

$^{207}\text{Pb}(\text{p,d}),(\text{d,t}),(^3\text{He},\alpha)$ 1974La01,1980Gu03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 201,346 (2025)	21-Jan-2025

1974La01: $^{207}\text{Pb}(\text{p,d})$ with $E(\text{p})=35$ MeV and $\text{FWHM}=5$ keV. $\sigma(\theta)$ were measured.

1980Gu03: $^{207}\text{Pb}(^3\text{He},\alpha)$ with $E(^3\text{He})=102$ MeV and $\text{FWHM}=100$ keV.

Other (p,d): 1992Na21.

Data are predominantly from $^{207}\text{Pb}(\text{p,d})$ (1974La01). For some levels the L values are supported by the results from $^{207}\text{Pb}(\text{d,t})$ (1962Mu05,1968Ti01,1981Wi03) and $^{207}\text{Pb}(^3\text{He},\alpha)$ (1980Gu03) studies. The $^{207}\text{Pb}(\text{p,d})$ reaction emphasizes low-L transfers, while the $^{207}\text{Pb}(^3\text{He},\alpha)$ emphasizes $i_{13/2}$ and $h_{9/2}$ transfers.

 ^{206}Pb Levels

E(level) [†]	J^π [†]	L [†]	C ² S	Comments
0	0 ⁺	1	0.59	
803 1	2 ⁺	1+3		C ² S: 0.42 (L=1) and 1.64 (L=3).
1167 1	0 ⁺	1	0.37	
1341 1	3 ⁺	3	3.54	
1467 1	2 ⁺	1+3		C ² S: 1.52 (L=1) and 0.64 (L=3).
1684 1	4 ⁺	3	0.17	
1703 1	(1 ⁺)	1	1.53	
1784 1	2 ⁺	1+3		C ² S: 0.27 (L=1) and 0.02 (L=3).
1998 1	4 ⁺	3	0.14	
2149 2	2 ⁺	1+3		C ² S: 0.077 (L=1) and 0.034 (L=3).
2200 2	7 ⁻	6	7.05	
2315 2	0 ⁺	1	0.021	
2384 2	6 ⁻	6	6.47	
2424 2	2 ⁺	1+3		C ² S: 0.044 (L=1)and 0.014 (L=3).
2647 2	3 ⁻			
2657 2	9 ⁻			
2865 2	7 ⁻	6	0.32	
2928 2	4 ⁺	3	3.97	
3122 2	(3 ⁺)	3	3.37	
3194 2				
3453 2	(3,4) ⁺			
3484 2				
3519 2	(3 ⁺ ,4 ⁺)	3	0.21	
3605 2				
3744 2		0		
3963 2	4 ⁺	3	0.076	
3990 2		(0)		
4008 3	(4 ⁺)	5	4.30	
4116 3	5 ⁺	5	5.00	
4326 3		0		
4345 3				
4370 [‡]				
4500 [‡]				
4620 [‡]				
4756 3				
4806 3				
4827 3				
4850 [‡]				
5038 3		(3)	0.061	
5050 [‡]				
5086 3		(3)	0.075	

Continued on next page (footnotes at end of table)

$^{207}\text{Pb}(\text{p,d}),(\text{d,t}),(^3\text{He},\alpha)$ 1974La01,1980Gu03 (continued) ^{206}Pb Levels (continued)

<u>E(level)[†]</u>	<u>L[†]</u>	<u>C²S</u>	<u>E(level)[†]</u>	<u>L[†]</u>	<u>C²S</u>	<u>E(level)[†]</u>	<u>E(level)[†]</u>
5131 3			5325 3	(3)	0.207	5900 [‡]	7750 [‡]
5164 3			5420 [‡]			6000 [‡]	8080? [‡]
5194 3	(3)	0.076	5500 [‡]			6560 [‡]	8300? [‡]
5200 [‡]			5650 [‡]			7000? [‡]	8800 [‡]
5277 3	(0)		5750 [‡]			7500? [‡]	9150 [‡]

[†] From 1974La01 [$^{207}\text{Pb}(\text{p,d})$], unless otherwise stated. Target has $J^\pi=1/2^-$.

[‡] From 1980Gu03 [$^{207}\text{Pb}(^3\text{He},\alpha)$].