

$^{98}\text{Mo}(n,\gamma)$ E=thermal 1973De39

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli		NDS 145, 25 (2017)	1-Jul-2017

Other: [1973Ba57](#). ^{99}Mo Levels

E(level)	J^π [†]	E(level)	J^π [†]	E(level)	J^π [†]	E(level)	J^π [†]
0	1/2 ⁺	525.54 17	1/2 ⁺	753.6 4	7/2 ⁻	1466.5 12	1/2,3/2,5/2 ⁺
97.66 15	5/2 ⁺	548.67 20	3/2 ⁺	907.0 17	1/2 ⁺	1931.6 12	1/2 ⁺
237.5 15	7/2 ⁺	615.5 5	5/2 ⁺	1026.0 4	(3/2 ⁺ ,5/2 ⁺)	2594.5 12	1/2 ⁻ ,3/2 ⁻
351.4 4	3/2 ⁺	631.85 18	3/2 ⁺	1198.5 9	3/2 ⁺	(5925.44 15)	1/2 ⁺ [‡]

[†] Adopted values.[‡] From thermal capture on $J^\pi=0^+$.

⁹⁸Mo(n,γ) E=thermal **1973De39** (continued)

γ(⁹⁹Mo)

I_γ normalization: From comparison with ⁹⁶Mo and ⁹⁸Mo contamination lines. Δ(γ-normalization)=50% to 100% due to the uncertainties in the thermal capture cross sections.

E _γ	I _γ ^a	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. [†]	δ [†] &	a [†] @	Comments
97.6 2	35 8	97.66	5/2 ⁺	0	1/2 ⁺	E2		1.317 21	α(K)=1.063 17; α(L)=0.210 4; α(M)=0.0382 7 α(N)=0.00537 9; α(O)=0.0001513 24
139.8 15	10 4	237.5	7/2 ⁺	97.66	5/2 ⁺	(M1)		0.100 4	α(K)=0.087 3; α(L)=0.0103 4; α(M)=0.00184 7 α(N)=0.000280 10; α(O)=1.55×10 ⁻⁵ 6
174.8 7	6 2	525.54	1/2 ⁺	351.4	3/2 ⁺	M1+E2	0.8 4	0.096 27	α(K)=0.082 23; α(L)=0.0113 37; α(M)=0.00202 66 α(N)=2.98×10 ⁻⁴ 94; α(O)=1.3×10 ⁻⁵ 4
(197.40 14)	0.70 17	548.67	3/2 ⁺	351.4	3/2 ⁺	[M1,E2]		0.072 33	α(K)=0.062 27; α(L)=0.0083 43; α(M)=0.00149 77 α(N)=2.2×10 ⁻⁴ 11; α(O)=1.00×10 ⁻⁵ 39 E _γ : from the adopted gammas. I _γ : from the adopted branching ratios and I _γ (451γ)=5.5 10. Additional information 1.
253.3 10	11 3	351.4	3/2 ⁺	97.66	5/2 ⁺	[M1,E2]		0.032 12	α(K)=0.0277 96; α(L)=0.0035 15; α(M)=6.3×10 ⁻⁴ 26 α(N)=9.4×10 ⁻⁵ 37; α(O)=4.6×10 ⁻⁶ 14
264.1 2	5.2 10	615.5	5/2 ⁺	351.4	3/2 ⁺	(M1+E2)		0.0280 94	α(K)=0.0243 80; α(L)=0.0031 12; α(M)=5.5×10 ⁻⁴ 22 α(N)=8.2×10 ⁻⁵ 31; α(O)=4.0×10 ⁻⁶ 12
273.0 [‡] 10	0.4 2	1026.0	(3/2 ⁺ ,5/2 ⁺)	753.6	7/2 ⁻				
351.0 10	16 5	351.4	3/2 ⁺	0	1/2 ⁺				
(379.74 17)	1.4 3	615.5	5/2 ⁺	237.5	7/2 ⁺	E2		0.01111	α(K)=0.00966 14; α(L)=0.001199 17; α(M)=0.000215 3 α(N)=3.20×10 ⁻⁵ 5; α(O)=1.598×10 ⁻⁶ 23 E _γ : from the adopted gammas. I _γ : from the adopted branching ratios and I _γ (264γ)=5.2 10. Additional information 2.
^x 385.5 3	0.8 3								
427.6 3	2.3 6	525.54	1/2 ⁺	97.66	5/2 ⁺				
450.9 2	5.5 10	548.67	3/2 ⁺	97.66	5/2 ⁺				
525.6 2	4.4 8	525.54	1/2 ⁺	0	1/2 ⁺				
534.3 [‡] 3	3.8 8	631.85	3/2 ⁺	97.66	5/2 ⁺				
548.9 3	0.8 3	548.67	3/2 ⁺	0	1/2 ⁺				
631.8 [‡] 2	6.7 12	631.85	3/2 ⁺	0	1/2 ⁺				
656.0 3	2.1 6	753.6	7/2 ⁻	97.66	5/2 ⁺				
674.1 [#] 4	2.5 7	1026.0	(3/2 ⁺ ,5/2 ⁺)	351.4	3/2 ⁺				
928.7 [‡] 4	2.3 6	1026.0	(3/2 ⁺ ,5/2 ⁺)	97.66	5/2 ⁺				
1100.8 8	5.0 12	1198.5	3/2 ⁺	97.66	5/2 ⁺				
3333.1 10	1.6 5	(5925.44)	1/2 ⁺	2594.5	1/2 ⁻ ,3/2 ⁻				
3996.0 10	2.8 7	(5925.44)	1/2 ⁺	1931.6	1/2 ⁺				

⁹⁸Mo(n, γ) E=thermal 1973De39 (continued)

$\gamma(^{99}\text{Mo})$ (continued)

<u>Eγ</u>	<u>Iγ^a</u>	<u>E$_i$(level)</u>	<u>J$_i^\pi$</u>	<u>E$_f$</u>	<u>J$_f^\pi$</u>
4461.0 10	1.4 5	(5925.44)	1/2 ⁺	1466.5	1/2,3/2,5/2 ⁺
4902.2 10	1.8 6	(5925.44)	1/2 ⁺	1026.0	(3/2 ⁺ ,5/2 ⁺)
5020.5 15	1.7 6	(5925.44)	1/2 ⁺	907.0	1/2 ⁺
5576.4 10	2.3 8	(5925.44)	1/2 ⁺	351.4	3/2 ⁺
5927.7 7	2.5 8	(5925.44)	1/2 ⁺	0	1/2 ⁺

† From the adopted gammas.

‡ Not placed by 1973De39 but placement is known from other experiments.

Probably misplaced by 1973De39 since placement is known from other experiments.

@ [Additional information 3](#).

& If No value given it was assumed $\delta=1.00$ for E2/M1, $\delta=1.00$ for E3/M2 and $\delta=0.10$ for the other multipolarities.

^a For intensity per 100 neutron captures, multiply by 1.0 5.

^x γ ray not placed in level scheme.

⁹⁸Mo(n,γ) E=thermal 1973De39

Legend

Level Scheme

Intensities: I_γ(1+α) per 100 neutron captures

- ▶ I_γ < 2% × I_γ^{max}
- ▶ I_γ < 10% × I_γ^{max}
- ▶ I_γ > 10% × I_γ^{max}
- - - -▶ γ Decay (Uncertain)

