^{98}Mo(α,nγ) 1983Ka25

History

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

E=10-18 MeV.
Measured: γ, $\gamma\gamma$, $\gamma(\theta)$, γ(E), Ge(Li) detector.
The A_2, A_4 can be found in 1983Ka25.

^{101}Ru Levels

E(level)	J^{π} †	$T_{1/2}$	Comments
0	$5/2^+$	stable	
127.2 *3*	$3/2^+$		
306.8 *3*	$7/2^+$		
311.3 *3*	$3/2^+$,$5/2^+$		
324.8 *3*	$1/2^+$		
422.2 *3*	$3/2^+$		
527.4 *3*	$11/2^-$		
545.0 *3*	$7/2^+$		
598.3 *3*	(3/2,5/2)		J^{π}: excit gives 3/2 or 5/2. $\gamma(\theta)$ shows strong preference for J=5/2.
616.3 *3*	$(3/2,5/2)^+$		
720.1 *3*	$9/2^+$		
842.9 *3*	$(7/2)^+$		
928.9 *3*	$(9/2^+,7/2^+)$		
938.5 *3*	$(7/2)^+$		
958.0 *3*	$15/2^-$		
1001.1 *3*	$11/2^+$		
1206.8 *3*			
1218.9 *3*			
1321.6 *3*	$(11/2^+)$		
1389.9 *3*			
1501.0 *3*	$13/2^+$		
1536.5 *3*			
1587.2 *3*	$(5/2^+)$		
1621.9 *3*	$19/2^-$		
1762.0 *3*			
1773.8 *3*	$11/2^-$		
1862.2 *3*	$15/2^+$		
1963.3? *3*			
2017.3 *3*			
2063.0 *3*			
2240.3? *3*			
2345.6 *3*			
2377.3 *3*			
2471.2 *3*	$23/2^-$		
2886.7 *3*			

† From Adopted Levels, unless otherwise noted.

^{98}Mo(α,nγ) 1983Ka25 (continued)

$\gamma(^{101}Ru)$

ΔE: Uncertainties not given by the authors, assigned to be 0.3 keV by evaluator.

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	Comments
127.2 *3*	31 *1*	127.2	3/2$^+$	0	5/2$^+$			
175.1 *3*	2.7 *1*	720.1	9/2$^+$	545.0	7/2$^+$			
179.3 *3*	<1	306.8	7/2$^+$	127.2	3/2$^+$			
184.1 *3*	18.4 *4*	311.3	3/2$^+$,5/2$^+$	127.2	3/2$^+$	M1+E2	−1.5 *3*	
197.6 *3*	2.40 *5*	324.8	1/2$^+$	127.2	3/2$^+$			
220.6 *3*	60.5 *10*	527.4	11/2$^-$	306.8	7/2$^+$	M2		Mult.: from adopted gammas.
233.7 *3*	<1	545.0	7/2$^+$	311.3	3/2$^+$,5/2$^+$			
238.2 *3*	<1	545.0	7/2$^+$	306.8	7/2$^+$			
281.0 *3*	2.30 *5*	1001.1	11/2$^+$	720.1	9/2$^+$	M1+E2	−1.5 *3*	
287.0 *3*	2.5 *1*	598.3	(3/2,5/2)	311.3	3/2$^+$,5/2$^+$			
291.5 *3*	1.20 *5*	598.3	(3/2,5/2)	306.8	7/2$^+$			
295.0 *3*	1.70 *5*	422.2	3/2$^+$	127.2	3/2$^+$			
306.8 *3*	100	306.8	7/2$^+$	0	5/2$^+$			
311.2 *3*	3.0 *1*	311.3	3/2$^+$,5/2$^+$	0	5/2$^+$			
324.8 *3*	<1	324.8	1/2$^+$	0	5/2$^+$			
383.6 *3*	1.40 *3*	928.9	(9/2$^+$,7/2$^+$)	545.0	7/2$^+$	M1+E2	−1.2 *4*	
393.0[&] *3*	0.44[&] *3*	938.5	(7/2)$^+$	545.0	7/2$^+$			I_γ: From β^- decay.
393.0[&] *3*	0.86[&] *4*	1321.6	(11/2$^+$)	928.9	(9/2$^+$,7/2$^+$)			
408.6 *3*	<1	720.1	9/2$^+$	311.3	3/2$^+$,5/2$^+$			
413.2 *3*	1.60 *5*	720.1	9/2$^+$	306.8	7/2$^+$	M1+E2	−1.2 *2*	
422.2 *3*	<1	422.2	3/2$^+$	0	5/2$^+$			
430.6 *3*	34.0 *5*	958.0	15/2$^-$	527.4	11/2$^-$	E2		
489.1 *3*	2.20 *5*	616.3	(3/2,5/2)$^+$	127.2	3/2$^+$	M1+E2	−1.6 *3*	
531.4 *3*	2.81 *8*	842.9	(7/2)$^+$	311.3	3/2$^+$,5/2$^+$	D+Q	−1.1 *2*	I_γ: Authors′ value of 28.1 is a misprint, 2.81 is deduced from coin spectrum.
545.0 *3*	16.2 *2*	545.0	7/2$^+$	0	5/2$^+$	M1+E2	−1.1 *3*	
598.3 *3*	11.0 *4*	598.3	(3/2,5/2)	0	5/2$^+$			
601.2 *3*	≈3.8	1321.6	(11/2$^+$)	720.1	9/2$^+$			
608.5 *3*	1.90 *6*	1206.8		598.3	(3/2,5/2)			
616.3 *3*	1.0 *3*	616.3	(3/2,5/2)$^+$	0	5/2$^+$			I_γ: from branching in β^- decay.
617.1 *3*	1.66 *10*	928.9	(9/2$^+$,7/2$^+$)	311.3	3/2$^+$,5/2$^+$			
622.1 *3*	2.9 *1*	928.9	(9/2$^+$,7/2$^+$)	306.8	7/2$^+$	M1+E2	−0.94 *3*	
627.2 *3*	1.66 *10*	938.5	(7/2)$^+$	311.3	3/2$^+$,5/2$^+$			I_γ: see 393γ.
653.1 *3*	<1	2240.3?		1587.2	(5/2$^+$)			
658.3 *3*	1.30 *5*	1587.2	(5/2$^+$)	928.9	(9/2$^+$,7/2$^+$)			
663.9 *3*	9.2 *2*	1621.9	19/2$^-$	958.0	15/2$^-$	E2		
673.9 *3*	1.30 *4*	1218.9		545.0	7/2$^+$			
694.3 *3*	16.1 *4*	1001.1	11/2$^+$	306.8	7/2$^+$	E2		I_γ: The 694γ is not confirmed by 1993Ha42 in β^- decay.
715.7 *3*	1.80 *5*	842.9	(7/2)$^+$	127.2	3/2$^+$	E2		
720.1 *3*	18.5 *3*	720.1	9/2$^+$	0	5/2$^+$	E2		
723.7 *3*	<1	2345.6		1621.9	19/2$^-$			I_γ: masked by strong 720.1γ.
744.8 *3*	1.50 *5*	1587.2	(5/2$^+$)	842.9	(7/2)$^+$			
776.6 *3*	4.5 *1*	1321.6	(11/2$^+$)	545.0	7/2$^+$	E2		
780.9 *3*	8.5 *2*	1501.0	13/2$^+$	720.1	9/2$^+$	E2		
815.8 *3*	2.40 *5*	1773.8	11/2$^-$	958.0	15/2$^-$	E2		
833.1 *3*	3.4 *1*	1762.0		928.9	(9/2$^+$,7/2$^+$)			
842.9 *3*	[#]	842.9	(7/2)$^+$	0	5/2$^+$			I_γ: not given by authors; doublet in singles.
849.3 *3*	14.6 *3*	2471.2	23/2$^-$	1621.9	19/2$^-$	E2		I_γ: contaminated with 6$^+$ to 4$^+$ transition in ^{100}Ru, Iγ<9.2.

Continued on next page (footnotes at end of table)

^{98}Mo(α,nγ) 1983Ka25 (continued)

$\gamma(^{101}Ru)$ (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
861.1 *3*	4.8 *1*	1862.2	$15/2^+$	1001.1	$11/2^+$	E2	
867.2 *3*	<1	1587.2	$(5/2^+)$	720.1	$9/2^+$		
876.3 *3*	#	2377.3		1501.0	$13/2^+$		I_γ: not given by authors; doublet in singles.
928.9 *3*	4.30 *5*	928.9	$(9/2^+,7/2^+)$	0	$5/2^+$	E2	
938.2[&] *3*	0.36[&] *2*	938.5	$(7/2)^+$	0	$5/2^+$		
938.2[&] *3*	1.94[&] *6*	1536.5		598.3	(3/2,5/2)		
962.2 *3*	#	1963.3?		1001.1	$11/2^+$		
1024.5 *3*	#	2886.7		1862.2	$15/2^+$		
1059.3 *3*	2.40 *5*	2017.3		958.0	$15/2^-$		
1083.1 *3*	1.30 *5*	1389.9		306.8	$7/2^+$		
1105.0 *3*	1.10 *3*	2063.0		958.0	$15/2^-$		

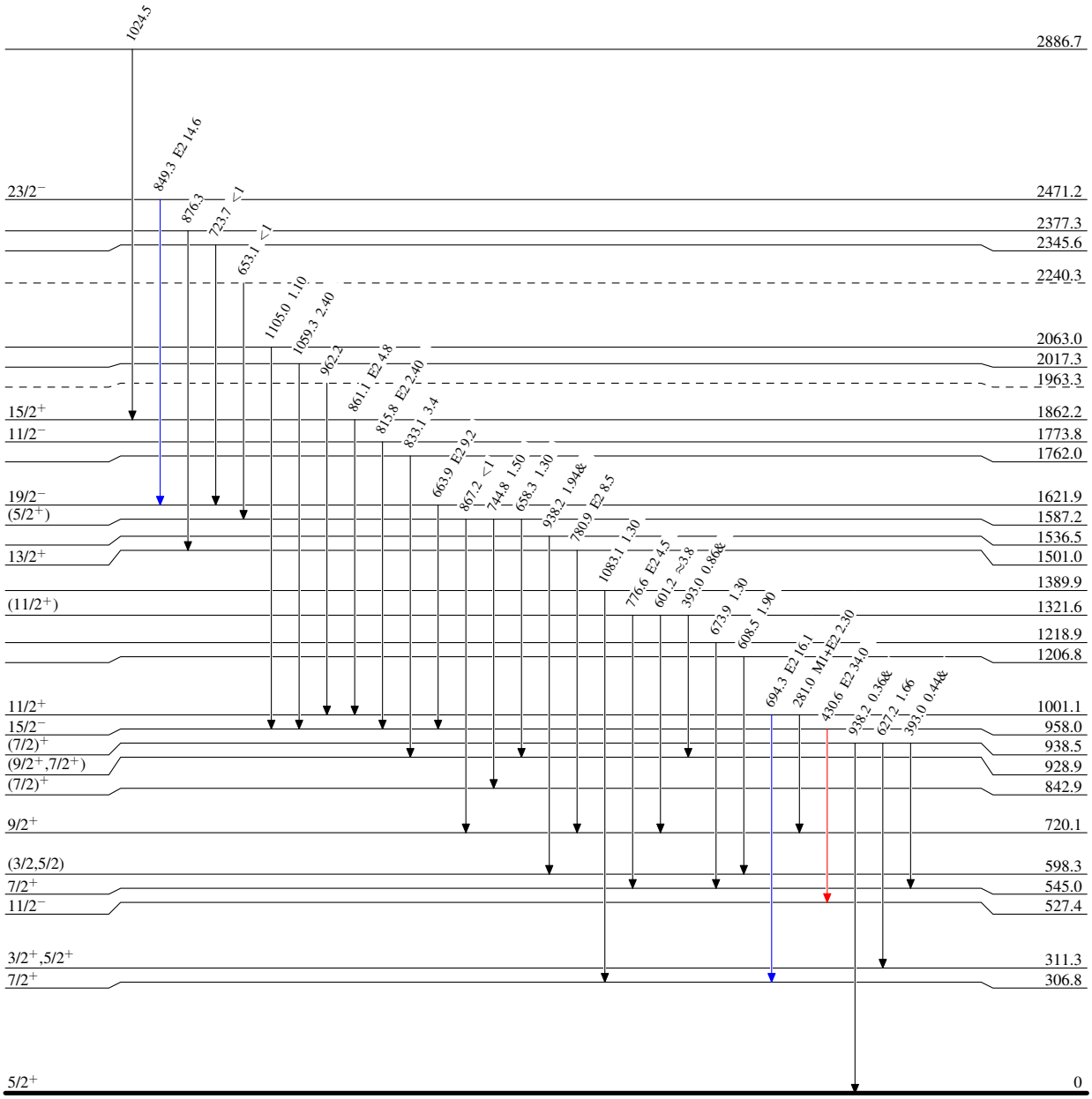
[†] From angular distribution and excit functions.
[‡] Relative intensity normalized to I(306γ)=100.
[#] Iγ not given by the authors. The γ peak is a doublet in singles.
[@] Uncertainties not given by the authors, assigned to be 0.3 keV by evaluator.
[&] Multiply placed with undivided intensity.

^{98}Mo(α,nγ) **1983Ka25**

Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



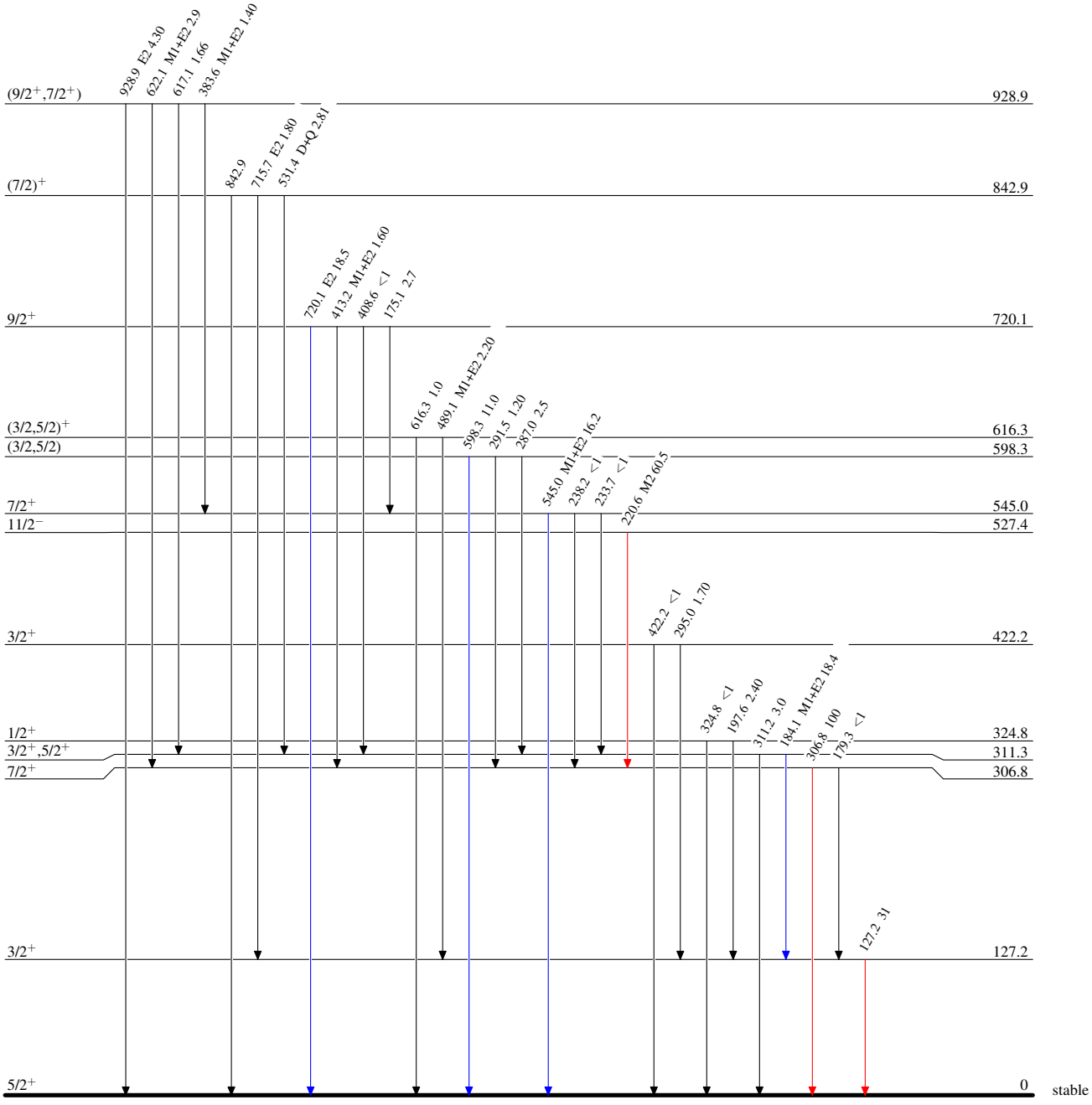
$^{101}_{44}Ru_{57}$

^{98}Mo(α,nγ) **1983Ka25**

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



$^{101}_{44}Ru_{57}$