^{100}Mo(d,d′) 1992Pi08,1990Pi14

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 172,1 (2021)	31-Jan-2021

1992Pi08, 1990Pi14: E=50.7 MeV beam from the KVI cyclotron. Measured $\sigma(\theta)$ from 8° to 88° in steps of 4°, with the QMG/2 spectrograph (FWHM=10-15 keV). Deduced levels, J, π, transition strengths from the analysis using Coupled-channel calculations. Uncertainty in cross sections is 10% (absolute) and 4-6% (relative). Comparisons with IBA model predictions. 1992Pi08 provide data for hexadecapole (E4) transitions and 1990Pi14 for negative-parity octupole transitions.

Others:

1978Wa11: E=21.5 MeV. FWHM≈80 keV. Measured $\sigma(\theta)$. Optical -model and coupled-channel analysis. Levels are reported at: 0, 534, 694, 1063, 1140, 1463, 1600, 1768, 1910. Deformation parameters deduced.

1987Ta15: (pol d,d) E=22 MeV. Vector-analyzing power and tensor-analyzing power terms determined from elastic scattering $\sigma(\theta)$ data.

1980Da08: (d,d) E=12-90 MeV.

1977ChYO, 1974Ch27: (d,d′), (d,d) E=17 MeV.

Additional information 1.

1966Ki04: (d,d′) E=15 MeV (5 levels given). FWHM≈50 keV.

See 1992Pi08 for E4 transition moments, ratios of isovector to isoscalar matrix elements, and fraction of energy weighted sum rule (EWSR).

See 1990Pi14 for E1, E3 and E5 transition matrix elements, ratios of (p,p′) to (d,d′) matrix elements, and amplitude of two-phonon components.

^{100}Mo Levels

B(E4)(W.u.) values given under comments are from 1992Pi08.

E(level)[†]	Jπ[‡]	L[#]	β_L[@]	Comments
0	0^+	0		
535 *2*	2^+	2		
694 *2*	0^+	0		
1063 *2*	2^+	2		
1135 *2*	4^+	4	−0.0160	B(E4)(W.u.)=0.99 *21*.
1463 *2*	2^+	2		
1510 *2*	(0^+)	(0)		
1600[&] *10*				
1768[&] *10*				
1908 *2*	3^-	3	0.152	
2040 *2*	0^+	0		
2102 *2*	4^+	4	−0.0300	B(E4)(W.u.)=2.96 *21*.
2156 *2*	1^-	1		
2200 *2*	2^-			
2285[a] *2*	2^+	2		
2310[a] *2*	6^+	6		
2339 *2*	5^-	5	0.013	
2369 *2*	3^-	3	0.036	
2396 *2*	(1^-)	(1)		
2416 *2*	(4^+)	(4)	−0.0400	B(E4)(W.u.)=5.1 *7*.
2514 *5*	4^+	4	−0.0430	B(E4)(W.u.)=5.7 *4*.
2527[a] *5*	(2^+)	(2)		
2563 *5*	4^+	4	−0.0290	B(E4)(W.u.)=2.94 *19*.
2607 *5*	5^-	5	0.031	
2628[a] *2*	(2^+)	(2)		
2659 *5*	1^-	1		

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^{100}Mo(d,d′) 1992Pi08,1990Pi14 (continued)

^{100}Mo Levels (continued)

E(level)[†]	Jπ[‡]	L[#]	β_L[@]	Comments
2725[a] 5				
2747 5	4+	4	−0.0170	B(E4)(W.u.)=1.04 *12*.
2807 5	4+	4	−0.0350	B(E4)(W.u.)=4.1 *9*.
2827[a] 5	2+	2		
2858 5	3−	3	0.0095	
2924 5	4+	4	−0.0288	B(E4)(W.u.)=2.78 *25*.
2961[a] 5	2+	2		
2984[a] 5	(6+)	(6)		
2997 5	4+	4	−0.0210	B(E4)(W.u.)=1.4 *3*.
3041 5	5−	5	0.024	
3068 5	5−	5	0.017	
3085 5	4+	4	−0.0112	B(E4)(W.u.)=0.42 *7*.
3112 5	3−	3	0.011	
3140 5	(1−)	(1)		
3154 5	3−	3	0.004	
3172 5	3−	3	0.024	
3190 5	4+	4	−0.0122	B(E4)(W.u.)=0.48 *6*.
3237[a] 5				
3265 5	3−	3	0.004	
3282 5	3−	3	0.0045	
3294[a] 5	2+	2		
3311[a] 5				
3324[a] 5				
3406 5	4+	4	−0.0141	B(E4)(W.u.)=0.78 *14*.
3448[a] 5	(0+)	(0)		
3468[a] 5	2+	2		
3479[a] 5	2+	2		
3537[a] 5	2+	2		
3557 5	3−	3	0.016	
3586[a] 5				
3595[a] 5	(3−)	(3)		
3606 5	4+	4	−0.0134	B(E4)(W.u.)=0.48 *9*.
3623[a] 5				
3652 5	5−	5	0.024	
3682[a] 5				
3726 5	3−	3	0.011	
3747 5	5−	5	0.012	
3773 5	3−	3	0.016	
3810 5	(4+)	(4)	−0.0134	B(E4)(W.u.)=0.61 *9*.
3823[a] 5	(5−)	(5)		
3894[a] 5				
3915[a] 5				
3925[a] 5	(2+)	(2)		
3947[a] 5				
4026[a] 5	(3−)	(3)		
4043[a] 5	(4+)	(4)		
4158 5	3−	3	0.015	
4205[a] 5	(2+)	(2)		
4243[a] 5				
4260 5	3−	3	0.012	

[†] From 1992Pi08, unless otherwise stated. Energy uncertainty is stated (1992Pi08) as 2 keV below 2.5 MeV and up to 5 keV

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^{100}Mo(d,d′) 1992Pi08,1990Pi14 (continued)

^{100}Mo Levels (continued)

above 2.5 MeV excitation, assigned as 5 keV here above 2500.

‡ All assignments are from 1992Pi08. These are based on comparison of measured angular distributions with coupled-channel calculations (4^+ states from 1992Pi08 and negative-parity states from 1990Pi14).

As implied from J^π values (L=spin) assigned by 1992Pi08 for $J^\pi=4^+$ (1992Pi08), $J^\pi=1^-,3^-$ and 5^- (1990Pi14).

@ From 1992Pi08 for 4^+ states and from 1990Pi14 for 3^- and 5^- states, unless otherwise specified. Sign of β_3 and β_5 is not given explicitly by 1990Pi14, assumed as positive (evaluators). B(E4)(W.u.) values (1992Pi08) are given under comments.

& From 1978Wa11 only.

a Populated in (d,d′) and/or (p,p′); table 1 in 1992Pi08 gives a combined list of levels from two reactions.