.
8540 *20*	$9/2^-,11/2^-$	5	0.92	
9220 *20*	$9/2^-,11/2^-$	5	1.05	
9430[c]	$5/2^+$[c]			configuration: $\nu(2d_{5/2})^{-1}$.
9600 *20*	$(9/2^-,11/2^-)$	(5)		
11000[c]	$7/2^+$[c]			configuration: $\nu(1g_{7/2})^{-1}$.
13630[c]	$9/2^+$[c]			configuration: $\nu(1g_{9/2})^{-1}$.
15230[c]	$1/2^-$[c]			configuration: $\nu(2p_{1/2})^{-1}$.
16030[c]	$3/2^-$[c]			configuration: $\nu(2p_{3/2})^{-1}$.
17330[c]	$5/2^-$[c]			configuration: $\nu(1f_{5/2})^{-1}$.
19301 *33*	$1/2^+$[b]			E(level): weighted average of 19280 *60* (1978Du13) and 19310 *40* (1978Ga09).
				Γ=350 keV *60* (1978Du13).
				configuration: $\nu(3s_{1/2})$.
19330[c]	$7/2^-$[c]			configuration: $\nu(1f_{7/2})^{-1}$.
19658 *24*	$3/2^+$[b]			E(level): weighted average of 19640 *30* (1978Du13) and 19690 *40* (1978Ga09).
				Γ=350 keV *40* (1978Du13).
				configuration: $\nu(2d_{3/2})^{-1}$.
20642 *27*	$11/2^-$[b]			E(level): weighted average of 20640 *30* (1978Du13) and 20650 *60* (1978Ga09).
				Γ=225 keV *40* (1978Du13).
				configuration: $\nu(1h_{11/2})^{-1}$.
21000 *27*	$5/2^+$[b]			E(level): weighted average of 21000 *30* (1978Du13) and 2100 *60* (1978Ga09).
				Γ=350 keV *40* (1978Du13).
				configuration: $\nu(2d_{5/2})^{-1}$.
22890 *80*				E(level): Seen in 1978Ga09.

[†] From 1978Ga23, unless otherwise noted.
[‡] From L-values, unless otherwise noted.
[#] From Adopted Levels.
[@] Based on DWBA in 1978Ga23, unless otherwise noted.
[&] From 1978Ga23. Normalization factor=23.
[a] From 1969Al18. Evaluators decreased authors' energies by 25 keV in order to match the $\nu(h_{9/2})^{-1}$ state at 3438 keV (1969Al18) with the adopted level energy. The corrected energies fit to the levels known from other reactions.
[b] From DWBA in 1978Du13. These states were identified by the authors as T=45/2 analogs of the g.s. and first three excited states

Continued on next page (footnotes at end of table)

$\underline{^{207}\text{Pb Levels (continued)}}$

(proton-hole states) in ^{207}Tl. See also 1982La12.

[c] From 1994So13.

[d] Poor DWBA fit to data because of angular momentum mismatch at low L.