^{183}Os IT decay (≈30 ns) 1985Pe07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 134, 149 (2016)	15-Apr-2015

Parent: ^{183}Os: E=4180.2+x; $J^{\pi}\geq 41/2$; $T_{1/2}\approx 30$ ns; %IT decay=100.0

1985Pe07:≈30 ns isomer produced In ^{50}Ti(^{136}Xe,3nγ), E=622 MeV; pulsed beam (pulse width≈1 ns, pulse separation 110 ns); recoil shadow technique to differentiate delayed and prompt radiation; shielded array of 2 Ge (one Compton-suppressed) and 10 NaI detectors; measured Eγ, Iγ, isomer $T_{1/2}$, γ multiplicity.

Total energy release for this decay scheme is 3470 *223* cf. QxBR=4180.

^{183}Os Levels

E(level)‡	J^{π}†	$T_{1/2}$	Comments
0.0#	$9/2^+$		
96.3@	$11/2^+$		
219.2#	$13/2^+$		
375.3@	$15/2^+$		
541.3#	$17/2^+$		
763.6@	$19/2^+$		
951.0#	$21/2^+$		
1254.7@	$23/2^+$		
1442.1#	$25/2^+$		
1842.5@	$27/2^+$		
2016.7#	$29/2^+$		
2519.9@	$31/2^+$		
2673.7#	$33/2^+$		
3276.6@	$35/2^+$		
3403.4#	$37/2^+$		
4180.2@	$41/2^+$		
4180.2+x	≥41/2	≈30 ns	%IT=100

† From Adopted Levels.
‡ From least-squares fit to Eγ, assigning equal weight to all Eγ data.
# Band(A): 9/2[624], α=+1/2 g.s. band.
@ Band(a): 9/2[624], α=−1/2 g.s. band.

$\gamma(^{183}Os)$

Eγ	Iγ#	E_i(level)	J_i^{π}	E_f	J_f^{π}	Mult.‡	δ‡	α†	Comments
x		4180.2+x	≥41/2	4180.2	$41/2^+$				
122.7	17 *2*	219.2	$13/2^+$	96.3	$11/2^+$	(M1+E2)	−0.42 *14*	2.95 *12*	α(K)=2.28 *19*; α(L)=0.51 *6*; α(M)=0.122 *16* α(N)=0.030 *4*; α(O)=0.0049 *5*; α(P)=0.000265 *23*
156.0	20 *2*	375.3	$15/2^+$	219.2	$13/2^+$	(M1+E2)	−0.42 *14*	1.46 *8*	α(K)=1.16 *9*; α(L)=0.233 *14*; α(M)=0.055 *4* α(N)=0.0133 *9*; α(O)=0.00223 *12*; α(P)=0.000134 *12*
x159.2	22 *2*								
165.8	19 *2*	541.3	$17/2^+$	375.3	$15/2^+$	M1+E2	−0.33 *8*	1.27 *4*	α(K)=1.02 *4*; α(L)=0.188 *5*;

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γ(^{183}Os) (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[†]	Comments
									α(M)=0.0437 *15* α(N)=0.0106 *4*; α(O)=0.00180 *5*; α(P)=0.000118 *5*
187.4[@]	26[@] *3*	951.0	21/2$^+$	763.6	19/2$^+$	(M1+E2)		0.7 *3*	α(K)=0.5 *3*; α(L)=0.144 *18*; α(M)=0.035 *6* α(N)=0.0084 *14*; α(O)=0.00135 *13*; α(P)=5.E−5 *4* I_γ: implied branching is very much larger than adopted value; γ is probably a doublet, the second component being the known 25/2$^+$ to 23/2$^+$ transition from the 1442 level.
187.4[@]	26[@] *3*	1442.1	25/2$^+$	1254.7	23/2$^+$	(M1+E2)		0.7 *3*	α(K)=0.5 *3*; α(L)=0.144 *18*; α(M)=0.035 *6* α(N)=0.0084 *14*; α(O)=0.00135 *13*; α(P)=5.E−5 *4* placed by evaluator; see comment on 187γ from 952 level.
219.2	65 *7*	219.2	13/2$^+$	0.0	9/2$^+$	(E2)		0.245	α(K)=0.1335 *19*; α(L)=0.0840 *12*; α(M)=0.0211 *3* α(N)=0.00508 *8*; α(O)=0.000772 *11*; α(P)=1.271×10^{-5} *18*
222.1	20 *2*	763.6	19/2$^+$	541.3	17/2$^+$	(M1+E2)	−0.23 *5*	0.572 *12*	α(K)=0.470 *11*; α(L)=0.0785 *11*; α(M)=0.0181 *3* α(N)=0.00441 *7*; α(O)=0.000757 *11*; α(P)=5.44×10^{-5} *13*
[x]232.1	43 *4*								
[x]255.1	26 *3*								
279.2	19 *2*	375.3	15/2$^+$	96.3	11/2$^+$	(E2)		0.1135	α(K)=0.0710 *10*; α(L)=0.0322 *5*; α(M)=0.00800 *12* α(N)=0.00193 *3*; α(O)=0.000298 *5*; α(P)=7.05×10^{-6} *10*
[x]281.2	48 *5*								
[x]317.5	56 *6*								
321.9	48 *5*	541.3	17/2$^+$	219.2	13/2$^+$	E2		0.0743	α(K)=0.0494 *7*; α(L)=0.0189 *3*; α(M)=0.00466 *7* α(N)=0.001125 *16*; α(O)=0.0001756 *25*; α(P)=5.01×10^{-6} *7*
[x]351.0	46 *5*								
[x]386.1	35 *4*								
388.7	30 *3*	763.6	19/2$^+$	375.3	15/2$^+$	(E2)		0.0437	α(K)=0.0309 *5*; α(L)=0.00974 *14*; α(M)=0.00237 *4* α(N)=0.000573 *8*; α(O)=9.09×10^{-5} *13*; α(P)=3.21×10^{-6} *5*
409.7	32 *3*	951.0	21/2$^+$	541.3	17/2$^+$	(E2)		0.0379	α(K)=0.0273 *4*; α(L)=0.00816 *12*; α(M)=0.00198 *3* α(N)=0.000479 *7*; α(O)=7.63×10^{-5} *11*; α(P)=2.85×10^{-6} *4*
[x]434.4	37 *4*								
[x]450.8	28 *3*								
[x]462.6	33 *3*								
[x]487.2	20 *2*								
491.1[@]	54[@] *6*	1254.7	23/2$^+$	763.6	19/2$^+$	(E2)		0.0238	α(K)=0.01784 *25*; α(L)=0.00457 *7*; α(M)=0.001099 *16*

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γ(^{183}Os) (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[†]	Comments
								α(N)=0.000266 *4*; α(O)=4.29×10^{-5} *6*; α(P)=1.89×10^{-6} *3*
491.1[@]	54[@] *6*	1442.1	25/2$^+$	951.0	21/2$^+$	(E2)	0.0238	α(K)=0.01784 *25*; α(L)=0.00457 *7*; α(M)=0.001099 *16* α(N)=0.000266 *4*; α(O)=4.29×10^{-5} *6*; α(P)=1.89×10^{-6} *3*
574.6	17 *2*	2016.7	29/2$^+$	1442.1	25/2$^+$	(E2)	0.01631	α(K)=0.01257 *18*; α(L)=0.00287 *4*; α(M)=0.000683 *10* α(N)=0.0001657 *24*; α(O)=2.71×10^{-5} *4*; α(P)=1.342×10^{-6} *19*
587.8	11 *2*	1842.5	27/2$^+$	1254.7	23/2$^+$	(E2)	0.01547	α(K)=0.01196 *17*; α(L)=0.00269 *4*; α(M)=0.000640 *9* α(N)=0.0001551 *22*; α(O)=2.54×10^{-5} *4*; α(P)=1.278×10^{-6} *18*
[x]647.8	30 *3*							
657.0	24 *3*	2673.7	33/2$^+$	2016.7	29/2$^+$	(E2)	0.01201	α(K)=0.00943 *14*; α(L)=0.00198 *3*; α(M)=0.000468 *7* α(N)=0.0001135 *16*; α(O)=1.87×10^{-5} *3*; α(P)=1.010×10^{-6} *15*
677.4	11 *2*	2519.9	31/2$^+$	1842.5	27/2$^+$	(E2)	0.01122	α(K)=0.00884 *13*; α(L)=0.00183 *3*; α(M)=0.000430 *6* α(N)=0.0001045 *15*; α(O)=1.727×10^{-5} *25*; α(P)=9.48×10^{-7} *14*
729.7		3403.4	37/2$^+$	2673.7	33/2$^+$	(E2)	0.00953	α(K)=0.00758 *11*; α(L)=0.001503 *21*; α(M)=0.000353 *5* α(N)=8.57×10^{-5} *12*; α(O)=1.424×10^{-5} *20*; α(P)=8.13×10^{-7} *12*
756.7	13 *2*	3276.6	35/2$^+$	2519.9	31/2$^+$	(E2)	0.00882	α(K)=0.00703 *10*; α(L)=0.001371 *20*; α(M)=0.000321 *5* α(N)=7.80×10^{-5} *11*; α(O)=1.299×10^{-5} *19*; α(P)=7.55×10^{-7} *11*
776.8	11 *2*	4180.2	41/2$^+$	3403.4	37/2$^+$	(E2)	0.00834	α(K)=0.00667 *10*; α(L)=0.001283 *18*; α(M)=0.000300 *5* α(N)=7.30×10^{-5} *11*; α(O)=1.217×10^{-5} *17*; α(P)=7.16×10^{-7} *10*

[†] Additional information 1.
[‡] From Adopted Gammas.
[#] Absolute intensity per 100 decays.
[@] Multiply placed with undivided intensity.
[x] γ ray not placed in level scheme.

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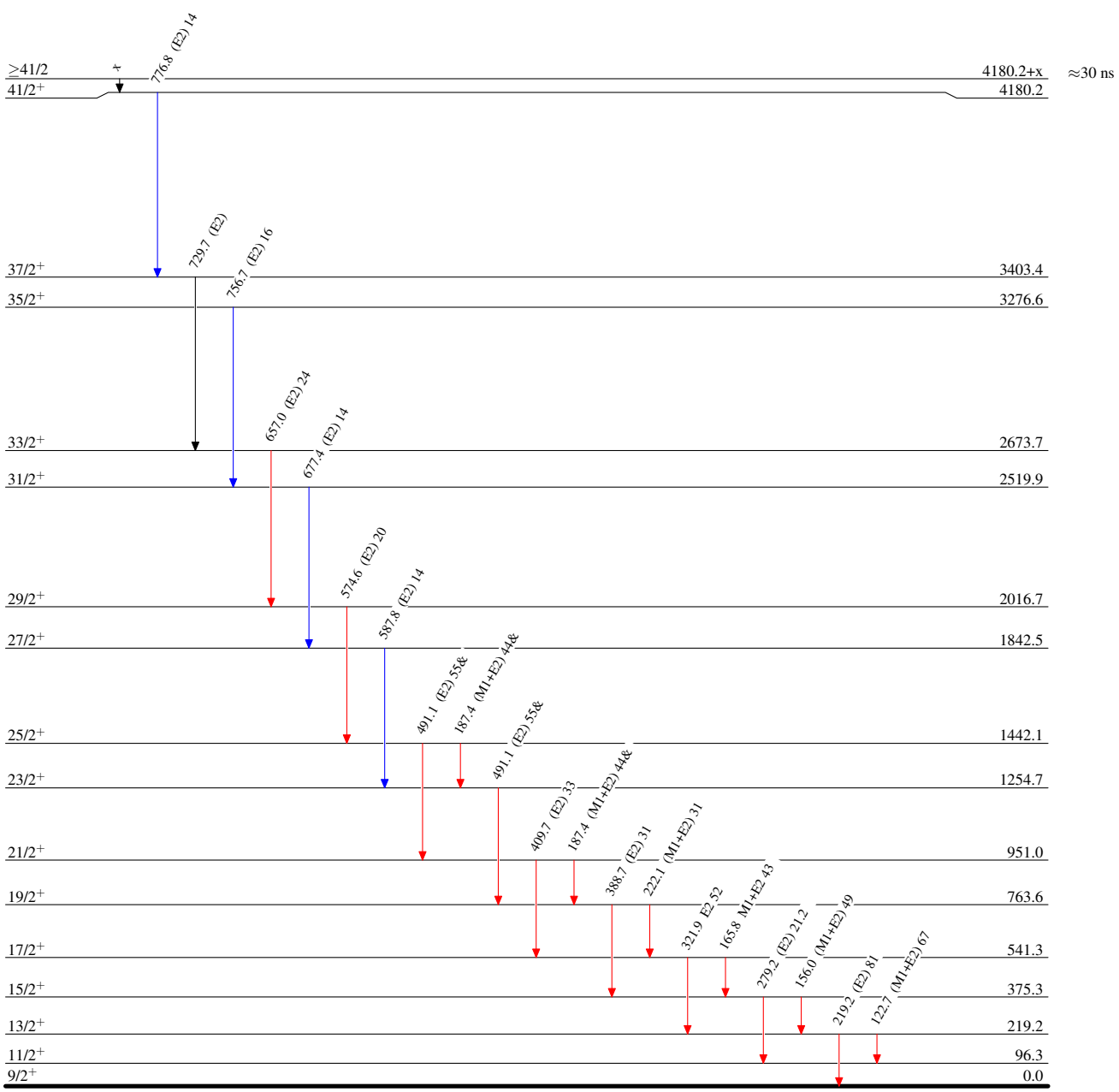
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
%IT=100.0



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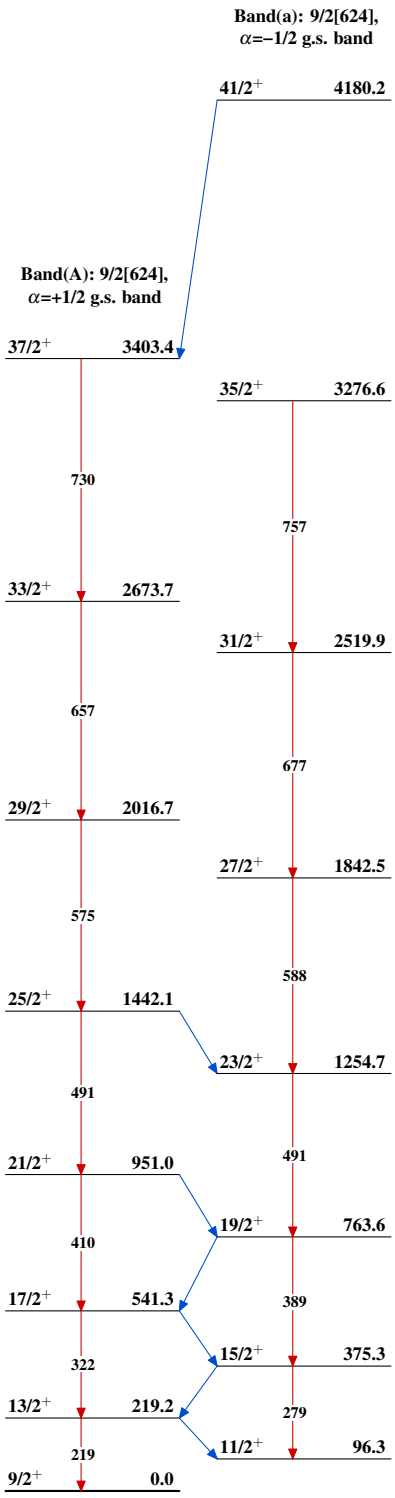

$^{183}_{76}Os_{107}$