

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao		NDS 121,395 (2014)	1-Mar-2014

$Q(\beta^-)=1102.0$ 21; $S(n)=7231.86$ 6; $S(p)=6546.1$ 20; $Q(\alpha)=233$ 10 [2012Wa38](#)

 ^{195}Ir Levels

For the proton-neutron interacting boson-fermion model analysis, see [1987Ci01](#), [1987Co08](#), [1986Ar03](#) and [1983Ci01](#).

For the Nilsson-model analysis, see [1987Ci01](#) and [1978Ya03](#).

For interacting boson-fermion model analysis of β decay in $A=195$, see [1988Na03](#).

Cross Reference (XREF) Flags

A	$^{194}\text{Ir}(n,\gamma)$ E=thermal	D	$^{193}\text{Ir}(t,p)$
B	^{195}Ir IT decay (3.67 h)	E	$^{196}\text{Pt}(d,^3\text{He})$
C	$^{196}\text{Pt}(\text{pol } t,\alpha), (t,\alpha)$	F	$^{196}\text{Pt}(e,e'p)$

 J^π assignment arguments

E(level)	J^π values			
	(pol t,α) ^a	(2n, γ) ^b	Nilsson model	adopted
0.0	3/2 ⁺		3/2 ⁺	3/2 ⁺
69.18	1/2 ⁺	1/2 ⁺	1/2 ⁺	1/2 ⁺
100.00	11/2 ⁻		11/2 ⁻	11/2 ⁻
175.22	5/2 ⁺	5/2 ⁺	5/2 ⁺	5/2 ⁺
233.51	(3/2 ⁺)	3/2 ⁺	3/2 ⁺	3/2 ⁺
286.52	3/2 ⁺	3/2 ⁺		3/2 ⁺
394.00	(7/2 ⁺)		7/2 ⁺	(7/2 ⁺)
412.04	(5/2 ⁺)	3/2 ⁺ , (5/2 ⁺) ⁺		(5/2 ⁺) ⁺
428.50		1/2 ⁺ , 3/2 ⁺		1/2 ⁺ , 3/2 ⁺
499.50	5/2 ⁺	5/2 ⁺		5/2 ⁺
539.21	3/2 ⁺	3/2 ⁺		3/2 ⁺
581.80	5/2 ⁺			5/2 ⁺
720.00	11/2 ⁻			11/2 ⁻
760.37	5/2 ⁺	5/2 ⁺		5/2 ⁺
776.05		3/2 ⁺ , 5/2 ⁺		3/2 ⁺ , 5/2 ⁺
878.00	5/2 ⁺			5/2 ⁺
994.00	11/2 ⁻			11/2 ⁻
1017.24	1/2 ⁺	1/2 ⁺		1/2 ⁺
1050.00	11/2 ⁻			11/2 ⁻
1165.00	3/2 ⁺			3/2 ⁺
1562.00	(11/2 ⁻)			(11/2 ⁻)
1601.00	11/2 ⁻			11/2 ⁻
1708.00	(3/2 ⁺ , 5/2 ⁺)			(3/2 ⁺ , 5/2 ⁺)

^a From $\sigma(\theta)$ DWBA analysis and analyzing power.

^b Not entirely independent of other data, except for the 233-, 428-, 776-keV levels, assignments of which are based on γ -mult.

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Adopted Levels, Gammas (continued)

^{195}Ir Levels (continued)				
E(level) [†]	J ^π #	T _{1/2}	XREF	Comments
0.0 ^{&}	3/2 ⁺	2.29 h 17	ABC	$\% \beta^- = 100$ T _{1/2} : From 2013Bi14, which digitized the data of Fig.2 of 1957Re01 displaying the decay curve of ^{195}Ir and then a least-squares fit. Others: 2.8 h 1 (1968Ho01) from an analysis of the 99keV γ ray from the decay of the first excited state in the ^{195}Pt daughter, in which this γ ray was assigned only to the ground state activity in ^{195}Ir ; but 1968Ja06 demonstrated that this state is also populated by 11/2 ⁻ isomeric state in ^{195}Ir , thus this value is likely too high. 2.3 h 2 (1968Ja06) from an analysis of the 99keV, 129keV γ -decay curve measurements with semi detector (the contributions from ground state and 11/2 ⁻ isomeric state in ^{195}Ir are considered). 2.2 h (1957Re01) from chemically extracting iridium fractions following the decay of its parent ^{195}Os . 2.3 h (1952Ch18,1954Bu02).
69.181 ^a 1	1/2 ⁺		A C	
100 ^b 5	11/2 ⁻	3.67 h 8	BC	$\% \beta^- = 95.5$; $\% \text{IT} = 5.5$ $\% \beta^-$, $\% \text{IT}$: see ^{195}Ir β^- decay (3.67 h) and ^{195}Ir IT decay (3.67 h). T _{1/2} : from an analysis of the 173keV, 365keV, 433keV γ decay-curve measurements (1968Ja06,1973Ja10). Other: 4.00 h 15 (1968Ho01). configuration=11/2 ⁻ [505] (1978Ya03).
175.221 ^{&} 2	5/2 ⁺		A C	
233.512 ^a 2	3/2 ⁺		A C	
286.521 ^c 2	3/2 ⁺		A C	
394 ^{&} 5	(7/2 ⁺)		C	J ^π : K ^π =3/2 ⁺ band member; systematics observed in ^{191}Ir and ^{193}Ir .
412.038 ^a 4	(5/2 ⁺)		A C	J ^π : K ^π =1/2 ⁺ band member; M1+E2 γ to 3/2 ⁺ .
428.627 ^c 4	1/2 ⁺ , 3/2 ⁺ @		A	
499.50 4	5/2 ⁺		A C	
539.206 ^d 5	3/2 ⁺		A C	
581.795 7	5/2 ⁺		A C	
626 5			C	
720 5	11/2 ⁻		C	
760.37 ^c 4	5/2 ⁺		A C	
776.048 ^d 14	3/2 ⁺ , 5/2 ⁺ @		A	
860.94 5			A	E(level): neutron-capture primary γ ray to this level.
878 5	5/2 ⁺		C	
912 5			C	
943.746 16	1/2 ⁺ , 3/2 ⁺ , 5/2 ⁺		A	J ^π : γ to 3/2 ⁺ is M1+E2.
960 5			C	
994 5	11/2 ⁻		C	
1017.24 9	1/2 ⁺		A C	
1050 5	11/2 ⁻		C	
1107 5			C	
1165 5	3/2 ⁺		C	
1229 5			C	J ^π : J=L+1/2 in $^{196}\text{Pt}(\text{pol } t, \alpha)$.
1365 5			C	J ^π : J=L-1/2 in $^{196}\text{Pt}(\text{pol } t, \alpha)$.
1413 5			C	
1438 5			C	
1510 5			C	J ^π : J=L+1/2 in $^{196}\text{Pt}(\text{pol } t, \alpha)$.
1562 2	(11/2 ⁻)		C	J ^π : J=L+1/2 in $^{196}\text{Pt}(\text{pol } t, \alpha)$.
1601 5	11/2 ⁻		C	
1640 5			C	
1708 5	(3/2 ⁺ , 5/2 ⁺)		C	J ^π : L=(2) in (t, α).
1760 5			C	
1785 5			C	

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Adopted Levels, Gammas (continued) ^{195}Ir Levels (continued)

<u>E(level)[†]</u>	<u>XREF</u>	<u>E(level)[†]</u>	<u>XREF</u>	<u>E(level)[†]</u>	<u>XREF</u>
1835 5	C	5693.0?‡ 2	A	5875.8?‡ 3	A
5508.7?‡ 3	A	5797.3?‡ 2	A	6001.9?‡ 1	A
				6008.0?‡ 2	A

[†] For the states connected by γ rays, E(level) are from E_{γ} and level scheme by using least-square fit to data. The others are from $^{196}\text{Pt}(\text{pol } t, \alpha), (t, \alpha)$.

[‡] From primary γ rays above in $^{194}\text{Ir}(n, \gamma)$.

From $\sigma(\theta)$ DWBA fits and analyzing power in $^{196}\text{Pt}(\text{pol } t, \alpha)$, except as noted.

@ From γ -mult in $^{194}\text{Ir}(n, \gamma)$.

& Band(A): $K^{\pi}=3/2^{+}$ band; configuration= $3/2^{+}[402]$ Members of the band: 3/2 to 7/2 in $^{194}\text{Ir}(n, \gamma)$ and $^{196}\text{Pt}(t, \alpha)$.

^a Band(B): $K^{\pi}=1/2^{+}$ band; configuration= $1/2^{+}[400]$ Members of the band: 1/2 to 5/2 in $^{194}\text{Ir}(n, \gamma)$.

^b Band(C): $K^{\pi}=11/2^{-}$ band; configuration= $11/2^{-}[505]$ Members of the band: 11/2 in $^{196}\text{Pt}(\text{pol } t, \alpha), (t, \alpha)$.

^c Band(D): $K^{\pi}=1/2^{+}$ band; configuration= $1/2^{+}[411]$ Members of the band: 1/2 to 5/2 in $^{194}\text{Ir}(n, \gamma)$.

^d Band(E): $K^{\pi}=3/2^{+}$ band.

Adopted Levels, Gammas (continued)

$\gamma(^{195}\text{Ir})$

All data are from ¹⁹⁴Ir(n, γ).
For unplaced γ 's, see ¹⁹⁴Ir(n, γ).

E _i (level)	J _i ^π	E _γ	I _γ [‡]	E _f	J _f ^π	Mult. [#]	δ [#]	α ^{&}	Comments
69.181	1/2 ⁺	69.181 1	100	0.0	3/2 ⁺				
100	11/2 ⁻	(100 @ 5)		0.0	3/2 ⁺	(M4)		5.0×10 ³ 20	B(M4)(W.u.)=3.1 21
175.221	5/2 ⁺	175.222 2	100	0.0	3/2 ⁺	M1+E2	0.47 3	1.117 21	α(M1)exp=0.032 6 α(L1)exp=0.127 17
									α(L2)exp=0.018 3 α(L3)exp=0.015 3.
233.512	3/2 ⁺	164.333 3	100 5	69.181	1/2 ⁺	E2+M1	1.6 3	0.91 8	α(L1)exp=0.079 13.
		233.512 4	51.7 25	0.0	3/2 ⁺	M1+E2	0.26 55	0.54 12	α(L1)exp=0.067 17.
286.521	3/2 ⁺	111.300 2	13.4 12	175.221	5/2 ⁺				
		217.340 4	14.6 12	69.181	1/2 ⁺				
		286.516 4	100 4	0.0	3/2 ⁺	M1+(E2)	0.43 5	0.286 8	α(K)exp=0.215 29\$.
412.038	(5/2) ⁺	178.529 4	83 6	233.512	3/2 ⁺	M1+E2	0.47 +25-33	1.06 11	α(L1)exp=0.125 19.
		342.854 7	98 4	69.181	1/2 ⁺				
		412.033 6	100 4	0.0	3/2 ⁺	M1+(E2)	0.22 58	0.12 3	α(K)exp=0.096 22.
428.627	1/2 ⁺ , 3/2 ⁺	359.445 4	100 4	69.181	1/2 ⁺	M1+(E2)	<0.39	0.165 8	α(K)exp=0.152 23.
		428.629 7	54 2	0.0	3/2 ⁺	M1+(E2)	<0.72	0.095 13	α(K)exp=0.101 45.
499.50	5/2 ⁺	(499.50 † 3)		0.0	3/2 ⁺				
539.206	3/2 ⁺	252.685 4	100 5	286.521	3/2 ⁺	M1+E2	1.5 13	0.25 19	α(L1)exp=0.032 18.
		539.212 23	68 11	0.0	3/2 ⁺	M1+(E2)	<0.56	0.054 5	α(K)exp=0.053 14.
581.795	5/2 ⁺	406.574 7	100 6	175.221	5/2 ⁺	M1		0.1241	α(K)exp=0.148 29.
		581.792 13	92 17	0.0	3/2 ⁺	M1		0.0484	α(K)exp=0.058 14.
760.37	5/2 ⁺	760.37 4	100	0.0	3/2 ⁺				
776.048	3/2 ⁺ , 5/2 ⁺	347.45 3	32 4	428.627	1/2 ⁺ , 3/2 ⁺				
		489.50 3	47 4	286.521	3/2 ⁺				
		542.521 21	49 6	233.512	3/2 ⁺	M1+(E2)	<0.51	0.054 4	α(K)exp=0.053 13.
		600.86 4	100 19	175.221	5/2 ⁺	M1+E2	0.62 66	0.036 10	α(K)exp=0.028 11.
860.94		574.39 7	46 10	286.521	3/2 ⁺				
		860.92 7	100 17	0.0	3/2 ⁺				
943.746	1/2 ⁺ , 3/2 ⁺ , 5/2 ⁺	515.114 17	67 8	428.627	1/2 ⁺ , 3/2 ⁺				
		657.24 5	100 10	286.521	3/2 ⁺	M1+E2	<0.42	0.0336 18	α(K)exp=0.054 26.
		710.27 5	47 12	233.512	3/2 ⁺				
		874.54 22	51 12	69.181	1/2 ⁺				

† No photos were observed. Transition seen only in electron spectra in ¹⁹⁵Ir(2n, γ).

‡ Relative photon branching renormalized to 100 for the strongest γ -ray from each level.

From α(K)exp (1987Co08).

@ Value from E(level) to g.s. See also ¹⁹⁵Ir IT decay (3.67 h).

Adopted Levels, Gammas (continued)

$\gamma(^{195}\text{Ir})$ (continued)

& 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.

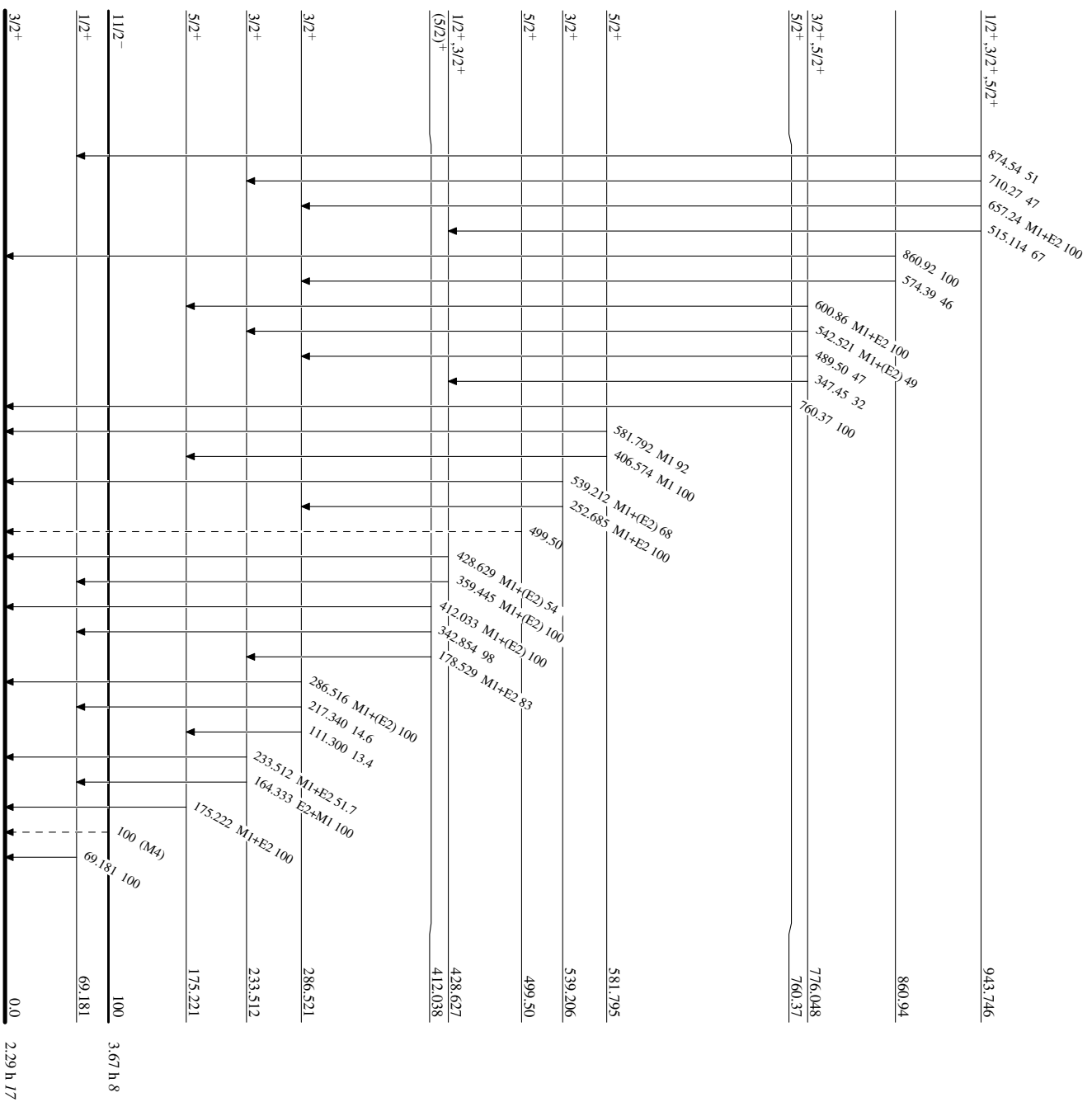
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)



Adopted Levels, Gammas