^{76}Ge(α,α') 1987Sc31

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Jun Chen and Ameenah R. Farhan	NDS 194,3 (2024)	8-Jan-2024

1987Sc31: E(α)=31.5 MeV. Measured $\sigma(\theta)$, comparison with DWBA calculations using vibrational model. FWHM=15-20 keV.
Others:
1988Ba70: E=25 MeV. Measured $\sigma(\theta)$ for first 0^+, 2^+, 3^-, 4^+ and second 2^+, 0^+ states. Coupled-channel calculations using asymmetric rotor model and vibrational model. Deformation lengths are deduced from these data.
1988RoZU: E=36 MeV, analyzed $\sigma(\theta)$ data.
1982En04: (α,α),E=25 MeV, optical model parameters deduced from $\sigma(\theta)$ data.
Reduced transition probabilities are given under comments as G_L(isoscalar) (W.u.) values, where G_L(isoscalar)= $((Z/A)^2)\beta_L$(isoscalar)/β_L(single particle). The β_L values are from $\sigma(\theta)$ data.

^{76}Ge Levels

E(level)	L	β_LR.[†]	Comments
0	0		
563 *10*	2	1.21	G_2(W.u.)=31.7. β_2R=1.313 (vibrational model), 1.330 (rotor model) (1988Ba70).
1108 *10*	2	0.31	G_2(W.u.)=2.0. β_2R=−0.284 (vibrational model) (1988Ba70). Deduced β_2=−0.057 using R_0=1.17.
1410 *10*	(4)	0.14	G_4(W.u.)=1.1.
1910			Second 0^+ level from 1988Ba70, unresolved from second 4^+ state.
2696 *10*	3	0.59	G_3(W.u.)=11.7. β_3R=0.538 (vibrational model) (1988Ba70). Deduced β_3=0.11, using R_0=1.17.
2737[‡] *10*			
2769 *10*	2	0.14	G_2(W.u.)=0.4.
2920 *10*	3	0.07	G_3(W.u.)=0.2.
2966 *10*	(5)	0.23	G_5(W.u.)=5.9.
3001 *10*	4	0.31	G_4(W.u.)=5.5.
3238 *10*	4	0.25	G_4(W.u.)=3.6.
3263 *10*	(4)	0.12	G_4(W.u.)=0.8.
3313 *10*	3	0.10	G_3(W.u.)=0.3.
3483 *10*	3	0.28	G_3(W.u.)=2.6.
3545 *10*	2	0.12	G_2(W.u.)=0.3.
3588 *10*	(2)	0.10	G_2(W.u.)=0.2.
3652 *10*			
3713 *10*	(5)	0.11	G_5(W.u.)=1.4.
3738 *10*	2	0.10	G_2(W.u.)=0.2.
3871 *10*			
3893 *10*	3	0.26	G_3(W.u.)=2.3.
3952 *10*	(4)	0.11	G_4(W.u.)=0.7.
3978 *10*	4	0.20	G_4(W.u.)=2.4.
4052 *10*			
4073 *10*	5	0.15	G_5(W.u.)=2.4.
4126 *10*	(1)	0.03	
4180 *10*	3	0.19	G_3(W.u.)=1.1.
4220 *10*	4	0.13	G_4(W.u.)=1.0.
4332 *10*	4	0.14	G_4(W.u.)=1.2.
4367[‡] *10*			
4402[‡] *10*			
4453 *10*	3	0.16	G_3(W.u.)=0.8.
4500[‡] *10*	(3,4)	0.08,0.12	G_3(W.u.)=0.2, G_4(W.u.)=0.8.
4530[‡] *10*	(3,5)	0.09,0.11	G_3(W.u.)=0.2, G_5(W.u.)=1.2.

Continued on next page (footnotes at end of table)

^{76}Ge(α,α') 1987Sc31 (continued)

^{76}Ge Levels (continued)

E(level)	L	β_LR.[†]	Comments
4570 *10*	(3)	0.19	G_3(W.u.)=1.1.
4615 *10*	(5)	0.23	G_5(W.u.)=5.8.

[†] Deformation lengths are deduced from DWBA comparisons to $\sigma(\theta)$ data using vibrational-model form factors.
[‡] Multiplet.