^{78}Se(p,p′),(pol p,p′) 1986Og01,1984De01,1973Hi01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ameenah R. Farhan, Balraj Singh	NDS 110, 1917 (2009)	30-Jun-2009

1986Og01 (also 1983Og02): (pol p,p′) E=64.8 MeV; measured $\sigma(\theta)$ from 8° to 60° In steps of 4°. Uncertainty for $\sigma\approx10\%$. DWBA and coupled-channel calculations.

1984De01: (pol p,p′) E=16 MeV; $\sigma(\theta)$ and analyzing power from 35° to 65° In steps of 5°. Coupled-channel analysis.

1973Hi01: (p,p′) E=10 MeV: $\sigma(\theta)$ data obtained At 55°, 90° and 150°.

Others:

1993Mo05 (also thesis by 1986MoZR): (pol p,p′) E=22.3 MeV; measured $\sigma(\theta)$ and Ay(θ) for first 0^+, 2^+, 4^+ and 3^- states and second 2^+ state. Coupled-channel calculations. Harmonic vibrator, symmetric rotor and interacting Boson model calculations.

1986Ro10: (p,p).

1983Ma59: (pol p,p′), E=65 MeV; measured $\sigma(\theta)$, analyzing power for the 4^+ state, coupled-channel analysis.

1979Ma28: (p,p), (p,p′) E=51.9 MeV; measured σ(E(p),θ), DWBA and coupled-channel analysis.

1970He10: (p,p), (p,p′) E=6.4 MeV; measured $\sigma(\theta)$ and polarization.

Additional information 1.

^{78}Se Levels

E(level)[†]	J^π	L[‡]	Comments
0.0	0^+		
613.8 *20*	2^+	2	β_2=0.26 *1* (1993Mo05)
1308 *2*		2	β_2R=1.255 (harmonic vibrator model), 1.200 (symmetric rotor mode (1993Mo05).
1498 *4*			E(level): from 1974MuZB and 1984De10.
1500.3 *20*		0+4	β_4R=0.005 (symmetric rotor model) (1993Mo05). E(level),L: 1503 with adopted $J^\pi=4^+$ and 1498 with adopted $J^\pi=0^+$ are not resolved. 1986Og01 report L=4, suggesting that, At 65 MeV, the 1503 level is populated more strongly than the 1498 level. L=0+4 is reported by 1984De01 At E=16 MeV.
1758.5 *20*			
1855.0 *20*			
1995.9 *20*		2	
2190.3 *20*			
2330 *2*		2	E(level),L: could include the adopted 2327 level with $J^\pi=1^+,2^+$ As determined from γ decay, and the adopted 2335 level with $J^\pi=0^+$. L=2 reported by 1986Og01 suggests that, At 65 MeV, the 2327 level is more strongly populated than the 2335, and that $J^\pi(2327)=2^+$.
2508 *2*	3^-	3	β_3R=0.821 (harmonic vibrator model) (1993Mo05). J^π: from L transfer and vector-analyzing power (1984De10).
2538.2 *20*			
2648.4 *20*			
2680.7 *20*		4	
2745.8 *20*			
2839.9 *20*			
2863.9 *20*			
2893.6 *20*			
2912.3 *20*		4	
2947.7 *20*			
3006.7 *20*			
3051.4 *20*		(3)	
3088.7 *20*		5	
3141.7 *20*		4	
3179.0 *20*			
3250.4 *20*		2	
3288.4[#] *20*		4	
3309.9[#] *20*			
3376 *4*		3	
3414 *4*		3	

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^{78}Se(p,p′),(pol p,p′) 1986Og01,1984De01,1973Hi01 (continued)

^{78}Se Levels (continued)

E(level)†	L‡	E(level)†	L‡	E(level)†	L‡	E(level)†	L‡
3453 *4*	3	3774 *4*	3	4157 *4*	3	4622 *4*	5
3546 *4*		3881 *4*	3	4254 *4*	(4)	4741 *4*	4
3605 *4*	2	3995 *4*	5	4424 *4*	(2)	4902 *4*	3
3683 *4*		4050 *4*	(5)	4493 *4*	(3)	5296 *4*	3
3710 *4*		4120 *4*	4	4557 *4*			

† Energies quoted to tenths of keV are from 1973Hi01. Other values are from 1986Og01.
‡ From 1986Og01.
# Reported by 1973Hi01 to Be a multiplet.