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 $^{101}\text{Mo } \beta^- \text{ decay (14.61 min)}$  [1993Ha42](#),[1975Wr01](#),[1972Co16](#)

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Type	Author	Citation	History Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2006

Parent:  $^{101}\text{Mo}$ : E=0.0;  $J^\pi=1/2^+$ ;  $T_{1/2}=14.61$  min 3;  $Q(\beta^-)=2824$  24;  $\% \beta^- \text{ decay}=100.0$

Many  $E\gamma$  measurements. The main are: [1993Ha42](#), [1975Wr01](#), [1972Co16](#), [1972Co17](#), [1973Al16](#), [1974HeYW](#).

$\gamma\gamma$  coin: [1972Co17](#), [1974WrZY](#) semi-semi. Others: [1956Ma72](#), [1966Cr13](#).

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 $^{101}\text{Tc}$  Levels

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E(level)	$J^\pi$	$T_{1/2}$	Comments
0.0	$9/2^+$	14.2 min 1	$T_{1/2}$ : av: 14.0 min 1 ( <a href="#">1957Ok01</a> ), 14.3 min 1 ( <a href="#">1954Wi04</a> ). Others: <a href="#">1941Ma03</a> , <a href="#">1948Pe03</a> , <a href="#">1948Mo33</a> .
9.320 9	$7/2^+$	14.3 ns 3	
15.602 10	$5/2^+$	26.8 ns 6	$T_{1/2}$ : 26.8 ns 6 ( <a href="#">1976SvZY</a> , <a href="#">1974SvZZ</a> ) via (ce(L) 6.3 $\gamma$ )(192 $\gamma$ )(t) s-scint.
207.517 20	$1/2^-$	636 $\mu$ s 8	$T_{1/2}$ : from <a href="#">1978Ba18</a> (192 $\gamma$ )(t) pulsed beam. Others: <a href="#">1964Br27</a> , <a href="#">1968Ga17</a> , <a href="#">1968Io01</a> , <a href="#">1970Uy01</a> .
288.45 3	$3/2^-$		
394.77 11	$5/2^-$		
500.43 4			
515.250 19	( $5/2^+$ )		
520.61 12			
533.55 12			
606.46 12	$1/2^+, 3/2$		
616.20 4			
622.06 7			E(level): may correspond with 620-keV ( ${}^3\text{He},\text{d}$ ) L=1 excitation ( <a href="#">1975Ch23</a> ).
669.80 6	( $5/2^-$ )		
711.205 24			
742.32 7			
886.70 3			E(level): probably corresponds to ( ${}^3\text{He},\text{d}$ ) excitation at 890.
911.60 24			
1028.076 25	$3/2^+$		
1103.60 7	( $1/2, 3/2$ )		
1122.04 9			
1188.04 7			
1232.33 14			
1319.57 3	( $3/2^+$ )		
1594.65 5			
1599.08 6			
1614.83 4			
1617.75 12	$1/2^+, 3/2^+$		E(level): may correspond with 1608-keV ( ${}^3\text{He},\text{d}$ ) L=0 excitation.
1644.33 7			
1678.09 6			
1775.5 3	$1/2, 3/2$		
1806.38 4	$3/2^+$		
1808.50 12			
1897.97 4	$3/2^+$		
1962.326 25	( $1/2^+$ )		
2001.33 6			
2047.72 9	( $3/2$ ) <sup>+</sup>		
2056.83 5	( $3/2^+$ )		
2129.83 5	( $1/2, 3/2$ ) <sup>+</sup>		
2218.36 19	( $1/2, 3/2$ ) <sup>+</sup>		
2237.87 8	( $1/2, 3/2$ ) <sup>+</sup>		
2442.26 7	( $1/2, 3/2$ ) <sup>+</sup>		
2557.97 10	( $1/2^+, 3/2^+$ )		
2573.52 25	( $1/2, 3/2$ ) <sup>+</sup>		

**$^{101}\text{Mo}$   $\beta^-$  decay (14.61 min)    1993Ha42, 1975Wr01, 1972Co16 (continued)** $\beta^-$  radiations

E(decay)	E(level)	I $\beta^-$ <sup>†</sup>	Log ft	Comments
(250 24)	2573.52	0.31 2	4.70 15	av E $\beta$ =71 8
(266 24)	2557.97	0.87 7	4.34 14	av E $\beta$ =76 8
(382 24)	2442.26	0.62 3	5.00 10	av E $\beta$ =114 9
(586 24)	2237.87	0.73 3	5.57 7	av E $\beta$ =188 9
(606 24)	2218.36	0.36 2	5.92 7	av E $\beta$ =195 9
(694 24)	2129.83	2.19 6	5.35 6	av E $\beta$ =229 10 E(decay): E( $\beta^-$ )= 0.6 MeV (1956Ma72).
(767 24)	2056.83	2.76 8	5.41 6	av E $\beta$ =257 10
(776 24)	2047.72	20.6 4	4.55 5	av E $\beta$ =261 10 E(decay): E( $\beta^-$ )= 0.7 MeV (1956Ma72).
(823 24)	2001.33	0.92 3	5.99 5	av E $\beta$ =279 10
(862 24)	1962.326	15.0 4	4.85 5	av E $\beta$ =295 10 E(decay): E( $\beta^-$ )= 0.8 MeV (1956Ma72).
(926 24)	1897.97	2.61 7	5.73 5	av E $\beta$ =321 10
(1016 24)	1808.50	0.59 3	6.52 5	av E $\beta$ =358 10
(1018 24)	1806.38	3.3 1	5.78 4	av E $\beta$ =359 10
(1049 24)	1775.5	1.96 6	6.05 4	av E $\beta$ =372 10
(1146 24)	1678.09	0.49 4	6.80 5	av E $\beta$ =414 11
(1180 24)	1644.33	0.60 6	6.76 6	av E $\beta$ =428 11
(1206 24)	1617.75	2.4 2	6.20 5	av E $\beta$ =439 11 E( $\beta^-$ )= 1.2 MeV (1956Ma72).
(1209 24)	1614.83	1.92 8	6.30 4	av E $\beta$ =441 11
(1229 24)	1594.65	1.55 5	6.42 4	av E $\beta$ =449 11
(1504 24)	1319.57	6.6 22	6.13 15	av E $\beta$ =570 11 E( $\beta^-$ )= 1.6 MeV (1956Ma72).
(1702 24)	1122.04	0.45 4	7.51 5	av E $\beta$ =658 11
(1796 24)	1028.076	7.5 8	6.38 6	av E $\beta$ =700 11
(1937 24)	886.70	1.03 24	7.37 11	av E $\beta$ =765 11
(2113 24)	711.205	0.08 2	8.64 11	av E $\beta$ =845 11
(2154 24)	669.80	0.17 3	8.34 8	av E $\beta$ =864 11
(2202 24)	622.06	0.45 4	7.96 5	av E $\beta$ =886 11
(2208 24)	616.20	0.30 8	8.14 12	av E $\beta$ =889 11
(2218 24)	606.46	9.3 9	6.66 5	av E $\beta$ =893 11 E( $\beta^-$ )=2230 40 (1957Ok01) scin. Other: 2200 (1956Ma72) $\beta(590\gamma)$ .
(2303 24)	520.61	0.05 5	9.0 5	av E $\beta$ =933 12
(2324 24)	500.43	0.26 3	8.30 6	av E $\beta$ =942 12
(2429 24)	394.77	0.30 4	8.31 6	av E $\beta$ =992 12
(2536 24)	288.45	0.86 18	7.93 10	av E $\beta$ =1041 12
(2616 24)	207.517	12.8 5	6.818 24	av E $\beta$ =1079 12

<sup>†</sup> Absolute intensity per 100 decays.

<sup>101</sup>Mo  $\beta^-$  decay (14.61 min)    [1993Ha42](#),[1975Wr01](#),[1972Co16](#) (continued)

$\gamma(^{101}\text{Tc})$

I $_{\gamma}$  normalization:  $\Sigma(I_{\gamma}+ce)$  transitions to g.s. +93. +15.6 levels=100  $\beta^-$ ; feeding to these levels is expected to be negligible because of the large  $\Delta J^{\pi}$ .

[1972Co16](#): I(ce) data are normalized to I(ce(K) 192 $\gamma$ )=248 which is deduced from  $\alpha(K)(192\gamma)=0.248$  (M2 theory).

$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\ddagger @}$	$E_i(\text{level})$	$J_i^{\pi}$	$E_f$	$J_f^{\pi}$	Mult.	$\delta$	$a^{\&}$	$I_{(\gamma+ce)} @$	Comments
6.281 <sup>#</sup> 7	29.8 CA	15.602	5/2 <sup>+</sup>	9.320	7/2 <sup>+</sup>	M1+E2	0.010 +2-3	142 4	$4.22 \times 10^3$ 10	$\alpha(L)=113$ 7; $\alpha(M)=20.6$ 12; $\alpha(N+..)=3.39$ 16 $\alpha(N)=3.21$ 16; $\alpha(O)=0.185$ 3 B(M1)(W.u.)=0.0226 13; B(E2)(W.u.)=53 22 L1:L2:L3:M=100 17:13.3 48:11.2 48:23 5 ( <a href="#">1972Co16</a> ). E $_{\gamma}$ : from ce measurements ( <a href="#">1972Co16</a> ). I $_{(\gamma+ce)}$ : from intensity balance. I $_{\gamma}$ : from I( $\gamma+ce$ ) and $\alpha$ . $\delta$ : 0.010 +2-3 from L-subshell ratio data ( <a href="#">1972Co16</a> ).
9.317 <sup>#</sup> 10	115.7 CA	9.320	7/2 <sup>+</sup>	0.0	9/2 <sup>+</sup>	M1+E2	0.015 2	42.2 14	$5.17 \times 10^3$ 11	$\alpha(L)=34.8$ 12; $\alpha(M)=6.34$ 21; $\alpha(N+..)=1.04$ 3 $\alpha(N)=0.99$ 3; $\alpha(O)=0.0573$ 9 B(M1)(W.u.)=0.0426 19; B(E2)(W.u.)= $1.0 \times 10^2$ 3 E $_{\gamma}$ : from ce measurements ( <a href="#">1972Co16</a> ). L1:L2:L3:M=100 3:11.1 20:10.3 17:26 6 ( <a href="#">1972Co16</a> ). I $_{\gamma}$ : from I( $\gamma+ce$ ) and $\alpha$ . I $_{(\gamma+ce)}$ : from intensity balance. $\delta$ : 0.015 2 from L1/L3 ratio data ( <a href="#">1972Co16</a> ). Other: 0.011 4 from L1/L2 ( <a href="#">1972Co16</a> ).
15.606 <sup>#</sup> 15	0.0736 CA	15.602	5/2 <sup>+</sup>	0.0	9/2 <sup>+</sup>	E2		1495	110 22	$\alpha(L)=1188$ 18; $\alpha(M)=222$ 4; $\alpha(N+..)=30.7$ 5 $\alpha(L)=1200$ ; $\alpha(M)=222.1$ B(E2)(W.u.)=14 3 E $_{\gamma}$ : from ce measurements ( <a href="#">1972Co16</a> ). Mult.: from L1:L2:L3=<1.6: 6 2: 10 2 ( <a href="#">1972Co16</a> ). I $_{\gamma}$ : from ratio of I(ce(L2)+ce(L3))=88 22 ( <a href="#">1972Co16</a> ) to $\alpha(L2)+\alpha(L3)=1194$ .
80.92 3	205 6	288.45	3/2 <sup>-</sup>	207.517	1/2 <sup>-</sup>	M1(+E2)		1.6 11		$\alpha(K)=1.3$ 9; $\alpha(L)=0.28$ 23; $\alpha(M)=0.05$ 5; $\alpha(N+..)=0.008$ 7 $\alpha(N)=0.008$ 6; $\alpha(O)=0.00023$ 13 E $_{\gamma}$ : from <a href="#">1972Co16</a> . Others: 80.67 14

<sup>101</sup>Mo β<sup>-</sup> decay (14.61 min) 1993Ha42,1975Wr01,1972Co16 (continued)

<u><math>\gamma(^{101}\text{Tc})</math></u> (continued)								
<u><math>E_\gamma^\dagger</math></u>	<u><math>I_\gamma^{\ddagger @}</math></u>	<u><math>E_i(\text{level})</math></u>	<u><math>J_i^\pi</math></u>	<u><math>E_f</math></u>	<u><math>J_f^\pi</math></u>	<u>Mult.</u>	<u><math>a &amp;</math></u>	<u>Comments</u>
<sup>x</sup> 104.70 8	8.6 7							(1975Wr01), 80.92 3 (1972Co17).
<sup>x</sup> 105.95 5	15.1 8							$I_\gamma$ : others: 191 13 (1972Co16,1972Co17), 281 16 (1975Wr01).
115.76 13	1.6 2	616.20		500.43				Mult.: deduced from $\alpha(K)\exp$ .
<sup>x</sup> 169.0 3	1.5 4							$\alpha(K)\exp=0.47$ 8 (1973Al16) ce(K)/ $I_\gamma$ ; 0.51 9 (1972Co16) ce(K)/ $I_\gamma$ normalized to $\alpha(K)(192\gamma)=0.248$ (M2 theory).
<sup>x</sup> 187.41 20	24 1							$I(\text{ce}(K) 81\gamma)=97$ 17 from $I(\text{ce}(K) 81\gamma)/I(\text{ce}(K) 192\gamma)=0.39$ 7 (1972Co16).
191.92 2	1000	207.517	1/2 <sup>-</sup>	15.602	5/2 <sup>+</sup>	M2	0.29	$E_\gamma$ : possible placement from the 669 level as given in ( <sup>3</sup> He,pny). $E_\gamma$ : Placed from the 395 level but not given in ( <sup>3</sup> He,pny), so evaluator put unplaced. $\alpha(K)=0.246$ 4; $\alpha(L)=0.0342$ 5; $\alpha(M)=0.00630$ 9; $\alpha(N+..)=0.001057$ 15 $\alpha(N)=0.000995$ 14; $\alpha(O)=6.18\times 10^{-5}$ 9 B(M2)(W.u.)=0.00669 10 $E_\gamma$ : others: 192.00 8 (1972Co16), 191.93 4 (1972Co17), 191.89 5 (1975Wr01). Mult.: from $\alpha(K)\exp=0.30$ 6 (1956Ma72) ce(K)/ $I_\gamma$ ; 0.20 3 (1973Al16) ce(K)/ $I_\gamma$ ; 0.26 6 (1978Ba18) K x ray/ $I_\gamma$ .
195.93 4	152 4	711.205		515.250	(5/2 <sup>+</sup> )			
211.98 3	25.0 13	500.43		288.45	3/2 <sup>-</sup>			
221.80 20	5.4 4	742.32		520.61				
274.97 20	4.7 5	669.80	(5/2 <sup>-</sup> )	394.77	5/2 <sup>-</sup>			
318.00 6	12.6 6	1962.326	(1/2 <sup>+</sup> )	1644.33				
327.70 7	11.5 5	616.20		288.45	3/2 <sup>-</sup>			
333.61 6	39.2 16	622.06		288.45	3/2 <sup>-</sup>			
347.56 9	5.6 5	1962.326	(1/2 <sup>+</sup> )	1614.83				
352.97 9	7.7 5	886.70		533.55				
358.2 5	2.4 5	1678.09		1319.57	(3/2 <sup>+</sup> )			
368.4 5	5.4 8	1962.326	(1/2 <sup>+</sup> )	1594.65				
370.0 8	6.5 8	2047.72	(3/2) <sup>+</sup>	1678.09				$E_\gamma$ : from 1975Wr01.
371.6 8	8.4 7	886.70		515.250	(5/2 <sup>+</sup> )			$E_\gamma$ : from 1975Wr01.
377.9 5	8.7 22	911.60		533.55				$I_\gamma$ : others: 8.2 25 (1975Wr01), 11.0 16 (1972Co17).
378.99 21	16.9 8	394.77	5/2 <sup>-</sup>	15.602	5/2 <sup>+</sup>			$E_\gamma$ : from 1975Wr01, not confirmed by 1993Ha42.
381.12 10	17.4 10	669.80	(5/2 <sup>-</sup> )	288.45	3/2 <sup>-</sup>			
<sup>x</sup> 384.4 4	2.8 4							$E_\gamma$ : possible placement from the 395 level as given in ( <sup>3</sup> He,pny).
398.84 7	47.5 14	606.46	1/2 <sup>+,3/2</sup>	207.517	1/2 <sup>-</sup>			
408.69 6	84 3	616.20		207.517	1/2 <sup>-</sup>			
421.67 10	29.9 21	1028.076	3/2 <sup>+</sup>	606.46	1/2 <sup>+,3/2</sup>			$I_\gamma$ : others: 22 4 (1975Wr01), 37 3 (1974HeYW), 35 3 (1973Al16).
<sup>x</sup> 422.4 5	5.2 9							
<sup>x</sup> 432.65 14	6.0 6							$I_\gamma$ : other: 5.6 12 (1974HeYW).
442.0 3	2.9 4	2056.83	(3/2 <sup>+</sup> )	1614.83				
448.60 6	36.8 16	2047.72	(3/2) <sup>+</sup>	1599.08				

<sup>101</sup>Mo  $\beta^-$  decay (14.61 min)    1993Ha42, 1975Wr01, 1972Co16 (continued)

 $\gamma(^{101}\text{Tc})$  (continued)

$E_\gamma^\dagger$	$I_\gamma^{\ddagger @}$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
452.5 3	4.2 3	1122.04		669.80	(5/2 <sup>-</sup> )	
<sup>x</sup> 469.02 12	4.2 3					$E_\gamma$ : possible placement from a 676 level as given in ( <sup>3</sup> He,pn $\gamma$ ). $I_\gamma$ : other: 9 2 (1974HeYW).
<sup>x</sup> 482.52 12	4.7 6					
491.5 3	3.7 3	500.43		9.320	7/2 <sup>+</sup>	
497.0 8	8.0 9	1103.60	(1/2,3/2)	606.46	1/2 <sup>+</sup> ,3/2	
499.65 3	76.6 24	515.250	(5/2 <sup>+</sup> )	15.602	5/2 <sup>+</sup>	
505.05 18	20 2	520.61		15.602	5/2 <sup>+</sup>	$I_\gamma$ : others: 71 13 (1975Wr01), 88 6 (1974HeYW), 81 8 (1973Al16).
505.92 3	638 14	515.250	(5/2 <sup>+</sup> )	9.320	7/2 <sup>+</sup>	
510.21 12	13.5 18	2557.97	(1/2 <sup>+</sup> ,3/2 <sup>+</sup> )	2047.72	(3/2) <sup>+</sup>	
512.83 5	77 5	1028.076	3/2 <sup>+</sup>	515.250	(5/2 <sup>+</sup> )	$E_\gamma$ : from 1974HeYW. The value of 512.18 of 1975Wr01 appears to be a misprint.
514.1 4	44.5 16	1617.75	1/2 <sup>+</sup> ,3/2 <sup>+</sup>	1103.60	(1/2,3/2)	
515.42 10	44.5 16	1122.04		606.46	1/2 <sup>+</sup> ,3/2	
523.83 12	8.7 5	533.55		9.320	7/2 <sup>+</sup>	
533.57 7	21.8 10	533.55		0.0	9/2 <sup>+</sup>	$E_\gamma$ : other: 523.80 12 (1975Wr01).
540.1 5	5.2 7	2218.36	(1/2,3/2) <sup>+</sup>	1678.09		
560.3 3	3.8 4	2237.87	(1/2,3/2) <sup>+</sup>	1678.09		
566.62 5	45 2	1594.65		1028.076	3/2 <sup>+</sup>	
571.62 17	9.7 6	1188.04		616.20		
582.9 9	4.4 7	1103.60	(1/2,3/2)	520.61		
590.10 19	1055 46	606.46	1/2 <sup>+</sup> ,3/2	15.602	5/2 <sup>+</sup>	
590.10 19	61 6	1617.75	1/2 <sup>+</sup> ,3/2 <sup>+</sup>	1028.076	3/2 <sup>+</sup>	$I_\gamma$ : other: 300 72 (1975Wr01).
602.98 23	5.1 5	1103.60	(1/2,3/2)	500.43		
606.8 3	4 1	616.20		9.320	7/2 <sup>+</sup>	
608.34 4	56 2	1319.57	(3/2 <sup>+</sup> )	711.205		
611.6 5	7.3 10	2573.52	(1/2,3/2) <sup>+</sup>	1962.326	(1/2 <sup>+</sup> )	
625.3 6	5.0 7	1232.33		606.46	1/2 <sup>+</sup> ,3/2	
642.71 7	66.7 24	1962.326	(1/2 <sup>+</sup> )	1319.57	(3/2 <sup>+</sup> )	
650.9 7	1.4 3	1678.09		1028.076	3/2 <sup>+</sup>	
652.7 11	1.5 5	1775.5	1/2,3/2	1122.04		$E_\gamma$ : not seen by 1993Ha42.
660.64 7	12.3 6	669.80	(5/2 <sup>-</sup> )	9.320	7/2 <sup>+</sup>	$E_\gamma$ : This transition not seen in ( <sup>3</sup> He,pn $\gamma$ ) need confirmation?
675.9 6	2.5 4	2573.52	(1/2,3/2) <sup>+</sup>	1897.97	3/2 <sup>+</sup>	
686.0 3	3.7 3	1808.50		1122.04		
695.56 6	366 8	711.205		15.602	5/2 <sup>+</sup>	$E_\gamma$ : av from 1972Co17 and 1975Wr01. $I_\gamma$ : others: 310 30 (1975Wr01), 355 11 (1973Al16), 424 22 (1974HeYW).
701.80 13	19.6 11	711.205		9.320	7/2 <sup>+</sup>	$I_\gamma$ : others: 23 3 (1972Co17), 17.6 14 (1975Wr01).
707.8 8	3.5 7	1594.65		886.70		
713.04 9	183 8	1319.57	(3/2 <sup>+</sup> )	606.46	1/2 <sup>+</sup> ,3/2	
728.19 16	5.4 5	2047.72	(3/2) <sup>+</sup>	1319.57	(3/2 <sup>+</sup> )	
732.98 7	14.7 8	742.32		9.320	7/2 <sup>+</sup>	
737.3 8	1.9 4	2056.83	(3/2 <sup>+</sup> )	1319.57	(3/2 <sup>+</sup> )	
739.54 13	16.3 8	1028.076	3/2 <sup>+</sup>	288.45	3/2 <sup>-</sup>	
<sup>x</sup> 774.15 10	19.2 9					
775.8 8	5.7 10	1897.97	3/2 <sup>+</sup>	1122.04		$E_\gamma$ : not seen by 1993Ha42.

<sup>101</sup>Mo β<sup>-</sup> decay (14.61 min) 1993Ha42,1975Wr01,1972Co16 (continued)

<u><math>\gamma(^{101}\text{Tc})</math></u> (continued)						
$E_\gamma^\dagger$	$I_\gamma^{\ddagger @}$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
778.29 5	53.4 21	1806.38	3/2 <sup>+</sup>	1028.076	3/2 <sup>+</sup>	
<sup>x</sup> 790.04 13	6.9 5					
798.0 5	3.8 5	2573.52	(1/2,3/2) <sup>+</sup>	1775.5	1/2,3/2	
804.29 5	52.6 23	1319.57	(3/2 <sup>+</sup> )	515.250	(5/2 <sup>+</sup> )	
815.29 8	10.3 14	1103.60	(1/2,3/2)	288.45	3/2 <sup>-</sup>	
847.24 24	4.1 5	2442.26	(1/2,3/2) <sup>+</sup>	1594.65		
<sup>x</sup> 853.09 7	13.2 6					
859.13 18	6.8 5	1962.326	(1/2 <sup>+</sup> )	1103.60	(1/2,3/2)	
869.7 3	15.8 10	1897.97	3/2 <sup>+</sup>	1028.076	3/2 <sup>+</sup>	
871.08 5	94 4	886.70		15.602	5/2 <sup>+</sup>	$I_\gamma$ : others: 82 5 (1975Wr01), 109 9 (1974HeYW), 97 22 (1973Al16).
877.39 4	177 10	886.70		9.320	7/2 <sup>+</sup>	$I_\gamma$ : others: 164 10 (1975Wr01), 208 15 (1974HeYW).
883.39 6	35.6 16	1594.65		711.205		$I_\gamma$ : others: 33.5 18 (1975Wr01), 38 3 (1974HeYW).
887.0 3	10.3 7	886.70		0.0	9/2 <sup>+</sup>	
888.7 3	13.0 8	1775.5	1/2,3/2	886.70		
894.4 16	3.1 13	1806.38	3/2 <sup>+</sup>	911.60		$E_\gamma$ : not seen by 1993Ha42.
895.89 20	9.5 6	1103.60	(1/2,3/2)	207.517	1/2 <sup>-</sup>	
903.55 9	12.0 6	1614.83		711.205		
933.3 3	33 3	1644.33		711.205		
934.21 3	226 14	1962.326	(1/2 <sup>+</sup> )	1028.076	3/2 <sup>+</sup>	
943.98 21	5.9 6	1232.33		288.45	3/2 <sup>-</sup>	$I_\gamma$ : others: 4.8 7 (1975Wr01), 8.2 24 (1974HeYW).
<sup>x</sup> 980.52 7	15.0 8			606.46	1/2 <sup>+,3/2</sup>	$E_\gamma$ : Placed from the 1188 level but not given in ( <sup>3</sup> He,pny), so evaluator put unplaced.
988.05 12	9.7 6	1594.65		1122.04		$I_\gamma$ : others: 8.4 7 (1975Wr01), 13.3 18 (1974HeYW).
1007.4 3	9.5 8	2129.83	(1/2,3/2) <sup>+</sup>			
1011.05 14	49 4	1617.75	1/2 <sup>+,3/2</sup>	606.46	1/2 <sup>+,3/2</sup>	$I_\gamma$ : other: 120 13 (1975Wr01).
1012.47 4	715 37	1028.076	3/2 <sup>+</sup>	15.602	5/2 <sup>+</sup>	
1018.58 25	40 2	1028.076	3/2 <sup>+</sup>	9.320	7/2 <sup>+</sup>	
1020.0 3	21.2 9	2047.72	(3/2) <sup>+</sup>	1028.076	3/2 <sup>+</sup>	
1030.1 4	3.8 4	2218.36	(1/2,3/2) <sup>+</sup>	1188.04		
1049.80 6	19.1 10	2237.87	(1/2,3/2) <sup>+</sup>	1188.04		
1064.59 11	15.1 8	1775.5	1/2,3/2	711.205		
1065.9 4	8.6 6	1599.08		533.55		
1160.98 4	221 7	2047.72	(3/2) <sup>+</sup>	886.70		
1169.23 17	12.1 9	1775.5	1/2,3/2	606.46	1/2 <sup>+,3/2</sup>	
1184.19 23	10.0 7	1806.38	3/2 <sup>+</sup>	622.06		
1186.76 4	55.5 21	1897.97	3/2 <sup>+</sup>	711.205		
1199.94 4	98.6 30	1806.38	3/2 <sup>+</sup>	606.46	1/2 <sup>+,3/2</sup>	
1209.92 21	7.2 6	2237.87	(1/2,3/2) <sup>+</sup>	1028.076	3/2 <sup>+</sup>	
1218.0 5	3.1 4	2129.83	(1/2,3/2) <sup>+</sup>	911.60		
1249.4 5	12.7 9	1644.33		394.77	5/2 <sup>-</sup>	
1251.10 4	259 8	1962.326	(1/2 <sup>+</sup> )	711.205		
1260.21 15	8.1 7	1775.5	1/2,3/2	515.250	(5/2 <sup>+</sup> )	
<sup>x</sup> 1286.26 17	5.9 5					
1290.7 3	6.2 4	1806.38	3/2 <sup>+</sup>	515.250	(5/2 <sup>+</sup> )	

$^{101}\text{Mo}$   $\beta^-$  decay (14.61 min)    1993Ha42,1975Wr01,1972Co16 (continued)

$\gamma(^{101}\text{Tc})$  (continued)

$E_\gamma^\dagger$	$I_\gamma^{\ddagger @}$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
1293.29 17	11.6 5	1808.50	(3/2 <sup>+</sup> )	515.250	(5/2 <sup>+</sup> )	
1304.00 4	149 4	1319.57		15.602	5/2 <sup>+</sup>	
1308.13 20	4.8 5	1808.50		500.43		
1310.7 13	1.7 4	1599.08		288.45	3/2 <sup>-</sup>	
1314.28 25	11.7 6	2056.83	(3/2 <sup>+</sup> )	742.32		
1325.65 15	15.3 19	2557.97	(1/2 <sup>+</sup> ,3/2 <sup>+</sup> )	1232.33		
1336.40 13	8.4 4	2047.72	(3/2) <sup>+</sup>	711.205		$I_\gamma$ : others: 7.4 7 (1975Wr01), 11.2 17 (1972Co17).
x1339.42 9	9.8 6					
1346.09 7	51.8 21	1962.326	(1/2 <sup>+</sup> )	616.20		$I_\gamma$ : others: 46 3 (1975Wr01), 69 4 (1974HeYW).
1350.8 7	2.7 3	2237.87	(1/2,3/2) <sup>+</sup>	886.70		
1355.89 5	93 4	1962.326	(1/2 <sup>+</sup> )	606.46	1/2 <sup>+</sup> ,3/2	
1377.95 17	13.1 7	2047.72	(3/2) <sup>+</sup>	669.80	(5/2 <sup>-</sup> )	
1380.4 8	6.3 6	1775.5	1/2,3/2	394.77	5/2 <sup>-</sup>	
1382.71 6	62 2	1897.97	3/2 <sup>+</sup>	515.250	(5/2 <sup>+</sup> )	
1387.6 3	4.0 3	2129.83	(1/2,3/2) <sup>+</sup>	742.32		
1394.86 6	34.3 15	2001.33		606.46	1/2 <sup>+</sup> ,3/2	
1414.20 6	27.2 13	2442.26	(1/2,3/2) <sup>+</sup>	1028.076	3/2 <sup>+</sup>	
1418.56 6	49 2	2129.83	(1/2,3/2) <sup>+</sup>	711.205		
x1426.9 9	1.9 3					
x1429.21 20	3.9 23					
x1431.68 18	7.0 10					$I_\gamma$ : other: 16 3 (1972Co17).
1431.68 18	19.9 7	2047.72	(3/2) <sup>+</sup>	616.20		
1435.1 4	4.5 4	2056.83	(3/2 <sup>+</sup> )	622.06		
1440.84 11	8.3 5	2047.72	(3/2) <sup>+</sup>	606.46	1/2 <sup>+</sup> ,3/2	
1451.1 4	3.5 4	2573.52	(1/2,3/2) <sup>+</sup>	1122.04		
1485.9 2	5.5 3	2001.33		515.250	(5/2 <sup>+</sup> )	
1507.0 7	2.7 7	2218.36	(1/2,3/2) <sup>+</sup>	711.205		
1514.10 22	9.7 6	2047.72	(3/2) <sup>+</sup>	533.55		
1517.8 4	11.9 9	1806.38	3/2 <sup>+</sup>	288.45	3/2 <sup>-</sup>	
1520.4 5	12.5 16	1808.50		288.45	3/2 <sup>-</sup>	
1523.0 3	15.4 7	2129.83	(1/2,3/2) <sup>+</sup>	606.46	1/2 <sup>+</sup> ,3/2	
1526.6 5	5.4 5	2237.87	(1/2,3/2) <sup>+</sup>	711.205		
1530.3 5	8 3	2557.97	(1/2 <sup>+</sup> ,3/2 <sup>+</sup> )	1028.076	3/2 <sup>+</sup>	
1532.49 4	337 10	2047.72	(3/2) <sup>+</sup>	515.250	(5/2 <sup>+</sup> )	
1548.68 24	8.2 6	2218.36	(1/2,3/2) <sup>+</sup>	669.80	(5/2 <sup>-</sup> )	
1583.1 3	4.5 4	1599.08		15.602	5/2 <sup>+</sup>	
1589.67 9	14.9 6	1599.08		9.320	7/2 <sup>+</sup>	
1594.8 9	1.2 3	1594.65		0.0	9/2 <sup>+</sup>	
1599.26 5	96 4	1614.83		15.602	5/2 <sup>+</sup>	
1605.3 6	2.3 3	1614.83		9.320	7/2 <sup>+</sup>	
1609.2 3	4.9 4	2129.83	(1/2,3/2) <sup>+</sup>	520.61		
1615.0 4	3.1 3	1614.83		0.0	9/2 <sup>+</sup>	
1629.4 5	2.7 3	2129.83	(1/2,3/2) <sup>+</sup>	500.43		

<sup>101</sup>Mo β<sup>-</sup> decay (14.61 min)    1993Ha42, 1975Wr01, 1972Co16 (continued)

 $\gamma(^{101}\text{Tc})$  (continued)

E <sub>γ</sub> <sup>†</sup>	I <sub>γ</sub> <sup>‡@</sup>	E <sub>i</sub> (level)	J <sub>i</sub> <sup>π</sup>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>	Comments
1646.4 3	4.3 4	2557.97	(1/2 <sup>+</sup> ,3/2 <sup>+</sup> )	911.60		
1653.3 4	4.2 3	2047.72	(3/2) <sup>+</sup>	394.77	5/2 <sup>-</sup>	
1662.49 6	38.4 7	1678.09		15.602	5/2 <sup>+</sup>	
1673.91 6	92 4	1962.326	(1/2 <sup>+</sup> )	288.45	3/2 <sup>-</sup>	
1712.93 15	10.9 6	2001.33		288.45	3/2 <sup>-</sup>	
1722.1 6	1.8 5	2237.87	(1/2,3/2) <sup>+</sup>	515.250	(5/2 <sup>+</sup> )	
1754.90 8	20.5 9	1962.326	(1/2 <sup>+</sup> )	207.517	1/2 <sup>-</sup>	I <sub>γ</sub> : other: 18.5 10 (1975Wr01).
1759.72 6	55.2 24	1775.5	1/2,3/2	15.602	5/2 <sup>+</sup>	
1768.22 19	7.8 5	2056.83	(3/2 <sup>+</sup> )	288.45	3/2 <sup>-</sup>	
1840.24 5	77 5	2047.72	(3/2) <sup>+</sup>	207.517	1/2 <sup>-</sup>	
x1876.3 9	1.4 2					
1882.26 25	4.7 3	1897.97	3/2 <sup>+</sup>	15.602	5/2 <sup>+</sup>	
1888.3 5	2.4 4	1897.97	3/2 <sup>+</sup>	9.320	7/2 <sup>+</sup>	
1921.4 5	2.9 4	2442.26	(1/2,3/2) <sup>+</sup>	520.61		
1941.8 4	3.0 3	2557.97	(1/2 <sup>+</sup> ,3/2 <sup>+</sup> )	616.20		
1946.54 24	4.4 3	1962.326	(1/2 <sup>+</sup> )	15.602	5/2 <sup>+</sup>	
2024.4 8	3.7 4	2557.97	(1/2 <sup>+</sup> ,3/2 <sup>+</sup> )	533.55		
x2028.1 9	5.5 9					E <sub>γ</sub> : not seen by 1993Ha42.
2032.10 5	362 10	2047.72	(3/2) <sup>+</sup>	15.602	5/2 <sup>+</sup>	
2038.4 5	11.4 15	2047.72	(3/2) <sup>+</sup>	9.320	7/2 <sup>+</sup>	E <sub>γ</sub> : not seen by 1993Ha42.
2041.24 5	118 4	2056.83	(3/2 <sup>+</sup> )	15.602	5/2 <sup>+</sup>	
2047.31 14	4.9 4	2056.83	(3/2 <sup>+</sup> )	9.320	7/2 <sup>+</sup>	
x2088.79 5	43.4 20					
x2112.77 25	7.9 14					
2114.34 8	31.6 14	2129.83	(1/2,3/2) <sup>+</sup>	15.602	5/2 <sup>+</sup>	
x2131.4 4	1.9 4					E <sub>γ</sub> : not seen by 1993Ha42.
x2223.26 11	9.0 4					
x2337.8 8	0.8 2					
x2404.7 8	1.07 13					

<sup>†</sup> Weighted average of: 1972Co17, 1974HeYW and 1975Wr01, unless otherwise noted. For E<sub>γ</sub>>1340, the values of 1972Co17 are not included (lower).

<sup>‡</sup> From 1993Ha42 who have weighted his work with 1972Co16, 1973Al16, 1974HeYW, 1975Wr01.

<sup>#</sup> From ce spectra (1972Co16) s, as for I(ce).

<sup>@</sup> For absolute intensity per 100 decays, multiply by 0.01821 2I.

<sup>&</sup> Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

<sup>x</sup> γ ray not placed in level scheme.

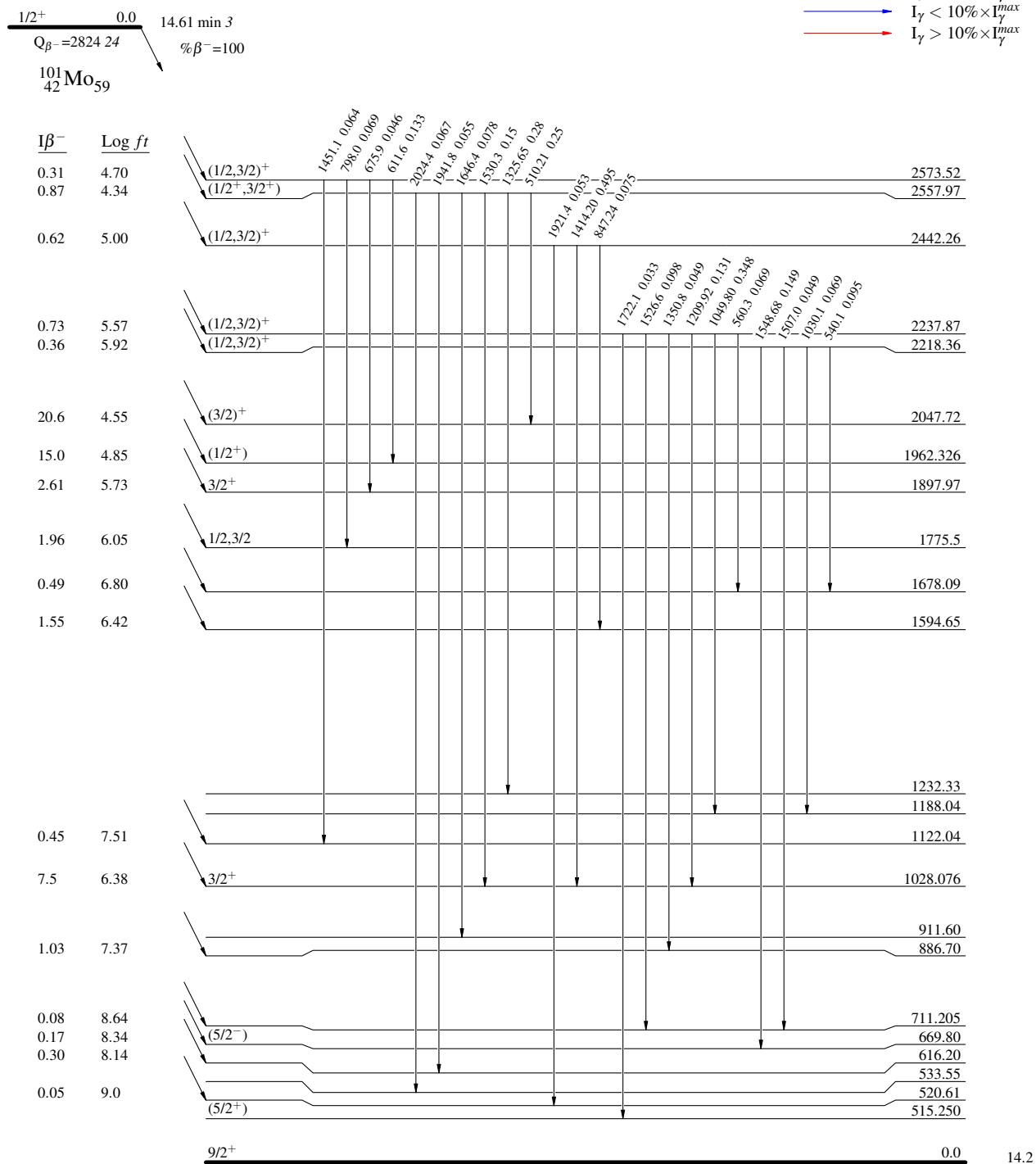
$^{101}\text{Mo } \beta^- \text{ decay (14.61 min)} \quad 1993\text{Ha42,1975Wr01,1972Co16}$ 

## Decay Scheme

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays

## Legend

- $\text{---} \rightarrow I_\gamma < 2\% \times I_\gamma^{\max}$
- $\text{---} \rightarrow I_\gamma < 10\% \times I_\gamma^{\max}$
- $\text{---} \rightarrow I_\gamma > 10\% \times I_\gamma^{\max}$



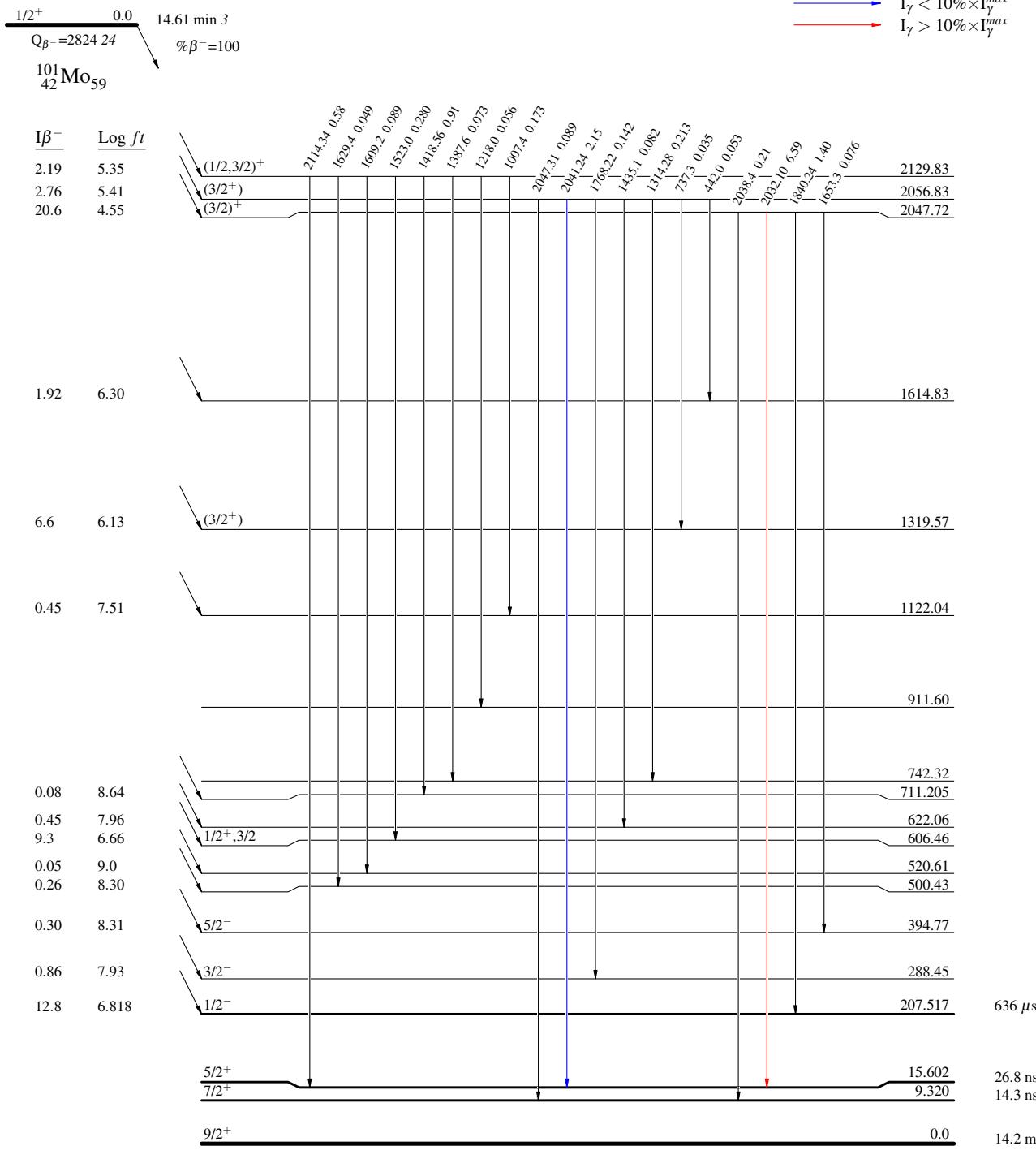
$^{101}\text{Mo} \beta^-$  decay (14.61 min) 1993Ha42,1975Wr01,1972Co16

## Decay Scheme (continued)

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays

## Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$

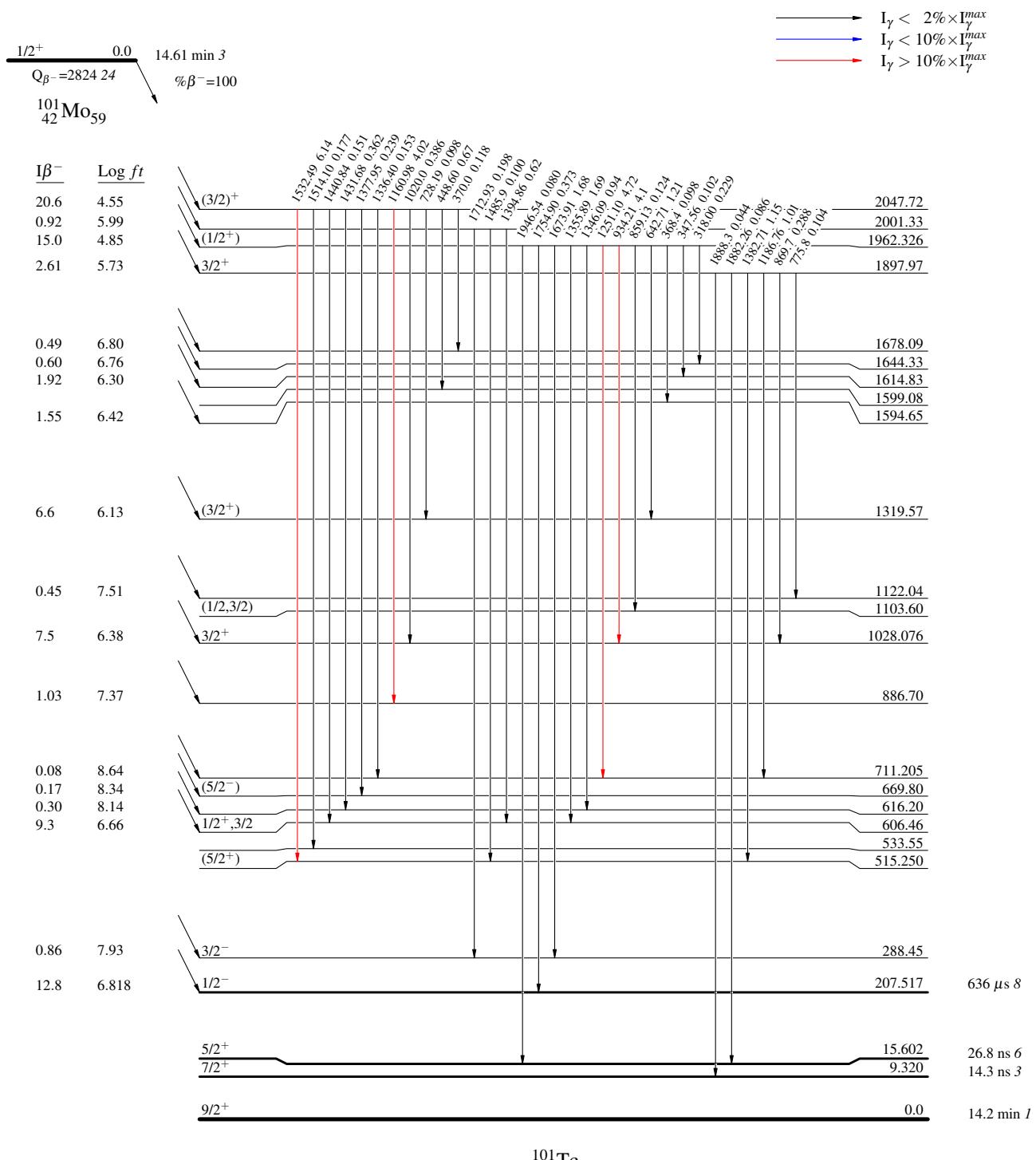


$^{101}\text{Mo} \beta^-$  decay (14.61 min) 1993Ha42,1975Wr01,1972Co16

## Decay Scheme (continued)

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays

Legend



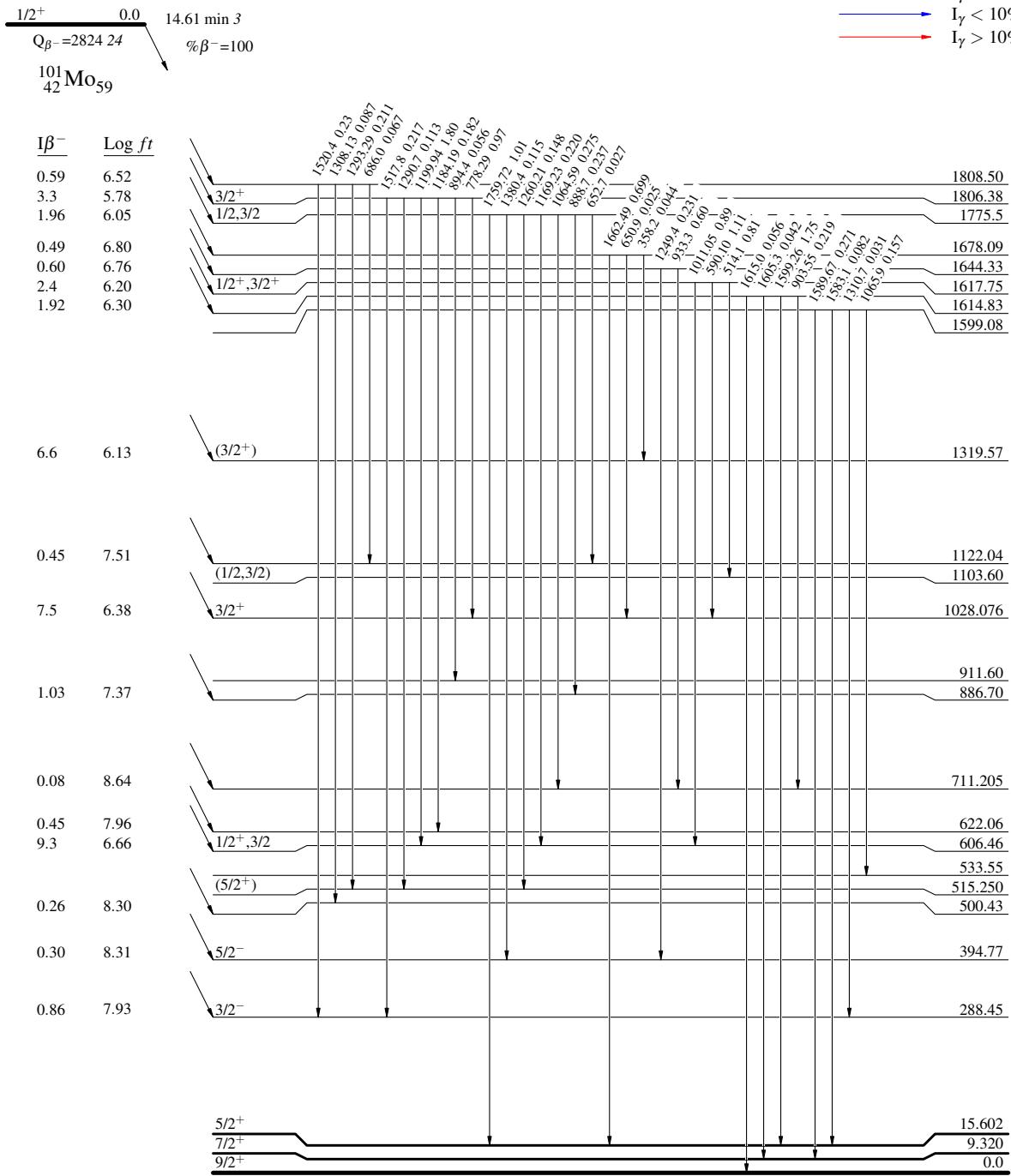
$^{101}\text{Mo} \beta^-$  decay (14.61 min) 1993Ha42,1975Wr01,1972Co16

## Decay Scheme (continued)

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays

## Legend

- $\longrightarrow$   $I_\gamma < 2\% \times I_\gamma^{\max}$
- $\longrightarrow$   $I_\gamma < 10\% \times I_\gamma^{\max}$
- $\longrightarrow$   $I_\gamma > 10\% \times I_\gamma^{\max}$

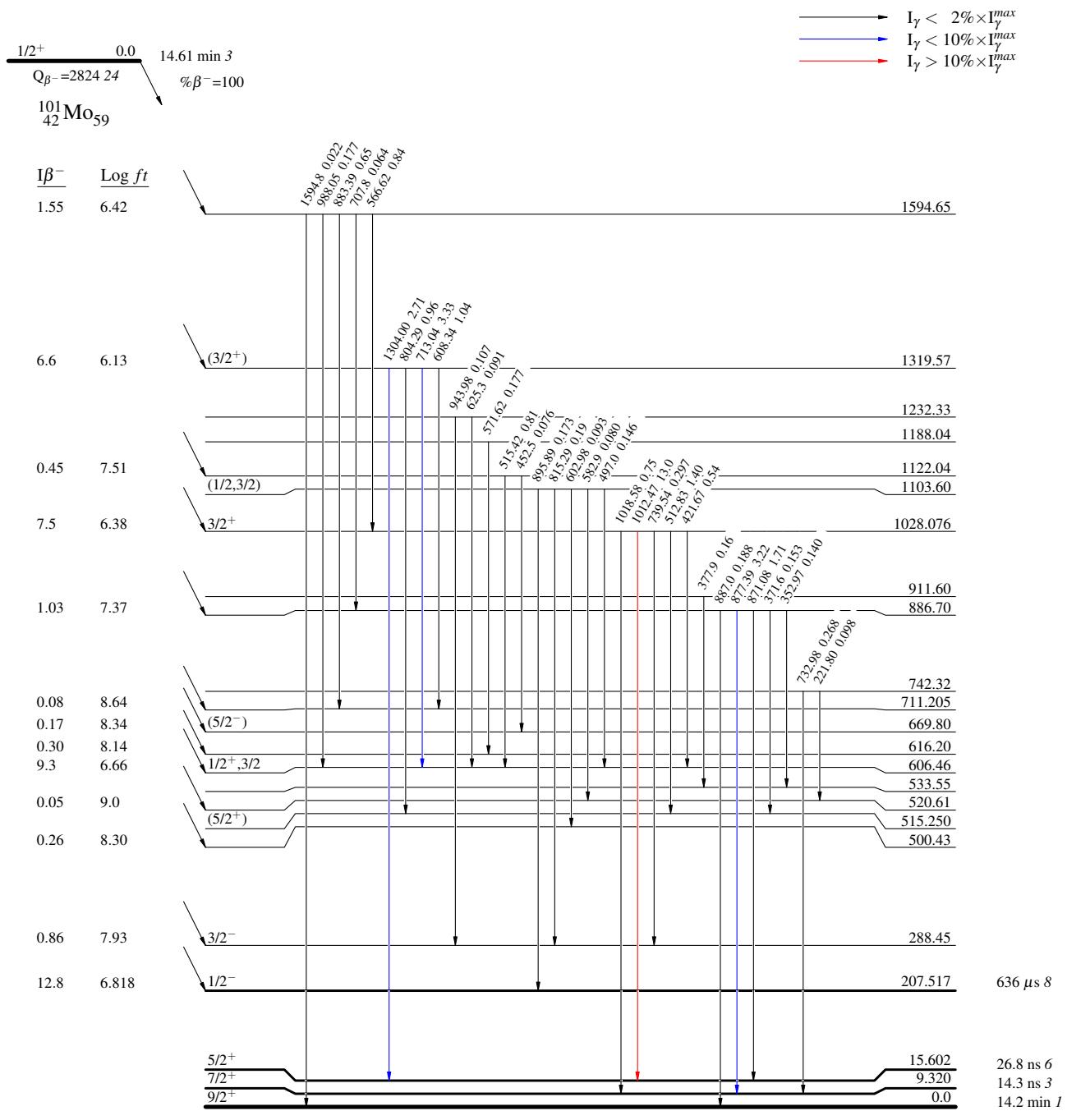


$^{101}\text{Mo} \beta^-$  decay (14.61 min) 1993Ha42,1975Wr01,1972Co16

## Decay Scheme (continued)

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays

Legend



$^{101}\text{Mo}$   $\beta^-$  decay (14.61 min) 1993Ha42,1975Wr01,1972Co16

## Decay Scheme (continued)

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$

