^{80}Se(pol d,p),(d,p) 1978Mo12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 199,271 (2025)	1-Sep-2024

Other measurements: 1968Li14 (E(d)=6.5 MeV), 1965Li08, 1967Co21, 1960Ca16.
No significant change compared to the previous evaluation by C.M. Baglin (2008Ba34).
1978Mo12: E(pol d)=12.5 MeV, 99.45% ^{80}Se target, magnetic spectrograph with nuclear emulsions (FWHM=22 keV) or Si(Li) (FWHM=35 keV), θ(c.m.)≈15°−110°; measured $\sigma(\theta)$ and vector analyzing power.
1965Li08: E(d)=15 MeV, 94.4% ^{80}Se target, magnetic spectrograph with photographic plates, FWHM≈40 keV, θ(lab)=10° to 50° (8 angles).

^{81}Se Levels

E(level)[†]	J$^{\pi}$[@]	L[a]	(2J$_f$+1)S[c]	Comments
0	1/2$^-$	1	0.62	σ(25°)=0.76 mb/sr (1965Li08).
103[#]		4[b]	0.25[b]	
294	9/2$^+$	4	2.80	σ(25°)=0.42 mb/sr (1965Li08).
468	3/2$^-$	1	0.18	σ(25°)=0.41 mb/sr (1965Li08).
635	5/2$^-$	3	0.34	σ(25°)=0.24 mb/sr (1965Li08).
900?[‡]		(0)[b]	0.039[b]	
1053	5/2$^+$	2	1.17	σ(25°)=4.30 mb/sr (1965Li08).
1234	1/2$^+$	0	0.90	
1303	5/2$^+$	2	1.99	σ(25°)=6.40 mb/sr (1965Li08).
1408	3/2$^-$	1	0.26	σ(25°)=0.57 mb/sr (1965Li08).
1700	3/2$^+$	2	0.27	
1828	3/2$^+$	2	0.47	
2036				
2175		2[b]	0.067[b]	
2260?[‡]				
2333	5/2$^+$	2	0.17	
2532	5/2$^+$[&]	2	0.35	
2596				
2659				
2734				
2771	5/2$^+$	2	0.152	
2891				
2938		(0)[b]	0.02[b]	
2986	(1/2$^+$)	(0)	0.12	
3053	3/2$^+$	2	0.92	
3093				
3208				
3228				
3287				
3308				
3379				
3411				
3435				
3477				
3524				
3562				
3682	3/2$^+$	2	0.12	
3774[#]		2[b]	0.38[b]	
3830	1/2$^+$	0	0.16	
3920?[‡]		(0)[b]	0.081[b]	
3970?[‡]		(0)[b]	0.10[b]	

Continued on next page (footnotes at end of table)

^{80}Se(pol d,p),(d,p) 1978Mo12 (continued)

^{81}Se Levels (continued)

E(level)[†]	L[a]	$(2J_f+1)S$[c]	E(level)[†]	E(level)[†]
4095			4437[#]	4958[#]
4137			4559[#]	5080[#]
4164			4656[#]	5180?[‡]
4215[#]	(2)[b]	0.24[b]	4708[#]	5330?[‡]
4260[#]	(2)[b]	0.17[b]	4845[#]	

[†] From 1978Mo12 using unpolarized d, if not noted otherwise. Uncertainties were not stated by the authors, but E deviates from adopted values by ≤6 keV (except for the 635 level whose energy is 11 keV high) for levels with E≤2500.

[‡] From 1965Li08; absent in both 1978Mo12 and 1960Ca16 and, consequently, shown as doubtful here. Statistics are extremely poor for 900 and 2260 levels, so these levels are not adopted. ΔE is not stated by authors, but E is typically 10 to 30 keV high cf. adopted values based on Eγ data.

[#] From 1960Ca16; existence confirmed by 1965Li08 but level not reported by 1978Mo12. ΔE not stated by authors but, in general, energies from 1960Ca16 deviate from adopted values based on Eγ data by ≤3 keV for E≤2000, and by 3 to 11 keV for E>2000.

[@] From DWBA analysis of angular distribution and vector analyzing power (1978Mo12).

[&] Adopted value is $(5/2)^+$; L(d,p) disagrees with L(p,d)=4 unless one assumes that a different level is excited at this energy in (p,d).

[a] From DWBA analysis of $\sigma(\theta)$ (1978Mo12).

[b] From 1965Li08. $d_{5/2}$ and $g_{9/2}$ orbitals assumed for L=2 and L=4 transfer, respectively.

[c] $(2J_f+1)S$ from DWBA analysis of $\sigma(\theta)$; agreement between 1965Li08 and 1978Mo12 is excellent.