^{192}Os(p,pnγ)   1998Ga40

		History	
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 195,368 (2024)	1-Dec-2023

1998Ga40: 99% enriched ^{192}Os target (thickness 7-8 μg/cm^2). E(p)=18.6, 20.8, 24.2, 27.2, 31.1 MeV. Four Ge detectors, three of which had anti-Compton shielding. Spectra were recorded at 8 angles between 25° and 90°. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, excitation functions. Quasiparticle plus triaxial rotor model calculations. 13-cm^3 Ge detector FWHM=0.9 keV at 100 keV, 19-cm^3 Ge detector FWHM=680 eV at 122 keV.

^{191}Os Levels

E(level)†	J$^{\pi\#}$	Comments
0.0$^@$	9/2$^-$	
74.382‡ 3	3/2$^{-\ddagger}$	Additional information 1.
84.457‡ 2	(1/2)$^{-\ddagger}$	Additional information 2.
131.942‡ 3	5/2$^{-\ddagger}$	Additional information 3.
175.669$^\&$ 20	11/2$^+$	J$^\pi$: 176γ D to 9/2$^-$, 349γ Q from 524.76 (15/2)$^+$.
272.707 22	5/2$^-$	
314.374 17		
326.299?$^@$ 22	13/2$^-$	J$^\pi$: 326γ (Q) to g.s. and more intense than 349γ in π=+ band indicates stretched E2 yrast band transition.
352.90$^\&$ 5	13/2$^+$	
410.89 3	7/2$^+$	
446.95 3		
462.21 11		
519.64 4	9/2$^+$	
524.75$^\&$ 5	15/2$^+$	
588.57 11		
602.15 5		
637.55 8		
722.33$^\&$ 6	17/2$^+$	
765.19 11		
789.30?$^@$ 11	17/2$^-$	
939.70 9		
981.1$^\&$ 3	19/2$^+$	

† From least-squares fit to Eγ's.

‡ From Adopted Levels. Listed for γ ray placements. Level energy held fixed in least-squares adjustment.

$^\#$ From 1998Ga40, based on γ multipole character (from $\gamma(\theta)$), comparison with the calculated value, band assignment, except where otherwise noted.

$^@$ Band(A): ν9/2[505] band. Not an apparent band due to lack of a single γ ray which carries all of this intensity, like the Iγ(175.7). 1998Ga40 identified 326γ as a possible candidate.

$^\&$ Band(B): ν11/2[615] band.

γ(^{191}Os)

E$_\gamma$	I$_\gamma^\#$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.$^@$	Comments
108.760 22	20.3 8	519.64	9/2$^+$	410.89	7/2$^+$	D	A$_2$=−0.17 8; A$_4$=+0.05 12
138.1† 2		410.89	7/2$^+$	272.707	5/2$^-$		
171.7† 1		524.75	15/2$^+$	352.90	13/2$^+$		
175.668 20	263 5	175.669	11/2$^+$	0.0	9/2$^-$	D	A$_2$=−0.185 15; A$_4$=−0.008 22

Continued on next page (footnotes at end of table)

^{192}**Os(p,pnγ)**　　**1998Ga40** (continued)

$\gamma(^{191}\text{Os})$ (continued)

E_γ	I_γ [#]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	Comments
177.161 *46*	48 *7*	352.90	$13/2^+$	175.669	$11/2^+$		
189.5† *1*		462.21		272.707	$5/2^-$		
191.261 *35*	8.4 *5*	602.15		410.89	$7/2^+$		$A_2=-0.61$ *18*; $A_4=+0.02$ *22*
197.7† *1*		722.33	$17/2^+$	524.75	$15/2^+$		
229.932‡ *21*		314.374		84.457	$(1/2)^-$		
235.231 *21*	73.1 *14*	410.89	$7/2^+$	175.669	$11/2^+$		$A_2=-0.06$ *3*; $A_4=-0.06$ *4*
239.972 *26*	29.8 *9*	314.374		74.382	$3/2^-$		$A_2=-0.28$ *6*; $A_4=-0.02$ *10*
272.708 *22*	65.7 *14*	272.707	$5/2^-$	0.0	$9/2^-$		$A_2=-0.08$ *4*; $A_4=-0.01$ *5*
284.6† *1*		637.55		352.90	$13/2^+$		
302.148 *39*	12.6 *9*	939.70		637.55			$A_2=-0.54$ *16*; $A_4=-0.12$ *23*
315.052$^{\ddagger\&}$ *25*	36.7 *17*	446.95		131.942	$5/2^-$		
326.299$^{\&}$ *22*	87.6 *16*	326.299?	$13/2^-$	0.0	$9/2^-$	(Q)	$A_2=+0.19$ *3*; $A_4=-0.01$ *4*
343.7† *1*		519.64	$9/2^+$	175.669	$11/2^+$		
349.127 *41*	38.1 *19*	524.75	$15/2^+$	175.669	$11/2^+$	Q	$A_2=+0.41$ *13*; $A_4=0.00$ *18*
354.3† *1*		765.19		410.89	$7/2^+$		
364.9† *1*		637.55		272.707	$5/2^-$		
369.408 *39*	31.2 *15*	722.33	$17/2^+$	352.90	$13/2^+$		
412.9† *1*		588.57		175.669	$11/2^+$		
456.3† *3*		981.1	$19/2^+$	524.75	$15/2^+$		
462.552$^{\ddagger\&}$ *26*		462.21		0.0	$9/2^-$		
463.0$^{\dagger\&}$ *1*		789.30?	$17/2^-$	326.299?	$13/2^-$		

† Observed only in $\gamma\gamma$. In singles, the line is obscured by a neighboring strong γ ray.
‡ Part of an unresolved doublet, the second component attributed to ^{190}Ir.
[#] Relative intensity with respect to $I\gamma(135.4)=1000$ of ^{190}Ir.
[@] From $\gamma(\theta)$, assigning $\Delta\pi=$(no) to intraband transitions.
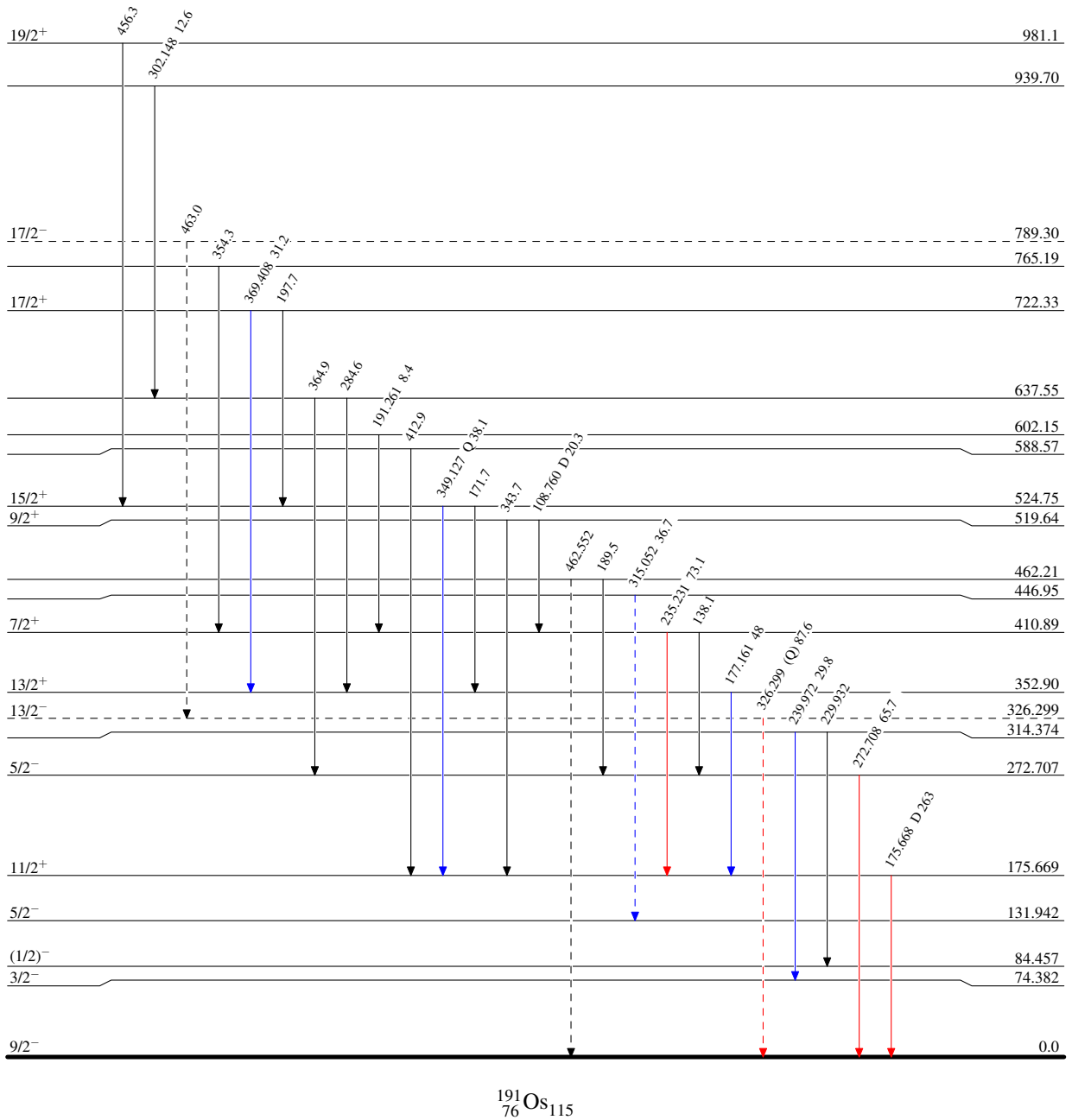$^\&$ Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

Intensities: Relative I$_\gamma$

I$_\gamma$ < 2%×I$_\gamma^{max}$
I$_\gamma$ < 10%×I$_\gamma^{max}$
I$_\gamma$ > 10%×I$_\gamma^{max}$
γ Decay (Uncertain)

$^{191}_{76}$Os$_{115}$

^{192}Os(p,pnγ)　　1998Ga40

Band(B): ν11/2[615] band

19/2$^+$　　　　　981.1

Band(A): ν9/2[505] band

17/2$^-$　　　789.30

456

17/2$^+$　　　　722.33

198

463

369

15/2$^+$　　　524.75

172

13/2$^+$　　　352.90
349

13/2$^-$　　326.299

177

326

11/2$^+$　　175.669

9/2$^-$　　0.0

$^{191}_{76}$Os$_{115}$