Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, [1] and Jun Chen[2]	NDS 169,1 (2020)	15-Oct-2020

Q(β^-)=−1954.2 *12*; S(n)=7792.34 *19*; S(p)=8018 *8*; Q(α)=1375.8 *12* 2017Wa10
S(2n)=13713.2 *5*, S(2p)=14618 *3* (2017Wa10).
Mass measurements: 2016Ei01, 1979Ha32, 1970Mc03, 1960Bh02, 1959De36, 1957Jo08.
2011Be08: search for α decay of ^{194}Pt to ^{190}Os using a low-background HPGe detector in the underground Gran Sasso National Laboratories (LNGS) of the INFN (Italy) over 1815.4 hours. Deduced lower limits of half-lives for α decays to the low-lying excited states in ^{190}Os, with no evidence for α decay of ^{194}Pt nuclide.
2011Be32: search for $2\beta^+$, 2ε decay of ^{190}Pt to ^{190}Os at the Laboratori Nazionali del Gran Sasso, INFN-Italy. No evidence was found for this decay, and a lower limit of $T_{1/2}$ was determined. No peaks in the accumulated spectrum indicate double-β activity.
Additional information 1.
See (n,γ):resonances for neutron resonance data of 199 resonances.
Other measurements:
2014DrZZ: ^{186}W, ^{187}Re or ^{192}Os beams incident on ^{186}Re target. Measured Eγ, Iγ, $\gamma\gamma$-coin.
2006Av09: measured hyperfine structure, isotope shift.
1978Ba69: ^{189}Os(n,α): resonances. Measured resonances, deduced widths. Other: 1961Cr02.
Theory references: consult the NSR database (www.nndc.bnl.gov/nsr/) for about 170 primary references dealing with nuclear structure and other calculations.

^{190}Os Levels

Cross Reference (XREF) Flags

A	^{190}Re β^- decay (3.0 min)	J	^{189}Os(n,γ) E=6.71 eV	S	^{190}Os(n,n′γ),(n,n′)
B	^{190}Re β^- decay (3.1 h)	K	^{189}Os(n,γ) E=8.96 eV	T	^{190}Os(p,p′)
C	^{190}Os IT decay (9.86 min)	L	^{189}Os(n,γ) E=10.31 eV	U	^{190}Os(α,α′)
D	^{190}Ir ε decay (11.78 d)	M	^{189}Os(n,n),(n,γ):resonances	V	Coulomb excitation
E	^{190}Ir ε decay (3.087 h)	N	^{189}Os(d,p)	W	^{191}Ir(t,α),(pol t,α)
F	Muonic atom	O	^{190}Os(γ,γ):Mossbauer	X	^{192}Os(p,t)
G	^{186}W(^{7}Li,2npγ)	P	^{190}Os(γ,γ′)	Y	^{192}Os(^{12}C,^{14}C)
H	^{188}Os(t,p)	Q	^{190}Os(γ,xn)	Z	^{192}Os(^{82}Se,Xγ)
I	^{189}Os(n,γ) E=th	R	^{190}Os(e,e′)		

E(level)[†]	J$^\pi$	$T_{1/2}$[#]	XREF	Comments
0.0[@]	0$^+$	stable	ABCDEFGHIJKL OPQRSTUVWXYZ	
186.718[@] *2*	2$^+$	371 ps *8*	ABCDEFGHIJKL NOPQRSTUVWXYZ	μ=+0.692 *30* (1992St06,2014StZZ) Q=−1.18 *3* (1981Ho22,2016St14) J$^\pi$: 186.7γ E2 to 0$^+$. $T_{1/2}$: from B(E2)=2.364 *50*, weighted average of the following values: B(E2)=2.34 *13* (2012MaZP, from $T_{1/2}$=375 ps *20*, $\gamma\gamma$(t) in (^{7}Li,2npγ); 2.35 *16* (2001Wu03, from mean lifetime τ=540 ps *36*, RDDS in Coul. ex.); 2.341 *+62−34* (1996Wu07, Coul. ex.); 2.315 *60* (1988Bo08, from (e,e′), uncertainty of 0.027 in 1988Bo08 increased to 0.060 by evaluators); 2.46 *8* (1981Ho22, from muonic x-ray, uncertainty of 0.02 in 1981Ho22 increased to 0.06 by evaluators); 2.14 *11* (1976Ba06, Coul. ex., uncertainty of 5% assigned by evaluators); 2.48 *25* (1972La16, Coul. ex.); 2.37 *13* (1971Mi08, Coul. ex.); 2.39 *6* (1970Pr09, Coul. ex.); 2.55 *25* (1969Ca19, Coul. ex., earlier value was 2.50 *37* in 1967Ca08); 2.15 *23* (1966Go06, from mean lifetime τ=0.58

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Adopted Levels, Gammas (continued)

^{190}Os Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[#]	XREF		Comments
					ns *6*, RDDS in Coul. ex.); 2.70 *27* (1961Mc18, Coul. ex., previous values were 2.53 *25* in 1961Mc01 and 2.55 *26* in 1958Mc02); 2.51 *36* (1958Su54, from $T_{1/2}$=0.35 ns *5* from γγ(t) in IT decay). Others: 1.86 *8* (1967As03, from mean lifetime τ=680 ps *30*, RDDS in Coul. ex.); 3.38 *40* (1961Re02, Coul. ex.); 1.8 *+12−5* (1958Be72, from $T_{1/2}$=0.5 ns *2* in ε decay); 2.5 *7* (1957Ba11, Coul. ex.). 2016Pr01 evaluation gives B(E2)=2.354 *90* and corresponding $T_{1/2}$=373 ps *15*. Additional information 2. μ: transient fields in Coulomb excitation (1992St06). Others: μ=+0.700 *22* (1985St05) is reevaluated by 1987St14; 0.662 *32* (1973BaUA; meson hyperfine structure), +0.66 *6* (1972Si43,1972Si03; Coul. ex.), +0.62 *3* (1970Be36,1967Gi02,1966Go06; Coul. ex.), 0.54 *6* (1970Le04; IPAC in ^{190}Ir ε decay using $T_{1/2}$=240 ps for 187 level). Q: muonic x-ray method (1981Ho22). Others: in Coulomb excitation, −0.99 *13* (1970Pr03), −0.99 *19* (1977RuZY), −0.95 *21* (1972La16), −0.95 *30* (1980Ba42, relative to Q=−1.47 for first 2^+ state in ^{188}Os), −0.8 *3* (1980Ba42, relative to Q=−1.33 for first 2^+ state in ^{188}Os), 1.08 *10* (1975Ro24, relative to 1.0 for first 2^+ state in ^{188}Os), 1.03 *30* (1964Sp09, relative to 1.0 for the first 2^+ state in ^{192}Os); in ^{190}Os(γ,γ):Mossbauer, 0.86 *5* (1972Wa24, relative to 1.0 for 155, 2^+ state in ^{188}Os). $β_2$=0.225 from (p,p′), 0.181 from (α,α′), 0.168 from (n,n′).
547.854[@] *7*	4^+	13.6 ps *+4−7*	ABCDE GHIJKL	RS UVwXYZ	B(E2)↑=1.11 *+8−3* μ=+1.56 *20* (1985St05,2014StZZ) Jπ: 361.1γ E2, ΔJ=2 to 2^+ gives 0^+ or 4^+; spin=4 from γ(θ) in ^{190}Ir ε decay (11.78 d); 447.8γ(E2)−207.9γ(E2(+M1)) cascade and 656.0γ(E2+M1) both from 1204 level to 548 level require J(548)≥2. $T_{1/2}$: weighted average of 12.8 ps *7* by recoil distance and 14.2 ps *+4−10* from B(E2)(from 187,2^+)=1.11 *+8−3* in Coulomb excitation. Others: 40 ps *20* from γγ(t) in ^{190}Os IT decay (1958Su57). B(E2)↑: from Coul. ex for transition from 187,2^+. μ: transient fields in Coul. ex. (1985St05). Value of 1.58 given by 1985St05 relative to μ(187)=+0.700 *22* is adjusted (by evaluators) for adopted μ(187)=0.692 (1992St06,2014StZZ). Other: 0.88 *48* (1970Le04, IPAC in ^{190}Ir ε decay). $β_4$=−0.03 *1* from (n,n′). B(E4)=0.045 *5* from (e,e′).
557.978[&] *5*	2^+	15.2 ps *14*	AB D FGHIJKL N	S UVwXY	μ=+0.69 *9* (1985St05,2014StZZ) Jπ: E2 γ to 0^+. $T_{1/2}$: from recoil distance in Coul. ex. Others: 14.8 ps *+7−8* from B(E2)(from g.s.)=0.205 *+8−6* in Coul. ex. (weighted average is 14.9 ps *+7−8* if averaged with the RDM result); 7.9 ps *+15−11* from B(E2)(from 187,2^+)=0.42 *6* in muonic atom with adopted branching ratios seems discrepant. μ: transient fields in Coul. ex. (1985St05). Value of 0.69 given by 1985St05 adjusted (evaluators) for adopted

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Adopted Levels, Gammas (continued)

^{190}Os Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[#]	XREF	Comments
				μ(187)=0.692 (1992St06,2014StZZ). Q=+0.9 *4* or 0.55 *30* from 1980Ba42 in Coul. ex., using Q=−0.8 for 187 level.
756.016[&] *13*	3+		AB D IJKL N S VW	Jπ: E2+M1 γs to 2+; γγ(θ) in ^{190}Ir ε decay.
911.80[a] *5*	0+	14 ps *+4−3*	HIJKL S V X	Jπ: L(t,p)=L(p,t)=0; spin=0 from γγ(θ) in (n,γ) E=th. $T_{1/2}$: B(E2)(from 558,2+)=0.030 *5* in Coul. ex. and adopted branching.
955.375[&] *14*	4+	7.7 ps *6*	AB D HIJKL S UVWX	Jπ: 768.6γ and 397.4γ E2 to 2+; 407.5γ E2+M1 to 4+; spin=4 from γγ(θ) in ^{190}Ir ε decay (11.78 d). $T_{1/2}$: others: 6.7 ps *4* from B(E2)(from 558,2+)=0.70 *3* and 7.5 ps *6* from B(E2)(from 187,2+)=0.0082 *+6−5* in Coul. ex. together with adopted branching.
1050.433[@] *12*	6+	2.36 ps *14*	BCDE IJKL S V X Z	Jπ: 502.6γ E2 to 4+; spin=(6) from γγ(θ) in ^{190}Ir ε decay (11.78 d); band member; possible 631γ from 5−. $T_{1/2}$: other: 2.60 ps *11* from B(E2)(from 548,4+)=0.98 *+4−3* in Coul. ex.
1114.69[a] *4*	2+		HIJKL N S X	Jπ: 1114.7γ E2 to 0+.
1115.5 *10*	1[‡]		P	
1163.182[b] *20*	4+	8.6 ps *16*	AB D HIJKL S UVWX	Jπ: 605.2γ E2 to 2+; 207.9γ to 4+; 407.2γ E2+M1 to 3+; E4 excitation in (α,α′). $T_{1/2}$: other: 6.2 ps *+11−8* from B(E2)(from 558,2+)=0.119 *15* and adopted branching.
1203.83[&] *5*	5+		B D IJKL N S	Jπ: 447.8γ E2 to 3+; 656.0γ E2+M1 to 4+; spin=5 from γ(θ) in (n,n′γ) and ^{190}Ir ε decay (11.78 d).
1326.9 *10*	1,2[‡]		P	
1382.42 *20*	0+		hIJKL S X	XREF: h(1388). Jπ: 1195.7γ E2 to 2+; L(p,t)=0.
1386.992[c] *21*	3−	61 ps *+11−9*	AB D hIJKL RS U W	Jπ: 828.96γ E1 to 2+, 223.8γ E1 to 4+; spin=3 from γ(θ) and γγ(θ) in ^{190}Ir ε decay (11.78 d). $T_{1/2}$: from B(E3)(from g.s.)=0.154 *13* in (e,e′) and adopted branchings. β_3=0.06 (from (n,n′)).
1436.39 *4*	2+		HIJKL N S X	Jπ: 877.7γ E2(+M1) to 2+; 481.0γ and 887.9γ to 4+, 524.0γ to 0+; spin=2 from 680γ(θ) in (n,n′γ).
1446.24[b] *3*	(5)+		B D IJKL S	Jπ: 690.0γ (E2) to 3+, 490.7γ (E2) to 4+, 282.9γ E2(+M1) to 4+; spin=(5) from 690γ(θ) and excitation function in (n,n′γ).
1474.2[&] *6*	(6+)	2.78 ps *25*	V	Jπ: 518.8γ to 4+, 423.8γ to 6+; probable band member. $T_{1/2}$: other: 2.3 ps *+6−4* from B(E2)(from 955,4+)=0.75 *+7−10* and adopted branching.
1482.0 *10*	1[‡]		P	
1514.1? *5*	(6+,5+)		B	Jπ: 558.7γ to 4+; log *ft*=8.3 from (6−).
1545.30 *16*	0+		IJKL S X	Jπ: L(p,t)=0.
1547.2 *10*	1[‡]		P	
1568.98 *13*	(3)+		IJKL n S w	E(level): in (d,p) and (t,α) the groups correspond to 1569 and/or 1570.

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Adopted Levels, Gammas (continued)

^{190}Os Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[#]	XREF	Comments
				Jπ: 1011.0γ E2(+M1) to 2^+, 1021.9γ to 4^+; spin=(3) from 1011γ(θ) and excitation function in (n,n′γ).
1570.3 *3*	(1,2)		IJKL n S w	Jπ: excitation function and γ(θ) in (n,n′γ). Uncertain in (n,γ).
1583.91[c] *5*	4^-		B D IJKL S	Jπ: 196.9γ E2+M1 to 3^-, 380.0γ E1 to 5^+, 1036.1γ E1 to 4^+. Excitation considered uncertain in ^{190}Re β^- decay (3.1 h).
1615.97 *13*	$(2)^+$		IJKL S X	Jπ: 1429.4γ E2+M1 to 2^+, 1616.1γ to 0^+ and 1067.9γ to 4^+.
1666.776[@] *19*	8^+	0.71 ps *10*	BC E V Z	Jπ: 616.3γ E2 to 6^+; band member. $T_{1/2}$: other: 0.78 ps *4* from B(E2)(from 1050,6^+)=1.06 *+6−5*.
1675.69 *10*	$(2)^+$		hIJKL S wx	XREF: h(1676)w(1684)x(1679). Jπ: 1117.7γ M1(+E2) to 2^+, 919.6γ E2(+M1) to 3^+; spin=(2) from excitation function and 920γ(θ) in (n,n′γ).
1679.5 *3*	(3)		h S wx	XREF: h(1676)w(1684)x(1679). Jπ: from excitation function and γ(θ) in (n,n′γ).
1680.6 *3*	(1)		hIJKL n S wx	XREF: h(1676)n(1685)w(1684)x(1679). Jπ: from γ(θ) in (n,n′γ).
1681.70 *4*	5^-		B D hIJKL n S wx	XREF: h(1676)n(1685)w(1684)x(1679). Jπ: E1 γ to 4^+; 726γ(θ,t) in ^{190}Ir ε.
1689.08 *12*	(2^+)		IJKL n S w	XREF: n(1685)w(1684). Jπ: γs to 4^+ and 0^+; γ(θ) of γ to 2^+ in (n,n′γ). On the basis of excitation function data in (n,n′γ), two separate levels are reported, at 1688.9 (deexcited by 1131γ and 1142γ) and 1689.2 (deexcited by 933γ and 1502γ); however, the relative intensities of all the four γ rays agree well in both reactions: (n,γ) (E=th and E=res) and (n,n′γ).
1705.7 *1*	10^-	9.86 min *3*	C E	%IT=100 μ=−0.56 *+8−12* (1987Be54,2014StZZ) Jπ: 38.9γ M2+E3 to 8^+. $T_{1/2}$: from γ(t) in 2012Kr05. Others: 9.9 min *1* (1958Sc30), 9.85 min *14* (1964Ti01), 11 min (1962Ma24), 1961Ma31, 10 min *2* (1955At32), 9.5 min (1950Ch11). μ: from γ(θ,t,H) (1987Be54). Configuration=ν9/2[505]+ν11/2[615].
1708.25 *20*	$(2^+,3,4^+)$		B D HIJ S X	Jπ: 753.2γ to 4^+, 1150.7γ to 2^+. 952γ(θ) in (n,n′γ) disfavors 3^-. Possible population in (d,d′) (priv. comm., cited by 1984KlZY) makes 3^+ unlikely.
1724.8 *10*	1[‡]		P	
1732.89 *17*	0^+		HIJKL S X	Jπ: L(t,p)=L(p,t)=0.
1777 *6*			H W	E(level): weighted average of 1776 *8* from (t,p) and 1778 *6* from (t,α).
1802.74 *24*	$(1,2^+)$		S	Jπ: excitation function and 1616γ(θ). $J^\pi=1^+$ less likely if possible population in (d,d′) (priv. comm., cited by 1984KlZY).
1813.50 *22*	$(1^+,2,3^+)$		IJKL S	Jπ: 1255γ(θ) (to 2^+) implying D+Q suggests

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Adopted Levels, Gammas (continued)

^{190}Os Levels (continued)

E(level)[†]	Jπ	XREF	Comments
			J≠0,1⁻,3⁻ and excitation function favors low spin (≤3). Uncertain in (n,γ).
1823.65 *18*	(1,2)⁺	IJKL N S W	XREF: I(?). Jπ: 1265.7γ E2 to 2⁺. In (n,n′γ), excitation function favors J<3 and J≠0 from 1266γ(θ).
1836.39[b] *6*	(6⁺)	B V	Jπ: log *ft*=7.4 from (6⁻); 673.1γ to 4⁺. Because of direct multi-step excitation in Coul. ex., J=5⁺ less likely.
1859.11 *16*	(2⁺)	hIJKL S	XREF: h(1868). Jπ: 1311.2γ to 4⁺, possible 1858.8γ to 0⁺.
1872.23[c] *8*	(5)⁻	B D hI K N S WX	XREF: h(1868). Jπ: 485.2γ E2 to 3⁻, 190.5γ M1 to 5⁻, 1324.3γ E1 to 4⁺.
1884.45 *22*	(1,2,3)	I K S	Jπ: excitation function and γ(θ) in (n,n′γ). Uncertain in (n,γ).
1902.0 *3*	(1,2,3)	IJKL S	Jπ: excitation function and γ(θ) in (n,n′γ). Uncertain in (n,γ).
1903.33 *11*	(3⁺,4⁻)	D IJKL S	E(level): in (n,n′γ), on the basis of excitation functions, two levels are suggested: at 1902.9 (decaying through 1147γ) and 1903.3 (decaying through 740γ). However, branching ratios of both transitions agree well in ^{190}Ir ε, (n,γ) and (n,n′γ). Jπ: log *ft*=6.2 from 4⁻; 1147γ(θ) (to 3⁺) in (n,n′γ) implying D+Q suggests J≠5, 3⁻.
1910.58 *15*	(2)⁺	hIJKL n S wx	XREF: h(1926)n(1912)w(1910)x(1916). Jπ: 1154.4γ E2(+M1) to 3⁺, 955.7γ to 4⁺; primary 5881.2γ from 1⁻ and 2⁻ resonances in (n,γ) E=res. Possible population in (d,d′) (priv. comm., cited by 1984KlZY) makes 3⁺ unlikely.
1918.4 *4*	(1,2)	hIJKL n S wx	XREF: h(1926)n(1912)w(1910)x(1916). Jπ: primary 5873.8γ from 1⁻ and 2⁻ resonances in (n,γ) E=res; 1731.6γ to 2⁺.
1935.33 *19*	(2⁺,3⁺,4)	S	Jπ: from γ(θ) in (n,n′γ). Possible population in (d,d′) (priv. comm., cited by 1984KlZY) makes 3⁺ unlikely.
1943.5 *4*	(2⁺)	IJKL S WX	Jπ: 1942.6γ to 0⁺ and 1395.9γ to 4⁺.
1956.6 *4*	0⁺	X	Jπ: L(p,t)=0.
1958.1 *3*	(1,2⁺)	IJKL n S	XREF: n(1965). Uncertain in (n,γ). Jπ: γ to 0⁺.
1970.50 *22*	(1⁺,2)	IJKL n S W	XREF: n(1965)W(1980). Jπ: primary 5821.4γ from 1⁻ and 2⁻ resonances in (n,γ) E=res; 1214.3γ to 3⁺.
1992.4 *3*	(2,3)	IJKL n S x	XREF: n(1994)x(1990). Jπ: excitation function gives J≤3; 1236γ(θ) (to 3⁺) suggests J≠1. Uncertain in (n,γ).
1995.22 *18*	(2)⁺	A hIJKL n S x	XREF: h(2006)n(1994)x(1990). Jπ: 1437.0γ E2(+M1) to 2⁺, 1447.7γ to 4⁺; primary 5797γ from 1⁻ and 2⁻ resonances in (n,γ) E=res.
2009.8 *5*	1(+)‡	hIJKL P wx	XREF: h(2006)w(2015)x(2018). Jπ: parity from 1253.0γ to 3⁺.
2025.5 *3*	(1,2)	IJKL S wx	XREF: w(2015)x(2018). Jπ: excitation function and γ(θ) in (n,n′γ). Uncertain in (n,γ).
2042.4 *16*	(1,2)	hIJKL x	XREF: h(2054)J(?)K(?)L(?)x(2054). E(level): from (n,γ). This level is uncertain in (n,γ). Jπ: possible primary 5749.7γ from 1⁻ and 2⁻ in (n,γ) E=res.
2047.8 *8*	(1,2)	hIJKL x	XREF: h(2054)I(?)x(2054). Jπ: primary 5744.8γ from 1⁻ and 2⁻ in (n,γ) E=res.
2061.2? *2*	(6⁺,7⁻)	B	Jπ: possible 394.6γ to 8⁺ and 379.4γ to 5⁻.

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Adopted Levels, Gammas (continued)

^{190}Os Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[#]	XREF	Comments
2068.87 *8*	(5$^+$)		B n wx	XREF: n(2068)w(2071)x(2083). Jπ: 387.1γ to 5$^-$, 864.9γ to 5$^+$, 1313.1γ to 3$^+$; log *ft*=7.7 from (6$^-$).
2070.2 *3*	(1$^+$,2)		IJKL n S wx	XREF: n(2068)w(2071)x(2083). Jπ: excitation function in (n,n′γ); primary 5720.7γ from 1$^-$ and 2$^-$ in (n,γ) E=res; 1312.9γ to 3$^+$.
2089.0 *5*	(1$^+$,2$^+$)		I	Jπ: 2090.8γ to 0$^+$ and 1333.2γ to 3$^+$.
2090.2[&] *12*	(8$^+$)	1.6 ps *+3−4*	V	Jπ: Coul. ex. from (6$^+$) and band member. $T_{1/2}$: from B(E2)(from 1474,6$^+$)=0.52 *+15−7* in Coul. ex.
2111.8 *4*	(1,2$^+$)		hIJKL N S wx	XREF: h(2113)w(2120)x(2130). Jπ: primary 5680.9γ from 1$^-$ and 2$^-$ in (n,γ) E=res; 2111.5γ to 0$^+$.
2118.51 *20*	(1$^+$,2)		hIJKL N S wx	XREF: h(2113)w(2120)x(2130). Jπ: excitation function and γ(θ) in (n,n′γ).
2121.39 *12*	(5,6$^+$)		B	Jπ: log *ft*=7.7 from (6$^-$); 1166.1γ to 4$^+$, 284.9γ to (6$^+$).
2124.67 *17*	(2,3$^+$,4$^+$)		hIJKL S wx	XREF: h(2113)w(2120)x(2130). Jπ: excitation function and γ(θ) in (n,n′γ). Uncertain in (n,γ).
2135.5 *3*	(0$^+$,1,2)		IJKL S	Jπ: excitation function in (n,n′γ); 1949.2γ to 2$^+$. Uncertain in (n,γ).
2150.6 *9*	(1,2$^+$)		IJKL N wx	XREF: w(2163)x(2161). Jπ: 2150.6γ to 0$^+$.
2175.5 *10*	(0$^+$,1,2)		HIJKL N S wx	XREF: I(?)J(?)K(?)w(2163)x(2161). Jπ: primary 5616.7γ from 1$^-$ and 2$^-$ in (n,γ) E=res; 1988.8γ to 2$^+$.
2191.4 *4*	(1,2$^+$)		IJKL	Jπ: 2191.4γ to 0$^+$.
2198.5 *6*	(1,2)		iJKL X	XREF: i(2211). Jπ: primary 5593.7γ from 1$^-$ and 2$^-$ in (n,γ) E=res.
2210.1 *4*	(1,2)		IJKL N wx	XREF: w(2219)x(2211). Jπ: primary 5580.9γ from 1$^-$ and 2$^-$ in (n,γ) E=res.
2224 *2*	(1,2)		IJKL wx	XREF: w(2219)x(2211). Jπ: primary 5568.5γ from 1$^-$ and 2$^-$ in (n,γ) E=res.
2263.5 *5*	(1,2$^+$)		IJKL N WX	Jπ: primary 5529.0γ from 1$^-$ and 2$^-$ in (n,γ) E=res; possible 2261.5γ to 0$^+$.
2288.8 *6*	(1,2)		HIJKL N X	XREF: H(2299)N(2298)X(2286). Jπ: primary γs from 1$^-$ and 2$^-$ in (n,γ) E=res; 2287.4γ to 0$^+$.
2296.5 *7*	1[‡]		P	
2307 *2*	(1,2)		IJKL	XREF: I(?)J(?)L(?). Jπ: primary 5486.1γ from 1$^-$ and 2$^-$ in (n,γ) E=res.
2315 *2*	(1,2)		IJKL	XREF: I(?)J(?)L(?). Jπ: primary 5478.2γ from 1$^-$ and 2$^-$ in (n,γ) E=res.
2328.2 *10*	1[‡]		N P Wx	XREF: x(2339).
2350.7 *10*	(1,2$^+$)		hIJKL wx	XREF: h(2358)w(2354)x(2339). Jπ: primary 5444.8γ from 1$^-$ and 2$^-$ in (n,γ) E=res; 2352.3γ to 0$^+$.
2352.45 *21*	(2$^+$,3)		A h w	XREF: h(2358)w(2354). Jπ: log *ft*=5.8 *2* from (2)$^-$; 1397.1γ to 4$^+$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{190}Os Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[#]	XREF	Comments
2357.7[@] *10*	(10+)	0.48 ps *+11−9*	V Z	Jπ: populated in Coul. ex.; 690.9γ to (8+). $T_{1/2}$: from B(E2)(from 1667,8+)=0.93 *+22−17* in Coul. ex.
2366 *6*			N	
2381 *2*	(1,2)		IJKL	XREF: J(?)L(?). Jπ: primary 5409.5γ from 1− and 2− in (n,γ) E=res.
2393.5 *10*	1[‡]		h P	XREF: h(2400).
2408.0 *7*	1[‡]		h N P WX	XREF: h(2400)N(2417)X(2412).
2446 *5*	(0+)		H N WX	E(level): weighted average of 2451 *10* from (t,p), 2450 *5* from (d,p), 2437 *8* from (t,α), and 2440 *10* from (p,t). Jπ: L(t,p)=(0).
2457.7 *6*	(1,2+)		I w	XREF: w(2463). Jπ: 2460.5γ to 0+.
2468 *2*	(1,2)		IJKL n w	XREF: I(?)L(?)n(2476)w(2463). Jπ: primary 5324.7γ from 1− and 2− in (n,γ) E=res.
2474.4 *10*	(0+ to 3)		hI n	XREF: h(2484)n(2476). Jπ: primary 5318.1γ from 1−,2− in (n,γ) E=th; 1917.2γ to 2+.
2477.0 *5*	(1+,2+)		hIJKL n	XREF: h(2484)n(2476). Jπ: 2477.0γ to 0+ and 1720.9γ to 3+.
2483.5 *5*	0+		X	Jπ: L(p,t)=0.
2502.7 *7*	(1+,2+)		I	Jπ: 2502.8γ to 0+ and 1746.6γ to 3+.
2511 *6*			h N	XREF: h(2526). E(level): from (d,p).
2539 *6*			h N WX	XREF: h(2526)N(2541)W(2535)X(2538). E(level): weighted average of 2541 *6* from (d,p), 2535 *8* from (t,α), and 2538 *10* from (p,t).
2551.8 *5*	(1+,2+)		I	Jπ: 2551.4γ to 0+ and 1795.5γ to 3+.
2563.3 *7*	(0+ to 3)		HI W	XREF: H(2574)W(2568). Jπ: primary 5229.7γ from 1−,2− in (n,γ) E=th; 2003.4γ to 2+.
2591.6 *5*	1(+)[‡]		I P x	XREF: x(2603). Jπ: parity from 1835.5γ to 3+.
2622.5 *5*	1(+)[‡]		I N P Wx	XREF: x(2603). Jπ: parity from 1864.7γ to 3+.
2643.7 *7*	1[‡]		P x	XREF: x(2645).
2655 *7*			N Wx	XREF: x(2645). E(level): weighted average of 2655 *7* from (d,p) and 2655 *8* from (t,α).
2663.0 *7*	(1+,2,3)		I	Jπ: primary 5129.6γ from 1−,2− in (n,γ) E=th; 2476.8γ to 2+ and 1904.8γ to 3+.
2685 *7*			N WX	E(level): weighted average of 2686 *7* from (d,p), 2690 *8* from (t,α), and 2674 *10* from (p,t).
2704.2 *6*	1(+)[‡]		I P	Jπ: parity from 1949.9γ to 3+.
2714.1 *7*	1[‡]		N P WX	
2737.7 *7*	1[‡]		I P WX	
2757.7[e] *15*	(12+)		Z	Jπ: band assignment in (^{82}Se,Xγ).
2772.2[&] *16*	(10+)		V	Jπ: populated in Coul. ex. and 682γ to (8+).
2774.0 *5*	1[‡]		I N P WX	XREF: X(2755).
2791 *8*			W	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{190}Os Levels (continued)

E(level)[†]	Jπ	$T_{1/2}$[#]	XREF	Comments
2816.0 *9*	1[‡]		I N P W	
2820.6 *4*	(0$^+$ to 3)		I	Jπ: primary 4971.7γ from 1$^-$,2$^-$ in (n,γ) E=th; 2262.6γ to 2$^+$.
2877.0 *10*	(1,2$^+$)		I W	Jπ: 2878.0γ to 0$^+$.
2914 *8*			WX	E(level): weighted average of 2914 *8* from (t,α) and 2915 *10* from (p,t).
2944.7 *8*	(1,2$^+$)		I N X	Jπ: 2945.1γ to 0$^+$.
2963 *8*			W	
2975.0 *5*	(2$^+$)		I	Jπ: 2980.0γ to 0$^+$, 2425.3γ to 4$^+$.
2992 *10*			N	
3011.7 *15*	(12$^+$)	<1.9 ps	V	Jπ: populated in Coul. ex.; 654γ to (10$^+$). $T_{1/2}$: 0.7 ps to 1.9 ps from B(E2)(from 2357,10$^+$)=0.32 to 0.76 in Coul. ex. Either of the 3011 or 3126 levels may be member of g.s. band.
3015.7 *7*	1[‡]		P x	XREF: x(3023).
3023.0 *7*	1[‡]		n P x	XREF: n(3045)x(3023).
3045.4 *6*	1[‡]		I n P	XREF: n(3045).
3076 *8*			W	
3117.1 *10*	1[‡]		P	
3126.1 *7*	1[‡]		P	
3126.7 *15*	(12$^+$)	<4.8 ps	V	Jπ: populated in Coul. ex.; 769γ to (10$^+$). $T_{1/2}$: 0.4 ps to 4.8 ps from B(E2)(from 10$^+$ level)=0.048 to 0.55 in Coul. ex.
3142.0 *10*	1[‡]		P	
3189.3 *10*	1[‡]		P	
3244.6 *10*	1[‡]		P	
3278 *10*			X	
3346.7[e] *18*	(14$^+$)		Z	Jπ: band assignment in (^{82}Se,Xγ).
3348.3 *10*	1[‡]		P X	XREF: X(3336).
3414.8 *10*	1[‡]		P x	XREF: x(3430).
3445.9 *7*	1[‡]		P Wx	XREF: W(3455)x(3430).
3467.4 *10*	1[‡]		P	
3516.6 *10*	1[‡]		P X	XREF: X(3525).
3577 *10*			X	
3595 *10*			X	
3628 *10*			X	
3724 *10*			X	
3748.9 *10*	1[‡]		P	
3781 *10*			X	
3798.7 *10*	1[‡]		P	
3869.9 *10*	1[‡]		P	
3900 *10*			X	
3924.8 *10*	1[‡]		P	
3981.9 *10*	1[‡]		P X	XREF: X(3978).
4012.7[e] *20*	(16$^+$)		Z	Jπ: band assignment in (^{82}Se,Xγ).
4015 *10*			X	
4497.7[d] *23*	(18$^+$)		Z	Jπ: band assignment in (^{82}Se,Xγ).
4809.7[d] *25*	(19$^+$)		Z	Jπ: band assignment in (^{82}Se,Xγ).
5130.6? *8*	(0$^+$ to 3)		I	Jπ: primary 2662.0γ from 1$^-$,2$^-$ in (n,γ) E=th; 4573.0γ

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Adopted Levels, Gammas (continued)

^{190}Os Levels (continued)

E(level)[†]	Jπ	XREF	Comments
			to 2^+.
5248[d] *3*	(20^+)	Z	Jπ: band assignment in (^{82}Se,Xγ).
5834[d] *3*	(21^+)	Z	Jπ: band assignment in (^{82}Se,Xγ).
(7792.2 *2*)	$1^-,2^-$	I	Jπ: s-wave neutron capture in ^{189}Os (J^π(g.s.)=$3/2^-$). E(level): S(n)=7792.34 *19* (2017Wa10).
S(n)+0.00671	1^-	J	Additional information 3. E(level): S(n)+E(n), where S(n)=7792.34 *19* (2017Wa10), E(n)=6.71 eV *1* (2018MuZZ). Jπ: s-wave neutron capture in ^{189}Os (g.s. $J^\pi=3/2^-$) and γ-ray intensity ratios (1976St14,1975Na02), same J^π in 2018MuZZ.
S(n)+0.00896	2^-	K	Additional information 4. E(level): S(n)+E(n), where S(n)=7792.34 *19* (2017Wa10), E(n)=8.96 eV *2* (2018MuZZ). Jπ: s-wave neutron capture in ^{189}Os (g.s. $J^\pi=3/2^-$) and γ-ray intensity ratios (1976St14,1975Na02), same J^π in 2018MuZZ.
S(n)+0.01031	1^-	L	Additional information 5. E(level): S(n)+E(n), where S(n)=7792.34 *19* (2017Wa10), E(n)=10.31 eV *3* (2018MuZZ). Jπ: s-wave neutron capture in ^{189}Os (g.s. $J^\pi=3/2^-$) and γ-ray intensity ratios (1976St14,1975Na02), same J^π in 2018MuZZ.
12680		Q	
14400		Q	
23800		Q	Giant-quadrupole resonance.

[†] From a least-squares fit to γ-ray energies; for levels with no known deexciting transitions, weighted averages of available level energies are taken.
[‡] Dipole (scissors mode) excitation and $\gamma\gamma(\theta)$ in (γ,γ').
[#] From recoil-distance method in Coulomb excitation, unless otherwise stated.
[@] Band(A): $K^\pi=0^+$, g.s. band.
[&] Band(B): $K^\pi=2^+$ γ band.
[a] Band(C): $K^\pi=0^+$ β band.
[b] Band(D): $K^\pi=4^+$ band. Based on B(E2) values in Coulomb excitation, 2001Wu03 interpret the bandhead as a dominant two-phonon γ-vibrational excitation, but B(E4) strength (β_4=0.019) in (α,α') (1978Bu21) and 2-quasiparticle ($\pi5/2[402]+\pi3/2[402]$) strength (≈54%) in (t,α) (2000BuZU, also comments in Phys. Rev. C66, 038901, 039802 (2002) on 2001Wu03) are in conflict, and reveal that a dominant g-boson or hexadecapole contribution is more likely, together with the presence of smaller components of two-phonon γ-vibrations. See also 1997Bu10 and 1994Bu16 for discussion of the lowest $K^\pi=4^+$ bands in even-even nuclides in this mass region.
[c] Band(E): $K^\pi=3^-$ octupole band.
[d] Band(F): ΔJ=1 band based on (18^+).
[e] Band(G): t-band.

Adopted Levels, Gammas (continued)

$\gamma(^{190}Os)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
186.718	2^+	186.718 *2*	100	0.0	0^+	E2		0.420	B(E2)(W.u.)=72.9 *16* E_γ: other precise values: 186.718 *2* from (n,n′γ), 186.720 *10* from ^{190}Os IT decay. Mult.: also from ce data in (n,γ) E=th and Coulomb excitation.
547.854	4^+	361.136 *6*	100	186.718	2^+	E2		0.0535	B(E2)(W.u.)=99 *+5−3* E_γ: other precise values: 361.139 *9* from (n,n′γ), 361.121 *14* from ^{190}Os IT decay. Mult.: also from ce data in (n,γ) E=th; ΔJ=2 from $\gamma(\theta)$ in ^{190}Ir ε decay (11.78 d).
557.978	2^+	371.260 *5*	72.5 *11*	186.718	2^+	E2+M1	−8.1 *8*	0.0510	B(M1)(W.u.)=1.73×10^{-4} *38*; B(E2)(W.u.)=32.6 *34* E_γ: other precise values: 371.257 *6* from (n,n′γ). 372.93 *12* from Muonic atom is discrepant. I_γ: from (n,n′γ). Others: 74 from ^{190}Re β^- decay (3.0-min and 3.1-h combined), 76 from ^{190}Ir ε decay (11.78 d), 67 from (n,γ) (E=th and E=res). δ: others (Coul. ex.): −8.5 *+3−2* (1971Mi08), −11 *+6−4* (1969Ca19), from $\gamma(\theta)$.
		557.965 *14*	100 *8*	0.0	0^+	E2		0.01748	B(E2)(W.u.)=6.0 *6* E_γ: weighted average of 557.972 *14* from (n,γ) E=th and 557.956 *16* from (n,n′γ). 559.32 *12* from Muonic atom is discrepant. I_γ: from (n,n′γ). Others: 100 *6* from ^{190}Re β^- decay (3.0-min and 3.1-h combined), 100 *3* from ^{190}Ir ε decay (11.78 d), 100 *7* from (n,γ) (E=th and E=res). Mult.: also from ce data in (n,γ) E=th.
756.016	3^+	197.89 *20*	6.7 *7*	557.978	2^+	E2+M1	−9 *+2−5*	0.350 *7*	α(K)=0.180 *5*; α(L)=0.1282 *19*; α(M)=0.0323 *5* α(N)=0.00776 *12*; α(O)=0.001175 *18*; α(P)=1.71×10^{-5} *6* E_γ: weighted average of 198.08 *20* from ^{190}Re β^- decay (3.0 min) and 197.7 *2* from (n,γ) E=th. I_γ: weighted average of 6.8 *8* from ^{190}Ir ε decay (11.78 d), 4.6 *7* from (n,γ) E=6.7 eV, 6.1 *8* from (n,γ) E=9.0 eV, 5.8 *10* from (n,γ) E=10.3 eV, 8.0 *10* from (n,γ) E=th, and 7.0 *10* from ^{190}Re β^- decay (3.0-m and 3.1-h combined).
		207.96[d] *8*	3.9[d] *6*	547.854	4^+	E2(+M1)	−16 *+5−20*	0.293 *5*	E_γ: weighted average of 207.91 *6* from ^{190}Re β^- decay (3.0 min) and 208.1 *1* from (n,γ) E=th. I_γ: weighted average of 4.2 *6* from ^{190}Ir ε decay (11.78 d) 3.4 *7* from ^{190}Re β^- decay (3.0-m and 3.1-h combined). Others: 1.14 *10*, 1.14 *8*, 1.23 *10*, 1.22 *8* from (n,γ) (E=th and E=res) are discrepant.
		569.304 *14*	100 *3*	186.718	2^+	E2+M1	−9.8 *10*	0.01699 *25*	E_γ: weighted average of 569.310 *14* from (n,γ) E=th and 569.291 *20* from (n,n′γ).

$^{190}_{76}Os_{114}$-10

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
									I_γ: from ^{190}Ir ε decay (11.78 d). δ: other: δ(E2/M1)>4 from γ(θ) in (n,γ) E=th.
911.80	0$^+$	353.86 *7*	28.3 *19*	557.978	2$^+$	(E2)		0.0567	B(E2)(W.u.)=24 *+10−7* E_γ: other: 353.84 *7* from (n,n′γ). I_γ: weighted average of 27.7 *19* from (n,γ) E=6.7 eV, 25 *5* from (n,γ) E=9.0 eV, 31 *3* from (n,γ) E=10.3 eV, 31 *3* from (n,γ) E=th, and 18 *6* from (n,n′γ). Mult.: from ce data in (n,γ) E=th.
		725.07 *8*	100 *7*	186.718	2$^+$	E2		0.00967	B(E2)(W.u.)=2.4 *+8−6* E_γ: other: 725.0 *2* from (n,n′γ). I_γ: from (n,n′γ). Other: 100 *8* from (n,γ) E=th. Mult.: from ce and γγ(θ) data in (n,γ) E=th.
955.375	4$^+$	199.3 *3*	3.3 *9*	756.016	3$^+$	E2		0.336	B(E2)(W.u.)=54 *+24−19* α(K)=0.1712 *25*; α(L)=0.1246 *20*; α(M)=0.0314 *5* α(N)=0.00755 *12*; α(O)=0.001143 *18*; α(P)=1.604×10^{-5} *24* E_γ: from ^{190}Re β^- decay and ^{190}Ir ε decay. Other: 197.7 *2* is discrepant and inconsistent with level-energy difference. I_γ: weighted average of 3.5 *11* from ^{190}Ir ε decay (11.78 d), 2.1 *11* from (n,γ) E=6.7 eV, 3.3 *9* from (n,γ) E=9.0 eV, 2.8 *9* from (n,γ) E=10.3 eV, 4.1 *12* from (n,γ) E=th, and 4.1 *10* from ^{190}Re β^- decay (3.0-m and 3.1-h combined).
		397.388 *17*	100 *3*	557.978	2$^+$	E2		0.0412	B(E2)(W.u.)=52.3 *43* I_γ: from ^{190}Ir ε decay (11.78 d). Others: 100 *7* from (n,γ) E=th, 100 *4* from Coul. ex., 100 *9* from (n,n′γ), 100 *6* from ^{190}Re β^- decay (3.0-m and 3.1-h combined). Mult.: also from ce data in (n,γ) E=th.
		407.543 *25*	71 *4*	547.854	4$^+$	E2+M1	−3.4 *+6−9*	0.044 *3*	B(M1)(W.u.)=0.0011 *+7−5*; B(E2)(W.u.)=31 *5* E_γ: others: 407.22 *6* from ^{190}Re β^- decay and ^{190}Ir ε decay, 407.33 *10* are discrepant. Unweighted average of the three values is 407.36 *10*. I_γ: weighted average of 70 *11* from ^{190}Ir ε decay (11.78 d), 69 *10* from (n,γ) E=6.7 eV, 68 *9* from (n,γ) E=9.0 eV, 68 *9* from (n,γ) E=10.3 eV, 66 *10* from (n,γ) E=th, 78 *11* from (n,n′γ), 72 *4* from Coulomb excitation, and 70 *10* from ^{190}Re β^- decay (3.0-m and 3.1-h combined). δ: other: −3.5 *+7−19* from E2 and M1 matrix elements in Coul. ex.; >3.5 from ce data in (n,γ) E=th.
		768.61 *8*	35.6 *14*	186.718	2$^+$	E2		0.00853	B(E2)(W.u.)=0.69 *6* E_γ: weighted average of 768.57 *8* from ^{190}Re β^- decay and ^{190}Ir ε decay (11.78 d), 768.68 *10* from (n,γ) E=th, and 768.6 *2* from (n,n′γ). I_γ: weighted average of 33.8 *14* from ^{190}Ir ε decay (11.78 d), 43 *3* from (n,γ) E=6.7 eV, 38 *3* from (n,γ) E=9.0 eV, 44 *4* from (n,γ) E=10.3

$^{190}_{76}Os_{114}$-11

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
									eV, 38 *3* from (n,γ) E=th, 38 *3* from (n,n′γ), 31.0 *20* from Coulomb excitation, and 35.1 *21* from ^{190}Re β^- decay (3.0-m and 3.1-h combined). Mult.: also from ce data in (n,γ) E=th.
1050.433	6^+	(95.0)	0.0012 *7*	955.375	4^+	[E2]		5.37	B(E2)(W.u.)=5.6 *+45−36* E_γ,I_γ: from Coulomb excitation.
		502.578 *10*	100 *4*	547.854	4^+	E2		0.0225	B(E2)(W.u.)=113 *7* E_γ: from ^{190}Ir IT decay. Others: 502.55 *8* from ^{190}Re β^- and ^{190}Ir ε decay (11.78 d), 502.5 *1* from ^{190}Ir ε decay (3.087 h), 502.6 *3* from (n,γ) E=th, 502.4 *3* from (n,n′γ). I_γ: from Coulomb excitation.
1114.69	2^+	203.1[#] *1*	5.8[#] *6*	911.80	0^+	[E2]		0.315	I_γ: weighted average of 6.0 *6* from (n,γ) E=6.7 eV, 5.6 *6* from (n,γ) E=9.0 eV, 5.5 *10* from (n,γ) E=10.3 eV, and 6.0 *6* from (n,γ) E=th.
		358.69[#] *4*	37[#] *3*	756.016	3^+	E2+M1	1.9 *4*	0.077 *10*	I_γ: weighted average of 36 *3* from (n,γ) E=6.7 eV, 39 *4* from (n,γ) E=9.0 eV, 38 *4* from (n,γ) E=10.3 eV, and 35 *4* from (n,γ) E=th. Mult.,δ: from ce data in (n,γ) E=th.
		927.92 *12*	100 *5*	186.718	2^+	E2+M1	1.5 *+10−4*	0.0082 *14*	I_γ: from (n,n′γ). Other: 100 *7* from (n,γ) E=th. Mult.,δ: from ce data in (n,γ) E=th.
		1114.7 *2*	57 *4*	0.0	0^+	E2		0.00401	Mult.: from ce data in (n,γ) E=th.
1115.5	1	1115.5		0.0	0^+				
1163.182	4^+	207.96[d] *8*	2.1[d] *3*	955.375	4^+	(E2)		0.291	B(E2)(W.u.)=32 *+15−10* α(K)=0.1532 *22*; α(L)=0.1044 *15*; α(M)=0.0263 *4* α(N)=0.00632 *9*; α(O)=0.000958 *14*; α(P)=1.445×10^{-5} *21* E_γ: weighted average of 207.91 *6* from ^{190}Re β^- decay and ^{190}Ir ε decay (11.78 d), 208.1 *1* from (n,γ) E=th. I_γ: unweighted average of 0.9 *3* from ^{190}Ir ε decay (11.78 d), 2.4 *8* from (n,γ) E=6.7 eV, 2.5 *4* from (n,γ) E=9.0 eV, 3.1 *8* from (n,γ) E=10.3 eV, 2.7 *5* from (n,γ) E=th, 2.0 *4* from Coulomb excitation, and 0.9 *3* from ^{190}Re β^- decay (3.0-m and 3.1-h combined).
		407.183 *25*	58 *3*	756.016	3^+	E2+M1	−2.6 *+8−14*	0.048 *8*	B(M1)(W.u.)=0.0017 *+23−11*; B(E2)(W.u.)=27 *+11−8* E_γ: weighted average of 407.22 *6* from ^{190}Re β^- decay and ^{190}Ir ε decay (11.78 d), and 407.176 *25* from (n,γ) E=th. Other: 407.33 *10* from (n,n′γ). I_γ: weighted average of 60 *3* from ^{190}Ir ε decay (11.78 d), 57 *6* from (n,γ) E=6.7 eV, 57 *5* from (n,γ) E=9.0 eV, 57 *6* from (n,γ) E=10.3 eV, 56 *5* from (n,γ) E=th, 50 *8* from (n,n′γ), 60 *15* from Coulomb excitation, and 57 *6* from ^{190}Re β^- decay

$^{190}_{76}Os_{114}$-12

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
									(3.0-m and 3.1-h combined). δ: other: >3.5 from ce data in (n,γ) E=th.
1163.182	4+	605.20 *7*	100 *4*	557.978	2+	E2		0.01446	B(E2)(W.u.)=7.3 *+21−14* E_γ: weighted average of 605.14 *7* from ^{190}Re β⁻ decay and ^{190}Ir ε decay (11.78 d), 605.26 *7* from (n,γ) E=th, and 605.2 *1* from (n,n′γ). I_γ: from ^{190}Ir ε decay (11.78 d). Others: 100 *5* from ^{190}Re β⁻ decay (3.0-m and 3.1-h combined), 100 *7* from (n,γ) (E=th and E=res), 100 *8* from (n,n′γ), 100 *13* from Coul. ex. Mult.: also from ce data in (n,γ) E=th.
		615.42 *15*	1.9 *7*	547.854	4+	[E2]		0.01392	B(E2)(W.u.)=0.13 *+10−6* E_γ: weighted average of 615.39 *15* from ^{190}Ir ε decay (11.78 d) and 615.6 *4* from (n,n′γ). I_γ: unweighted average of 1.18 *7* from ^{190}Ir ε decay (11.78 d) and 2.6 *6* from (n,n′γ).
		976.4 *3*	4.6 *5*	186.718	2+	[E2]		0.00521	B(E2)(W.u.)=0.031 *+13−9* I_γ: weighted average of 8.1 *16* from (n,γ) E=6.7 eV, 2.9 *7* from (n,γ) E=9.0 eV, 4.8 *11* from (n,γ) E=10.3 eV, 4.8 *5* from (n,γ) E=th, 5.4 *8* from (n,n′γ), and 5.0 *11* from Coulomb excitation. Others: 0.14 *4* from ^{190}Ir ε decay (11.78 d).
1203.83	5+	447.81 *8*	100 *5*	756.016	3+	E2		0.0301	E_γ,I_γ: from ^{190}Ir ε decay (11.78 d). Other: Eγ=447.8 *1*, Iγ=100 *8* from (n,γ) E=th; Iγ=100 *9* from (n,n′γ).
		655.99 *8*	44 *3*	547.854	4+	E2+M1	−1.7 *14*	0.017 *14*	E_γ: weighted average of 656.02 *8* from ^{190}Re β⁻ decay (3.1 h) and ^{190}Ir ε decay (11.78 d), 655.8 *3* from (n,γ) E=th, and 655.9 *2* from (n,n′γ). I_γ: weighted average of 37 *3* from ^{190}Re β⁻ decay (3.1 h), 46 *3* from ^{190}Ir ε decay (11.78 d), 48 *7* from (n,γ) E=6.7 eV, 44 *4* from (n,γ) E=9.0 eV, 46 *6* from (n,γ) E=th, and 53 *4* from (n,n′γ).
1326.9	1,2	1326.9		0.0	0+				
1382.42	0+	1195.7 *2*	100	186.718	2+	E2		0.00350	E_γ: weighted average of 1195.8 *2* from (n,γ) E=th and 1195.6 *3* from (n,n′γ). Mult.: from ce data in (n,γ) E=th.
1386.992	3−	223.811 *7*	100 *4*	1163.182	4+	E1		0.0500	B(E1)(W.u.)=7.4×10^{-5} *+21−17* I_γ: from ^{190}Re β⁻ decay (3.0-m and 3.1-h combined). Others: 100 *5* from ^{190}Ir ε decay (11.78 d), 100 *7* from (n,γ) (E=th and E=res), 100 *8* from (n,n′γ).
		431.62 *7*	76 *4*	955.375	4+	[E1]		0.01056	B(E1)(W.u.)=7.9×10^{-6} *+23−19* E_γ: from ^{190}Re β⁻ decay and ^{190}Ir ε decay (11.78 d). Other: 431.6 *1* from (n,γ) E=th. I_γ: weighted average of 73 *4* from ^{190}Ir ε decay (11.78 d), 86 *6* from (n,γ) E=9.0 eV, 82 *7* from (n,γ) E=10.3 eV, 88 *7* from (n,γ) E=th, 89 *7* from (n,γ) E=6.7 eV, 73 *6* from (n,n′γ), and 65 *4* from ^{190}Re β⁻ decay (3.0-m and 3.1-h combined).

$^{190}_{76}Os_{114}$-13

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
1386.992	3⁻	630.91 *13*	80 *9*	756.016	3⁺	[E1]	0.00472	B(E1)(W.u.)=2.7×10^{-6} *+9−7* E_γ: from ^{190}Re β^- decay and ^{190}Ir ε decay (11.78 d). Other: 630.9 *2* from (n,γ) E=th. I_γ: weighted average of 79 *9* from ^{190}Ir ε decay (11.78 d), 91 *9* from (n,γ) E=6.7 eV, and 68 *10* from ^{190}Re β^- decay (3.0-m and 3.1-h combined). Others: 69 *5* from (n,n′γ) for a doublet; 137 *10* from (n,γ) E=9.0 eV, 133 *10* from (n,γ) E=10.3 eV, and 151 *11* from (n,γ) E=th are discrepant.
		828.96 *7*	91 *7*	557.978	2⁺	E1	0.00276	B(E1)(W.u.)=1.33×10^{-6} *+41−32* E_γ: weighted average of 828.99 *7* from ^{190}Re β^- decay and ^{190}Ir ε decay (11.78 d), 828.89 *11* from (n,γ) E=th, and 828.9 *2* from (n,n′γ). I_γ: weighted average of 93 *7* from ^{190}Ir ε decay (11.78 d) and 89 *8* from ^{190}Re β^- decay (3.0-m and 3.1-h combined). Others: 130 *9* from (n,γ) E=9.0 eV, 121 *8* from (n,γ) E=10.3 eV, 135 *10* from (n,γ) E=th, 135 *11* from (n,γ) E=6.7 eV, and 135 *8* from (n,n′γ). δ(M2/E1)=−0.01 *5* from γγ(θ) in ^{190}Ir ε decay (11.78 d), 0.19 *3* from ce data in (n,γ) E=th.
		839.12 *12*	32.1 *12*	547.854	4⁺	(E1)	0.00270	B(E1)(W.u.)=4.5×10^{-7} *+14−11* E_γ: weighted average of 839.14 *12* from ^{190}Re β^- decay and ^{190}Ir ε decay (11.78 d), 839.0 *3* from (n,γ) E=th, and 839.1 *2* from (n,n′γ). I_γ: weighted average of 30.5 *12* from ^{190}Ir ε decay (11.78 d), 34 *3* from (n,γ) E=9.0 eV, 34 *3* from (n,γ) E=10.3 eV, 36 *3* from (n,γ) E=th, 40 *4* from (n,γ) E=6.7 eV, 38 *4* from (n,n′γ), and 30.7 *15* from ^{190}Re β^- decay (3.0-m and 3.1-h combined).
		1200.12 *20*	12.4 *9*	186.718	2⁺	(E1)	1.42×10^{-3}	B(E1)(W.u.)=6.0×10^{-8} *+21−16* E_γ: weighted average of 1200.24 *12* from ^{190}Re β^- decay and ^{190}Ir ε decay (11.78 d), 1200.0 *5* from (n,γ) E=th, and 1199.4 *3* from (n,n′γ). I_γ: weighted average of 11.8 *6* from ^{190}Ir ε decay (11.78 d), 22 *4* from (n,γ) E=9.0 eV, 13 *5* from (n,γ) E=10.3 eV, 21 *7* from (n,γ) E=6.7 eV, 19.0 *24* from (n,n′γ), and 12.1 *13* from ^{190}Re β^- decay (3.0-m and 3.1-h combined).
		1386.97 *12*	4.2 *3*	0.0	0⁺	(E3)	0.00542	B(E3)(W.u.)=9.8 *+34−26* E_γ: weighted average of 1386.95 *12* from ^{190}Re β^- decay and ^{190}Ir ε decay (11.78 d) and 1387.4 *6* from (n,γ) E=th. I_γ: weighted average of 4.1 *3* from ^{190}Ir ε decay (11.78 d) and 5.0 *7* from ^{190}Re β^- decay (3.0-m and 3.1-h combined). Others: 28 *4* from (n,γ) E=9.0 eV, 30 *5* from (n,γ) E=10.3 eV, 17 *4* from (n,γ) E=th, 25 *4* from (n,γ) E=6.7 eV are discrepant.
1436.39	2⁺	321.701 *15*	43 *8*	1114.69	2⁺			E_γ: from (n,n′γ). Other: 321.2 *2* from (n,γ).

$^{190}_{76}Os_{114}$-14

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	α[c]	Comments
									I_γ: unweighted average of 59 *4* from (n,γ) E=9.0 eV, 37 *3* from (n,γ) E=10.3 eV, 63 *5* from (n,γ) E=th, 38 *4* from (n,γ) E=6.7 eV, and 18 *8* from (n,n′γ).
1436.39	2+	481.0 *9*	13.3 *13*	955.375	4+				I_γ: weighted average of 13.8 *13* from (n,γ) E=9.0 eV, 10 *3* from (n,γ) E=th, and 13.8 *22* from (n,γ) E=6.7 eV.
		524.0 *2*	28 *4*	911.80	0+				E_γ: weighted average of 524.0 *2* from (n,γ) E=th and 524.1 *5* from (n,n′γ). I_γ: unweighted average of 26.3 *25* from (n,γ) E=9.0 eV, 34 *3* from (n,γ) E=10.3 eV, 33 *3* from (n,γ) E=th, 35 *4* from (n,γ) E=6.7 eV, and 14 *6* from (n,n′γ).
		679.75 *9*	55 *4*	756.016	3+	E2(+M1)	2.3 *+19−6*	0.0141 *20*	E_γ: poor-fit, level-energy difference=680.37. I_γ: unweighted average of 50 *4* from (n,γ) E=9.0 eV, 63 *5* from (n,γ) E=10.3 eV, 55 *5* from (n,γ) E=th, 62 *6* from (n,γ) E=6.7 eV, and 45 *3* from (n,n′γ).
		877.73 *12*	69 *5*	557.978	2+	E2(+M1)	>1	0.0088 *23*	E_γ: poor-fit, level-energy difference=878.41. I_γ: unweighted average of 65 *5* from (n,γ) E=9.0 eV, 81 *7* from (n,γ) E=10.3 eV, 72 *7* from (n,γ) E=th, 73 *6* from (n,γ) E=6.7 eV, and 53 *4* from (n,n′γ).
		888.3 *2*	51 *4*	547.854	4+				E_γ: weighted average of 887.9 *3* from (n,γ) E=th and 888.4 *2* from (n,n′γ). I_γ: from (n,n′γ), Iγ<50 in (n,γ).
		1249.1 *3*	100 *6*	186.718	2+				E_γ: weighted average of 1249.2 *3* from (n,γ) E=th and 1249.0 *3* from (n,n′γ). I_γ: from (n,n′γ). Other: 100 *8* from (n,γ) E=th.
1446.24	(5)+	242.3 *3*	4.1 *4*	1203.83	5+	[M1,E2]		0.32 *15*	E_γ,I_γ: seen only in ^{190}Re β^- decay (3.1 h).
		283.07 *2*	67 *5*	1163.182	4+	E2(+M1)	>2.5	0.122 *14*	E_γ: weighted average of 282.93 *6* from ^{190}Ir ε decay (11.78 d), 282.9 *2* from (n,γ) E=th, and 283.080 *16* from (n,n′γ). I_γ: weighted average of 64 *5* from ^{190}Re β^- decay (3.1 h), 61 *12* from ^{190}Ir ε decay (11.78 d), 68 *5* from (n,γ) E=9.0 eV, and 72 *6* from (n,γ) E=th. Others: 30 *5* from (n,γ) E=10.3 eV, 103 *12* from (n,n′γ) are discrepant.
		490.71 *10*	100 *5*	955.375	4+	(E2)		0.0239	E_γ: weighted average of 490.76 *7* from ^{190}Ir ε decay (11.78 d), 490.7 *3* from (n,γ) E=th, and 490.3 *2* from (n,n′γ). I_γ: from ^{190}Ir ε decay (11.78 d). Other: 100 *8* from (n,γ) E=th.
		690.08 *12*	42 *4*	756.016	3+	(E2)		0.01077	E_γ: weighted average of 690.04 *8* from ^{190}Ir ε decay (11.78 d), 691.0 *4* from (n,γ) E=th, and 690.1 *2* from (n,n′γ). I_γ: weighted average of 40 *4* from ^{190}Re β^- decay (3.1 h), 36 *4* from ^{190}Ir ε decay (11.78 d), 59 *9* from (n,γ) E=9.0 eV, 60 *7* from (n,γ) E=10.3 eV, and 38 *6* from (n,n′γ). Others: 103 *8* from (n,γ) E=th, 280 *40* from (n,γ)=6.7 eV are discrepant.
1474.2	(6+)	423.8	17 *3*	1050.433	6+	[E2]		0.0347	B(E2)(W.u.)=30 *+16−11*

$^{190}_{76}Os_{114}$-15

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
1474.2	(6$^+$)	518.8	100 *12*	955.375	4$^+$	[E2]		0.0208	B(E2)(W.u.)=64 *+16−13*
		926.3	<20	547.854	4$^+$	[E2]		0.00579	B(E2)(W.u.)<0.8
1482.0	1	1482.0		0.0	0$^+$				
1514.1?	(6$^+$,5$^+$)	558.7[e] *5*	100	955.375	4$^+$				E_γ: from ^{190}Re β^- decay (3.1 h).
1545.30	0$^+$	987.26 *16*	100 *8*	557.978	2$^+$	E2		0.00509	E_γ: weighted average of 987.33 *13* from (n,γ) E=th and 986.9 *3* from (n,n′γ).
		1360.3 *9*		186.718	2$^+$				A complex γ reported in (n,γ) (E=th and E=res) only, with Iγ=33-152.
1547.2	1	1547.2		0.0	0$^+$				
1568.98	(3)$^+$	182.0[#] *2*	120[#] *10*	1386.992	3$^-$				
		812.7[#] *4*	21[#] *2*	756.016	3$^+$				
		1011.0 *2*	100 *6*	557.978	2$^+$	E2(+M1)	>1.2	0.0061 *13*	I_γ: from (n,n′γ). Other: 100 *8* from (n,γ) E=th. Mult.,δ: from ce data in (n,γ) E=th.
		1021.5 *5*	21 *4*	547.854	4$^+$				E_γ: weighted average of 1021.0 *4* from (n,γ) E=th and 1021.9 *4* from (n,n′γ). I_γ: weighted average of 26 *5* from (n,γ) E=9.0 eV and 18 *4* from (n,n′γ).
1570.3	(1,2)	1383.6 *3*	100	186.718	2$^+$				E_γ: in (n,γ), the placements from 1383 and 1942 levels (1979Ca02) are considered incorrect on the basis of excitation function data in (n,n′γ) (1984KlZY).
1583.91	4$^-$	197.3 *4*	100 *10*	1386.992	3$^-$	E2+M1	+1.0 *5*	0.58 *15*	α(K)=0.43 *15*; α(L)=0.120 *7*; α(M)=0.0289 *24* α(N)=0.0070 *6*; α(O)=0.00112 *5*; α(P)=4.8×10^{-5} *19* E_γ: unweighted average of 196.85 *15* from ^{190}Ir ε decay (11.78 d) and 197.7 *2* from (n,γ) E=th. I_γ: from ^{190}Ir ε decay (11.78 d). Others: 100 *11* from ^{190}Re β^- decay (3.1 h), 100 *11* from (n,γ) E=th.
		380.11 *4*	77 *8*	1203.83	5$^+$	E1		0.01406	E_γ: weighted average of 380.03 *12* from ^{190}Ir ε decay (11.78 d), 380.1 *3* from (n,γ) E=th, and 380.12 *4* from (n,n′γ). I_γ: unweighted average of 59 *3* from ^{190}Ir ε decay (11.78 d), 80 *11* from (n,γ) E=10.3 eV, 100 *15* from (n,γ) E=6.7 eV, 75 *5* from (n,γ) E=9.0 eV, 53 *5* from (n,γ) E=th, and 95 *18* from (n,n′γ).
		420.66 *12*	46.3 *24*	1163.182	4$^+$	[E1]		0.01119	E_γ: weighted average of 420.63 *12* from ^{190}Ir ε decay (11.78 d), 420.8 *4* from (n,γ) E=th, and 420.71 *18* from (n,n′γ). I_γ: weighted average of 48.0 *20* from ^{190}Ir ε decay (11.78 d), 49 *10* from (n,γ) E=10.3 eV, 70 *15* from (n,γ) E=6.7 eV, 47 *5* from (n,γ) E=9.0 eV, 36 *4* from (n,γ) E=th, and 59 *14* from (n,n′γ).
		628.4[@] *3*	22[@] *3*	955.375	4$^+$				
		≈828[@]	17[@] *4*	756.016	3$^+$				

$^{190}_{76}Os_{114}$-16

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
1583.91	4⁻	1036.00 *20*	85 *7*	547.854	4⁺	E1		0.00182	E_γ: weighted average of 1036.05 *20* from ^{190}Ir ε decay (11.78 d), 1036.0 *3* from (n,γ) E=th, and 1035.9 *3* from (n,n′γ). I_γ: unweighted average of 71 *7* from ^{190}Re β^- decay (3.1 h), 71 *4* from ^{190}Ir ε decay (11.78 d), 105 *10* from (n,γ) E=9.0 eV, 79 *11* from (n,γ) E=th, and 100 *9* from (n,n′γ). Other: 180 *30* from (n,γ) E=6.7 eV,
		1397.24[@] *14*	4.4[@] *3*	186.718	2⁺	(M2)		0.01158	
1615.97	(2)⁺	859.8 *4*	18.6 *18*	756.016	3⁺				E_γ: weighted average of 859.9 *4* from (n,γ) E=th and 859.6 *6* from (n,n′γ). I_γ: weighted average of 20 *3* from (n,γ) E=10.3 eV, 21.1 *18* from (n,γ) E=6.7 eV, 18 *3* from (n,γ) E=9.0 eV, 16.1 *18* from (n,γ) E=th, and 17 *5* from (n,n′γ).
		1057.8 *3*	53 *3*	557.978	2⁺				I_γ: weighted average of 50 *5* from (n,γ) E=10.3 eV, 44 *4* from (n,γ) E=6.7 eV, 38.8 *25* from (n,γ) E=9.0 eV, and 42 *3* from (n,γ) E=th. Other: 79 *5* from (n,n′γ) is discrepant.
		1067.9 *3*	34 *3*	547.854	4⁺				E_γ,I_γ: from (n,n′γ). Uncertain in (n,γ); Iγ<40 in (n,γ) E=th.
		1429.4 *2*	100 *7*	186.718	2⁺	E2+M1	1.2 *4*	0.0034 *5*	I_γ: from (n,γ) E=9.0 eV. Others: 100 *9* from (n,γ) E=th, 100 *12* from (n,n′γ). Mult.,δ: from ce data in (n,γ) E=th.
		1616.1[d] *3*	73[d] *12*	0.0	0⁺				I_γ: from (n,n′γ); intensity split for doublet. Others: 108-128 in (n,γ) (E=th and E=res) are probably not divided for possible doublet.
1666.776	8⁺	616.342 *15*	100	1050.433	6⁺	E2		0.01387	B(E2)(W.u.)=136 *+22−17* E_γ: from ^{190}Os IT decay (9.86 min). Other: 616.08 *14* from ^{190}Re β^- decay (3.1 h). Mult.: from ce data in ^{190}Os IT decay (9.86 min).
1675.69	(2)⁺	919.56 *14*	44 *3*	756.016	3⁺	E2(+M1)	>0.8	0.0083 *25*	α(K)=0.0068 *21*; α(L)=0.0011 *3*; α(M)=0.00026 *7* α(N)=6.4×10^{-5} *16*; α(O)=1.1×10^{-5} *3*; α(P)=7.5×10^{-7} *25* E_γ: weighted average of 919.64 *14* from (n,γ) E=th and 919.4 *2* from (n,n′γ). I_γ: weighted average of 44 *3* from (n,γ) E=6.7 eV, 44 *4* from (n,γ) E=9.0 eV, 47 *5* from (n,γ) E=10.3 eV, 42 *3* from (n,γ) E=th, and 46 *5* from (n,n′γ). Mult.,δ: from ce data in (n,γ) E=th.
		1117.7 *2*	100 *5*	557.978	2⁺	M1(+E2)	<0.35	0.0083 *3*	α(K)=0.00689 *23*; α(L)=0.00106 *4*; α(M)=0.000241 *8* α(N)=5.89×10^{-5} *19*; α(O)=1.02×10^{-5} *4*; α(P)=7.7×10^{-7} *3*; α(IPF)=5.72×10^{-7} *15* I_γ: from (n,n′γ). Other: 100 *7* from (n,γ) E=th. Mult.,δ: from ce data in (n,γ) E=th.
		1489.2 *2*	87 *5*	186.718	2⁺	E2(+M1)	>0.6	0.0031 *7*	α(K)=0.0025 *6*; α(L)=0.00039 *9*; α(M)=8.8×10^{-5} *19*

$^{190}_{76}Os_{114}$-17

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
									α(N)=2.1×10^{-5} *5*; α(O)=3.7×10^{-6} *9*; α(P)=2.7×10^{-7} *7*; α(IPF)=7.5×10^{-5} *11* I_γ: weighted average of 81 *6* from (n,γ) E=th and 91 *5* from (n,n′γ). Others: 175 *14* from (n,γ) E=6.7 eV, 109 *8* from (n,γ) E=9.0 eV, and 177 *14* from (n,γ) E=10.3 eV seem discrepant. Mult.,δ: from ce data in (n,γ) E=th.
1679.5	(3)	1492.8 *3*	100	186.718	2$^+$				E_γ: from (n,n′γ).
1680.6	(1)	1680.6 *3*	100	0.0	0$^+$				E_γ: from (n,n′γ).
1681.70	5$^-$	97.93[@] *15*	0.28[@] *4*	1583.91	4$^-$	M1+E2	0.40 *12*	5.80 *13*	α(K)=4.4 *4*; α(L)=1.10 *17*; α(M)=0.26 *5* α(N)=0.064 *11*; α(O)=0.0104 *15*; α(P)=0.00051 *4*
		235.50[@] *12*	1.25[@] *10*	1446.24	(5)$^+$	E1		0.0441	
		294.74 *12*	19.6 *18*	1386.992	3$^-$	(E2)		0.0963	E_γ: weighted average of 294.75 *12* from ^{190}Ir ε decay (11.78 d) and 294.7 *2* from (n,n′γ). I_γ: weighted average of 19.3 *18* from ^{190}Re β$^-$ decay (3.1 h), 19.5 *20* from ^{190}Ir ε decay (11.78 d), and 32 *10* from (n,n′γ).
		477.7 *2*	5.4 *6*	1203.83	5$^+$				E_γ: weighted average of 477.8 *3* from ^{190}Ir ε decay (11.78 d) and 477.7 *2* from (n,n′γ). I_γ: weighted average of 6 *3* from ^{190}Re β$^-$ decay (3.1 h) and 5.4 *6* from ^{190}Ir ε decay (11.78 d). Others: 23 *4* in (n,n′γ) seems discrepant.
		518.55 *7*	100 *3*	1163.182	4$^+$	E1(+M2)	+0.010 *15*	0.00711 *14*	I_γ: from ^{190}Ir ε decay (11.78 d). Others: 100 *7* from ^{190}Re β$^-$ decay (3.1 h), 100 *8* from (n,n′γ).
		≈631	2.5 *7*	1050.433	6$^+$				E_γ,I_γ: from ^{190}Ir ε decay (11.78 d). Other: Iγ=109 *8* for a doublet at 630.9 in (n,n′γ).
		726.22 *8*	8.9 *22*	955.375	4$^+$	E1		0.00357	E_γ: from ^{190}Ir ε decay (11.78 d). I_γ: unweighted average of 6.7 *4* from ^{190}Re β$^-$ decay (3.1 h) and 11.1 *3* from ^{190}Ir ε decay (11.78 d).
		1123.8[@] *3*	0.094[@] *20*	557.978	2$^+$	[E3]		0.00856	
		1133.77[@] *20*	1.26[@] *7*	547.854	4$^+$	E1		1.55×10^{-3}	
		1494.9[@] *3*	0.18[@] *3*	186.718	2$^+$	[E3]		0.00464	
1689.08	(2$^+$)	574.6[#e] *5*	61[#] *11*	1114.69	2$^+$				I_γ: unweighted average of 48 *4* from (n,γ) E=6.7 eV, 73 *9* from (n,γ) E=9.0 eV, 84 *11* from (n,γ) E=10.3 eV, and 39 *8* from (n,γ) E=th.
		933.1 *2*	43 *4*	756.016	3$^+$				E_γ: weighted average of 932.9 *4* from (n,γ) E=th and 933.2 *2* from (n,n′γ).

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Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
									I_γ: weighted average of 37 *4* from (n,γ) E=6.7 eV, 41 *5* from (n,γ) E=9.0 eV, 53 *11* from (n,γ) E=10.3 eV, 62 *10* from (n,γ) E=th, and 56 *8* from (n,n′γ).
1689.08	(2$^+$)	1131.1 *2*	80 *8*	557.978	2$^+$				E_γ: weighted average of 1131.2 *4* from (n,γ) E=th and 1131.0 *2* from (n,n′γ).
									I_γ: weighted average of 56 *11* from (n,γ) E=6.7 eV, 91 *9* from (n,γ) E=9.0 eV, 68 *11* from (n,γ) E=10.3 eV, 90 *10* from (n,γ) E=th, and 84 *8* from (n,n′γ).
		1141.2 *3*	52 *5*	547.854	4$^+$				E_γ: weighted average of 1141.8 *4* from (n,γ) E=th and 1141.0 *2* from (n,n′γ).
									I_γ: weighted average of 41 *8* from (n,γ) E=6.7 eV, 59 *9* from (n,γ) E=9.0 eV, 53 *11* from (n,γ) E=10.3 eV, 52 *5* from (n,γ) E=th, and 56 *8* from (n,n′γ).
		1502.4 *3*	100 *10*	186.718	2$^+$				E_γ: weighted average of 1502.1 *4* from (n,γ) E=th and 1502.5 *3* from (n,n′γ).
		1687.6[#] *10*		0.0	0$^+$				
1705.7	10$^-$	38.9 *1*	100	1666.776	8$^+$	M2+E3	0.10 *2*	1.23×10^3 *11*	B(M2)(W.u.)=1.43×10^{-8} *+23−19*; B(E3)(W.u.)=5.7×10^{-5} *+40−26*
									α(L)=9.1×10^2 *8*; α(M)=247 *23*
									α(N)=61 *6*; α(O)=9.8 *8*; α(P)=0.452 *7*
									E_γ: from energy of conversion line, seen in ce data only and no uncertainty given, 0.1 keV estimated by evaluators.
									Mult.,δ: from ce data in ^{190}Ir ε decay (3.087 h).
1708.25	(2$^+$,3,4$^+$)	753.2 *4*	34 *7*	955.375	4$^+$				E_γ: weighted average of 753.0 *4* from ^{190}Ir ε decay (11.78 d) and 753.6 *6* from (n,γ) E=th.
									I_γ: weighted average of 26 *7* from ^{190}Ir ε decay (11.78 d) and 40 *6* from (n,γ) E=th.
		951.9 *3*	100 *8*	756.016	3$^+$	(M1)			E_γ: weighted average of 952.3 *3* from ^{190}Ir ε decay (11.78 d), 951.8 *5* from (n,γ) E=th, and 951.6 *3* from (n,n′γ).
		1150.7 *5*	35 *9*	557.978	2$^+$				I_γ: from ^{190}Ir ε. Not reported in (n,γ). Probably contributed by an impurity in (n,n′γ) since Iγ=124 *12*.
		1160.4[@] *5*	30[@] *9*	547.854	4$^+$				
1724.8	1	1724.8		0.0	0$^+$				
1732.89	0$^+$	1174.6 *3*	64 *4*	557.978	2$^+$				I_γ: unweighted average of 63 *5* from (n,γ) E=6.7 eV, 64 *5* from (n,γ) E=9.0 eV, 69 *9* from (n,γ) E=10.3 eV, 74 *6* from (n,γ) E=th, and 51 *3* from (n,n′γ).
		1546.3 *2*	100 *5*	186.718	2$^+$				I_γ: from (n,n′γ). Other: 100 *8* from (n,γ) E=th.
1802.74	(1,2$^+$)	1244.6[a] *4*	15[a] *3*	557.978	2$^+$				
		1616.1[da] *3*	100[da] *12*	186.718	2$^+$				
1813.50	(1$^+$,2,3$^+$)	1255.4 *3*	100 *12*	557.978	2$^+$				E_γ,I_γ: from (n,n′γ).
		1626.9 *3*	32 *3*	186.718	2$^+$				I_γ: from (n,n′γ).

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Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[c]	Comments
1823.65	(1,2)$^+$	1067.9[de] *3*	<6[d]	756.016	3$^+$				I_γ: from (n,n′γ). Other: <29 for possible doublet in (n,γ).
		1265.7 *2*	100 *5*	557.978	2$^+$	E2(+M1)	>0.6	0.0043 *12*	I_γ: from (n,n′γ). Other: 100 *8* from (n,γ).
		1636.8 *4*	22 *3*	186.718	2$^+$				E_γ: weighted average of 1637.2 *6* from (n,γ) E=th and 1636.6 *4* from (n,n′γ). I_γ: weighted average of 23 *4* from (n,γ) E=9.0 eV, 16 *3* from (n,γ) E=th, and 24.8 *24* from (n,n′γ).
1836.39	(6$^+$)	321.81[&e] *8*	8.1[&] *9*	1514.1?	(6$^+$,5$^+$)	[M1,E2]		0.14 *7*	
		390.17[&] *6*	51[&] *3*	1446.24	(5)$^+$	[M1,E2]		0.09 *5*	
		≈633[&]	11[&] *7*	1203.83	5$^+$	[M1,E2]		≈0.025	
		673.10 *10*	100 *5*	1163.182	4$^+$	[E2]		0.01138	E_γ: other: 673.2 from Coul. ex.
		881.10[&] *14*	8.3[&] *9*	955.375	4$^+$				
1859.11	(2$^+$)	903.6[#e] *4*	15[#] *5*	955.375	4$^+$				I_γ: unweighted average of 20 *3* from (n,γ) E=6.7 eV and 10.0 *10* from (n,γ) E=th.
		1103.4 *3*	51 *4*	756.016	3$^+$				E_γ: weighted average of 1103.1 *3* from (n,γ) E=th and 1103.6 *3* from (n,n′γ). I_γ: weighted average of 47 *5* from (n,γ) E=6.7 eV, 50 *4* from (n,γ) E=10.3 eV, 50 *4* from (n,γ) E=th, and 65 *7* from (n,n′γ). Other: 97 *8* from (n,γ) E=9.0 eV.
		1300.7 *3*	58 *5*	557.978	2$^+$				E_γ: weighted average of 1301.0 *3* from (n,γ) E=th and 1300.4 *3* from (n,n′γ). I_γ: weighted average of 60 *5* from (n,γ) E=6.7 eV, 54 *6* from (n,γ) E=10.3 eV, and 60 *5* from (n,γ) E=th. Others: 111 *11* from (n,γ) E=9.0 eV, 113 *10* in (n,n′γ).
		1311.2 *4*	52 *9*	547.854	4$^+$				E_γ: weighted average of 1311.5 *3* from (n,γ) E=th and 1310.6 *4* from (n,n′γ). I_γ: unweighted average of 47 *5* from (n,γ) E=6.7 eV, 75 *8* from (n,γ) E=10.3 eV, 54 *4* from (n,γ) E=th, and 32 *10* from (n,n′γ).
		1672.6 *3*	100 *7*	186.718	2$^+$				E_γ: weighted average of 1672.5 *3* from (n,γ) E=th and 1672.7 *3* from (n,n′γ). I_γ: other: 100 *10* from (n,n′γ).
		1858.8[#] *6*		0.0	0$^+$				
1872.23	(5)$^-$	190.52[@] *20*	8.2[@] *15*	1681.70	5$^-$	M1		0.903	α(K)=0.747 *11*; α(L)=0.1204 *18*; α(M)=0.0276 *4* α(N)=0.00675 *10*; α(O)=0.001165 *17*; α(P)=8.68×10^{-5} *13*
		288.49 *14*	100 *6*	1583.91	4$^-$	E2+M1	2.2 *+11−5*	0.134 *17*	E_γ: unweighted average of 288.22 *10* from ^{190}Ir ε decay (11.78 d), 288.6 *4* from (n,γ) E=th, and

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	α[c]	Comments
									288.66 *4* from (n,n′γ). I_γ: from ^{190}Re β^- decay (3.1 h).
1872.23	(5)$^-$	426.2@ *4*	1.5@ *6*	1446.24	(5)$^+$				
		484.9 *4*	30 *3*	1386.992	3$^-$	E2		0.0246	E_γ: unweighted average of 485.23 *20* from ^{190}Ir ε decay (11.78 d) and 484.5 *3* from (n,n′γ). I_γ: weighted average of 29 *3* from ^{190}Re β^- decay (3.1 h) and 44 *10* from ^{190}Ir ε decay (11.78 d). Other: 100 *17* from (n,n′γ).
		668.1@ *3*	3.2@ *8*	1203.83	5$^+$				
		709.1@ *3*	4.4@ *7*	1163.182	4$^+$				
		821.78@ *14*	19.7@ *13*	1050.433	6$^+$				
		916.75@ *25*	7.6@ *8*	955.375	4$^+$				
		1324.30 *18*	32 *6*	547.854	4$^+$	E1		1.25×10^{-3}	I_γ: weighted average of 46 *9* from ^{190}Re β^- decay (3.1 h) and 29 *4* from ^{190}Ir ε decay (11.78 d).
1884.45	(1,2,3)	1127.9[a] *3*	28[a] *7*	756.016	3$^+$				
		1327.0 *3*	100 *10*	557.978	2$^+$				E_γ: weighted average of 1327.1 *5* from (n,γ) E=th and 1326.9 *3* from (n,n′γ). I_γ: from (n,n′γ).
1902.0	(1,2,3)	1715.3 *3*	100	186.718	2$^+$				E_γ: weighted average of 1715.2 *3* from (n,γ) E=th and 1715.4 *4* from (n,n′γ).
1903.33	(3$^+$,4$^-$)	740.18 *14*	100 *8*	1163.182	4$^+$				E_γ: weighted average of 740.19 *14* from ^{190}Ir ε decay (11.78 d), 740.3 *3* from (n,γ) E=10.3 eV, and 740.1 *2* from (n,n′γ). I_γ: from ^{190}Ir ε decay (11.78 d).
		948.1 *3*	35 *6*	955.375	4$^+$				E_γ: weighted average of 948.0 *3* from ^{190}Ir ε decay (11.78 d) and 948.9 *7* from (n,γ) E=9.0 eV. I_γ: from ^{190}Ir ε decay (11.78 d). Other: 135 *15* in (n,γ).
		1147.1 *2*	74 *5*	756.016	3$^+$				E_γ: weighted average of 1147.3 *3* from ^{190}Ir ε decay (11.78 d), 1147.3 *4* from (n,γ) E=9.0 eV, and 1146.9 *2* from (n,n′γ).
		1355.6@ *3*	35@ *4*	547.854	4$^+$				
1910.58	(2)$^+$	955.5 *3*	25 *3*	955.375	4$^+$				E_γ: weighted average of 955.1 *5* from (n,γ) E=th and 955.7 *3* from (n,n′γ). I_γ: unweighted average of 26 *6* from (n,γ) E=6.7 eV, 17.0 *21* from (n,γ) E=9.0 eV, 33 *8* from (n,γ) E=10.3 eV, 27.5 *20* from (n,γ) E=th, and 20 *3* from (n,n′γ).
		1154.4 *2*	100 *5*	756.016	3$^+$	E2(+M1)	>1.4	0.0044 *7*	I_γ: from (n,n′γ). Other: 100 *8* from (n,γ) E=th.
		1352.6 *4*	20 *5*	557.978	2$^+$				E_γ: weighted average of 1353.0 *9* from (n,γ) E=th and

$^{190}_{76}Os_{114}$-21

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
								1352.5 *4* from (n,n′γ).
								I_γ: from (n,n′γ).
1910.58	(2)$^+$	1362.8[a] *4*	32[a] *5*	547.854	4$^+$			
1918.4	(1,2)	1360.7[#] *8*		557.978	2$^+$			
		1731.6 *4*	100	186.718	2$^+$			
1935.33	(2$^+$,3$^+$,4)	979.6[a] *3*	32[a] *6*	955.375	4$^+$			
		1179.7[a] *4*	32[a] *6*	756.016	3$^+$			
		1387.6[a] *3*	100[a] *9*	547.854	4$^+$			
1943.5	(2$^+$)	1395.9[a] *4*	57[a] *13*	547.854	4$^+$			Placement of a 1383γ with 1943 level (in (n,γ)) not supported by excitation function data in (n,n′γ).
		1942.6 *7*	100 *13*	0.0	0$^+$			E_γ: weighted average of 1942.5 *7* from (n,γ) E=th and 1942.8 *8* from (n,n′γ).
								I_γ: from (n,n′γ).
1958.1	(1,2$^+$)	1046.3[a] *3*	55[a] *9*	911.80	0$^+$			
		1771.5 *5*	100 *9*	186.718	2$^+$			E_γ,I_γ: from (n,n′γ).
1970.50	(1$^+$,2)	1214.3 *3*	82 *9*	756.016	3$^+$			E_γ: weighted average of 1214.7 *4* from (n,γ) E=th and 1214.0 *3* from (n,n′γ).
								I_γ: weighted average of 86 *7* from (n,γ) E=6.7 eV, 70 *9* from (n,γ) E=9.0 eV, 100 *17* from (n,γ) E=10.3 eV, 77 *9* from (n,γ) E=th, and 87 *10* from (n,n′γ).
		1412.7 *3*	100 *9*	557.978	2$^+$			I_γ: weighted average of 100 *9* from (n,γ) E=th and 100 *10* from (n,n′γ).
								I_γ: other: 100 *10* from (n,n′γ).
1992.4	(2,3)	1236.4 *3*	100	756.016	3$^+$			
		1804.7[#] *11*		186.718	2$^+$			
1995.22	(2)$^+$	1437.1 *2*	100 *7*	557.978	2$^+$	E2(+M1)	>2	E_γ: weighted average of 1437.5 *3* from ^{190}Re β^- decay (3.0 min), 1437.0 *2* from (n,γ) E=th, and 1436.7 *3* from (n,n′γ).
								I_γ: from (n,γ) E=6.7 eV. Others: 100 *20* from ^{190}Re β^- decay (3.0 min).
		1447.7 *5*	35 *11*	547.854	4$^+$			E_γ,I_γ: γ reported in ^{190}Re β^- (3.0 min) only.
		1809.2 *6*	17 *3*	186.718	2$^+$			E_γ: weighted average of 1807.7 *6* from (n,γ) E=th and 1808.9 *7* from (n,n′γ).
								I_γ: weighted average of 27 *8* from ^{190}Re β^- decay (3.0 min), 17 *3* from (n,γ) E=6.7 eV, 19 *4* from (n,γ) E=th, and 13 *4* from (n,n′γ).
2009.8	1$^{(+)}$	1253.0[#] *6*		756.016	3$^+$			
		2011.3 *8*		0.0	0$^+$			E_γ: other: 2011.0 in (γ,γ′).
2025.5	(1,2)	1467.5 *3*	69 *6*	557.978	2$^+$			E_γ,I_γ: from (n,n′γ). Other: 1467.5 *9* from (n,γ) E=th.
		1838.8 *7*	100 *8*	186.718	2$^+$			I_γ: from (n,n′γ).
2047.8	(1,2)	1490.3[e] *11*		557.978	2$^+$			
2061.2?	(6$^+$,7$^-$)	379.4[&e] *3*	100[&] *8*	1681.70	5$^-$			
		394.6[&e] *4*	64[&] *11*	1666.776	8$^+$			
		1010.9[&e] *3*	83[&] *11*	1050.433	6$^+$			
2068.87	(5$^+$)	387.10[&] *12*	66[&] *6*	1681.70	5$^-$			
		864.85[&] *20*	48[&] *3*	1203.83	5$^+$			

$^{190}_{76}Os_{114}$-22

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
2068.87	(5$^+$)	905.75[&] *16*	100[&] *11*	1163.182	4$^+$			
		1113.6[&] *4*	31[&] *3*	955.375	4$^+$			
		1313.1[&] *2*	49[&] *8*	756.016	3$^+$			
		1521.1[&] *4*	6.3[&] *19*	547.854	4$^+$			
2070.2	(1$^+$,2)	1312.9[#] *13*		756.016	3$^+$			
		1512.1 *3*	100 *8*	557.978	2$^+$			E_γ,I_γ: from (n,n′γ).
		1883.9 *5*	60 *6*	186.718	2$^+$			I_γ: from (n,n′γ). Other: 110 *9* from (n,γ) E=th.
2089.0	(1$^+$,2$^+$)	1333.2 *6*		756.016	3$^+$			
		1900.4 *8*		186.718	2$^+$			
		2090.8 *9*		0.0	0$^+$			
2090.2	(8$^+$)	616		1474.2	(6$^+$)	[E2]	0.01389	B(E2)(W.u.)=61 +*21*−*10*
2111.8	(1,2$^+$)	1925.4 *5*	100	186.718	2$^+$			
		2111.5[#] *4*		0.0	0$^+$			
2118.51	(1$^+$,2)	1560.5 *2*	61 *6*	557.978	2$^+$			E_γ,I_γ: from (n,n′γ).
		1932.1 *7*	100 *6*	186.718	2$^+$			E_γ,I_γ: from (n,n′γ).
2121.39	(5,6$^+$)	284.9[&] *3*	22[&] *3*	1836.39	(6$^+$)			
		675.2[&] *6*	27[&] *10*	1446.24	(5)$^+$			
		958.20[&] *14*	100[&] *6*	1163.182	4$^+$			
		1166.1[&] *3*	21[&] *2*	955.375	4$^+$			
2124.67	(2,3$^+$,4$^+$)	1368.6 *3*	58 *15*	756.016	3$^+$			E_γ,I_γ: from (n,n′γ).
		1566.7 *2*	100 *8*	557.978	2$^+$			E_γ,I_γ: from (n,n′γ).
2135.5	(0$^+$,1,2)	1577.5 *3*	42 *11*	557.978	2$^+$			E_γ,I_γ: from (n,n′γ).
		1949.2 *8*	100 *16*	186.718	2$^+$			E_γ,I_γ: from (n,n′γ).
2150.6	(1,2$^+$)	1963.9 *15*		186.718	2$^+$			
		2150.6 *11*		0.0	0$^+$			
2175.5	(0$^+$,1,2)	1622.0[#e] *11*		557.978	2$^+$			E_γ: poor-fit, level-energy difference=1617.5.
		1988.8 *10*	100	186.718	2$^+$			E_γ: from (n,n′γ). Other: 1988.6 *4*, uncertain γ in (n,γ) E=res.
2191.4	(1,2$^+$)	2191.4 *4*		0.0	0$^+$			
2198.5	(1,2)	1640.5[e] *6*	100	557.978	2$^+$			
2210.1	(1,2)	2023.3[e] *4*	100	186.718	2$^+$			
2263.5	(1,2$^+$)	1705.5 *10*		557.978	2$^+$			
		2076.8 *5*		186.718	2$^+$			
		2261.5[e] *5*	100	0.0	0$^+$			
2288.8	(1,2)	1732.6 *8*		557.978	2$^+$			
		2287.4 *7*		0.0	0$^+$			
2296.5	1	2109.8	98 *41*	186.718	2$^+$			E_γ,I_γ: from (γ,γ′).
		2296.5	100	0.0	0$^+$			E_γ,I_γ: from (γ,γ′).
2328.2	1	2328.2		0.0	0$^+$			

$^{190}_{76}Os_{114}$-23

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
2350.7	(1,2$^+$)	2161.8 *15*		186.718	2$^+$			
		2352.3 *13*		0.0	0$^+$			
2352.45	(2$^+$,3)	1397.1[b] *4*	29[b] *10*	955.375	4$^+$			
		1596.4[b] *5*	28[b] *8*	756.016	3$^+$			
		1794.5[b] *3*	100[b] *25*	557.978	2$^+$			
		2165.5[b] *7*	11[b] *5*	186.718	2$^+$			
2357.7	(10$^+$)	690.9		1666.776	8$^+$	[E2]	0.01074	B(E2)(W.u.)=114 *+27−22*
2381	(1,2)	2192.1[e] *4*	100	186.718	2$^+$			
2393.5	1	2393.5		0.0	0$^+$			E_γ: from (γ,γ′).
2408.0	1	2221.3	64 *16*	186.718	2$^+$			E_γ,I_γ: from (γ,γ′).
		2408.0	100	0.0	0$^+$			E_γ,I_γ: from (γ,γ′).
2457.7	(1,2$^+$)	1899.1 *10*		557.978	2$^+$			
		2267.7 *12*		186.718	2$^+$			E_γ: level-energy difference=2270.9.
		2460.5 *10*		0.0	0$^+$			E_γ: level-energy difference=2457.7.
2474.4	(0$^+$ to 3)	1917.2 *12*		557.978	2$^+$			
		2286.5 *14*		186.718	2$^+$			
2477.0	(1$^+$,2$^+$)	1720.9 *6*		756.016	3$^+$			
		2290.8 *27*		186.718	2$^+$			
		2477.0 *6*		0.0	0$^+$			
2502.7	(1$^+$,2$^+$)	1746.6 *9*		756.016	3$^+$			
		2502.8 *10*		0.0	0$^+$			
2551.8	(1$^+$,2$^+$)	1795.5 *6*		756.016	3$^+$			
		1995.5 *12*		557.978	2$^+$			
		2551.4 *9*		0.0	0$^+$			
2563.3	(0$^+$ to 3)	2003.4 *14*		557.978	2$^+$			
		2377.1 *7*		186.718	2$^+$			
2591.6	1$^{(+)}$	1835.5[#] *8*		756.016	3$^+$			
		2404.7 *7*	42 *9*	186.718	2$^+$			E_γ: other: 2403.9 in (γ,γ′). I_γ: from (γ,γ′).
		2592.6 *13*	100	0.0	0$^+$			E_γ: other: 2590.6 in (γ,γ′). I_γ: from (γ,γ′).
2622.5	1$^{(+)}$	1864.7[#] *8*		756.016	3$^+$			
		2437.7[#] *8*		186.718	2$^+$			
		2622.3 *7*		0.0	0$^+$			
2643.7	1	2457.0	20 *3*	186.718	2$^+$			E_γ,I_γ: from (γ,γ′).
		2643.7	100	0.0	0$^+$			E_γ,I_γ: from (γ,γ′).
2663.0	(1$^+$,2,3)	1904.8 *13*		756.016	3$^+$			
		2106.4 *14*		557.978	2$^+$			
		2476.6 *8*		186.718	2$^+$			

$^{190}_{76}Os_{114}$-24

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	α[c]	Comments
2704.2	$1^{(+)}$	1949.9[#] *10*		756.016	3^+			
		2144.1[#] *11*		557.978	2^+			
		2517.4	60 *36*	186.718	2^+			E_γ,I_γ: from (γ,γ′). Other: 2512.2 *14* in (n,γ) E=th is poor-fit.
		2704.1	100	0.0	0^+			E_γ,I_γ: from (γ,γ′). Other: 2701.7 *11* in (n,γ) E=th is poor-fit.
2714.1	1	2527.4	76 *12*	186.718	2^+			E_γ,I_γ: from (γ,γ′).
		2714.1	100	0.0	0^+			E_γ,I_γ: from (γ,γ′).
2737.7	1	2179.1[#] *13*		557.978	2^+			
		2551.2	100 *70*	186.718	2^+			E_γ,I_γ: from (γ,γ′). Other: 2553.6 *8* in (n,γ) E=th is poor-fit.
		2737.9	88	0.0	0^+			E_γ,I_γ: from (γ,γ′). Other: 2539.3 *9* in (n,γ) E=th is poor-fit.
2757.7	(12^+)	400		2357.7	(10^+)			E_γ: from (^{82}Se,Xγ).
2772.2	(10^+)	682		2090.2	(8^+)			
2774.0	1	2216.5[#] *7*		557.978	2^+			
		2586.8	24 *9*	186.718	2^+			E_γ,I_γ: from (γ,γ′). Other: Eγ=2589.1 *8* in (n,γ) E=th.
		2773.5	100	0.0	0^+			E_γ: from (γ,γ′) only.
2816.0	1	2626.0[#] *16*		186.718	2^+			
		2817.2		0.0	0^+			E_γ: from (γ,γ′). Other: 2815.1 *14* in (n,γ) E=th.
2820.6	$(0^+$ to 3)	2262.6 *4*		557.978	2^+			
		2634.1 *12*		186.718	2^+			
2877.0	$(1,2^+)$	2317.8 *14*		557.978	2^+			
		2878.0 *13*		0.0	0^+			
2944.7	$(1,2^+)$	2386.4 *10*		557.978	2^+			
		2945.1 *13*		0.0	0^+			
2975.0	(2^+)	2425.3 *12*		547.854	4^+			
		2788.6 *5*		186.718	2^+			
		2975.0		0.0	0^+			E_γ: from level-energy difference. 2980.0 *9* from (n,γ) is poor-fit.
3011.7	(12^+)	654		2357.7	(10^+)	[E2]	0.01213	B(E2)(W.u.)>38
3015.7	1	2829.0	100 *60*	186.718	2^+			E_γ,I_γ: from (γ,γ′).
		3015.7	68	0.0	0^+			E_γ,I_γ: from (γ,γ′).
3023.0	1	2836.3	42 *6*	186.718	2^+			E_γ,I_γ: from (γ,γ′).
		3023.0	100	0.0	0^+			E_γ,I_γ: from (γ,γ′).
3045.4	1	2489.0[#] *9*		557.978	2^+			
		2857.2 *11*	92 *19*	186.718	2^+			I_γ: from (γ,γ′).
		3044.5	100	0.0	0^+			E_γ,I_γ: from (γ,γ′).
3117.1	1	3117.1		0.0	0^+			E_γ: from (γ,γ′).
3126.1	1	2939.4	10 *3*	186.718	2^+			E_γ,I_γ: from (γ,γ′).
		3126.1	100	0.0	0^+			E_γ,I_γ: from (γ,γ′).
3126.7	(12^+)	769		2357.7	(10^+)	[E2]	0.00852	B(E2)(W.u.)>6.7 E_γ: from Coul. ex.
3142.0	1	3142.0		0.0	0^+			E_γ: from (γ,γ′).
3189.3	1	3189.3		0.0	0^+			E_γ: from (γ,γ′).

$^{190}_{76}Os_{114}$-25

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Comments
3244.6	1	3244.6		0.0	0^+	E_γ: from (γ,γ′).
3346.7	(14^+)	589		2757.7	(12^+)	E_γ: from (^{82}Se,Xγ).
3348.3	1	3348.3		0.0	0^+	E_γ: from (γ,γ′).
3414.8	1	3414.8		0.0	0^+	E_γ: from (γ,γ′).
3445.9	1	3259.2	74 *47*	186.718	2^+	E_γ,I_γ: from (γ,γ′).
		3445.9	100	0.0	0^+	E_γ,I_γ: from (γ,γ′).
3467.4	1	3467.4		0.0	0^+	E_γ: from (γ,γ′).
3516.6	1	3516.6		0.0	0^+	E_γ: from (γ,γ′).
3748.9	1	3748.9		0.0	0^+	E_γ: from (γ,γ′).
3798.7	1	3798.7		0.0	0^+	E_γ: from (γ,γ′).
3869.9	1	3869.9		0.0	0^+	E_γ: from (γ,γ′).
3924.8	1	3924.8		0.0	0^+	E_γ: from (γ,γ′).
3981.9	1	3981.9		0.0	0^+	E_γ: from (γ,γ′).
4012.7	(16^+)	666		3346.7	(14^+)	E_γ: from (^{82}Se,Xγ).
4497.7	(18^+)	485		4012.7	(16^+)	E_γ: from (^{82}Se,Xγ).
4809.7	(19^+)	312		4497.7	(18^+)	E_γ: from (^{82}Se,Xγ).
5130.6?	$(0^+$ to 3)	4573.0 *10*		557.978	2^+	
		4943.1 *12*		186.718	2^+	
5248	(20^+)	438		4809.7	(19^+)	E_γ: from (^{82}Se,Xγ).
5834	(21^+)	586		5248	(20^+)	E_γ: from (^{82}Se,Xγ).
(7792.2)	1^-,2^-	2662.0 *10*		5130.6?	$(0^+$ to 3)	
		4746.8 *12*		3045.4	1	
		4812.9 *35*		2975.0	(2^+)	
		4848.0 *10*		2944.7	$(1,2^+)$	
		4915.9 *13*		2877.0	$(1,2^+)$	
		4971.7 *6*		2820.6	$(0^+$ to 3)	
		4978.6 *14*		2816.0	1	
		5017.2 *10*		2774.0	1	
		5053.6 *20*		2737.7	1	
		5090.4 *25*		2704.2	$1^{(+)}$	
		5129.6 *10*		2663.0	$(1^+,2,3)$	
		5170.0 *20*		2622.5	$1^{(+)}$	
		5200.6 *7*		2591.6	$1^{(+)}$	
		5229.7 *14*		2563.3	$(0^+$ to 3)	
		5240.6 *10*		2551.8	$(1^+,2^+)$	
		5290.1 *10*		2502.7	$(1^+,2^+)$	
		5315.5 *10*	6.2 *6*	2477.0	$(1^+,2^+)$	
		5318.1 *12*		2474.4	$(0^+$ to 3)	
		5324.7[e] *10*	<3.4	2468	(1,2)	
		5335.1 *25*		2457.7	$(1,2^+)$	
		5412.0 *9*	10 *4*	2381	(1,2)	

$^{190}_{76}Os_{114}$-26

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
(7792.2)	1⁻,2⁻	5444.8 *10*	10.6 *17*	2350.7	(1,2⁺)
		5478.2[e] *15*	<5.1	2315	(1,2)
		5486.1[e] *15*	<5.1	2307	(1,2)
		5502.0 *10*	11.9 *17*	2288.8	(1,2)
		5529.0 *10*	34 *4*	2263.5	(1,2⁺)
		5568.5[e] *15*	<3.8	2224	(1,2)
		5580.9 *15*	<7.6	2210.1	(1,2)
		5593.7 *10*	<7.6	2198.5	(1,2)
		5599.6 *10*	17.4 *25*	2191.4	(1,2⁺)
		5616.7 *15*	<3.4	2175.5	(0⁺,1,2)
		5642.3 *11*	<3.4	2150.6	(1,2⁺)
		5680.9 *10*	33 *5*	2111.8	(1,2⁺)
		5703.5 *14*		2089.0	(1⁺,2⁺)
		5720.7 *10*	22 *3*	2070.2	(1⁺,2)
		5744.8 *10*	<6.8	2047.8	(1,2)
		5749.7 *15*	19 *3*	2042.4	(1,2)
		5781.9 *10*	17.8 *25*	2009.8	1⁽⁺⁾
		5797.2 *10*	14.0 *21*	1995.22	(2)⁺
		5821.4[e] *15*	<3.4	1970.50	(1⁺,2)
		5850.2 *10*	7.6 *25*	1943.5	(2⁺)
		5873.8 *10*	22 *3*	1918.4	(1,2)
		5881.2 *10*	26 *3*	1910.58	(2)⁺
		5932.2 *10*	23.6 *19*	1859.11	(2⁺)
		5968.8 *10*	8.1 *13*	1823.65	(1,2)⁺
		6058.5 *10*	16.1 *17*	1732.89	0⁺
		6106.6 *10*		1689.08	(2⁺)
		6112.3 *15*	14.0 *17*	1680.6	(1)
		6222.7[e] *15*	<6.8	1568.98	(3)⁺
		6246.5 *10*	100 *8*	1545.30	0⁺
		6356.6 *10*	18.2 *21*	1436.39	2⁺
		6408.7 *10*	27.5 *25*	1382.42	0⁺
		6677.4 *10*	5.1 *17*	1114.69	2⁺
		6878.5 *8*		911.80	0⁺
		7035.6 *15*	9.3 *17*	756.016	3⁺
		7234.3 *10*	52 *5*	557.978	2⁺
		7605.9 *10*	14.8 *13*	186.718	2⁺
		7792.8 *10*	40 *3*	0.0	0⁺
S(n)+0.00671	1⁻	5315.5 *10*	85 *17*	2477.0	(1⁺,2⁺)
		5324.7 *10*	54 *10*	2468	(1,2)
		5409.5[e] *10*	<8.8	2381	(1,2)
		5444.8[e] *10*	<8.8	2350.7	(1,2⁺)
S(n)+0.00671	1⁻	5478.2[e] *15*	<8.8	2315	(1,2)
		5486.1[e] *15*	<8.8	2307	(1,2)
		5502.0 *10*	34 *5*	2288.8	(1,2)
		5529.0[e] *10*	<8.8	2263.5	(1,2⁺)
		5568.5[e] *15*	<8.8	2224	(1,2)
		5580.9 *15*	12 *6*	2210.1	(1,2)
		5593.7[e] *10*	<9.5	2198.5	(1,2)
		5599.6[e] *15*	<9.5	2191.4	(1,2⁺)
		5616.7[e] *20*	<9.5	2175.5	(0⁺,1,2)
		5638.4 *10*	9.7 *9*	2150.6	(1,2⁺)
		5680.9 *10*	58 *7*	2111.8	(1,2⁺)
		5720.7[e] *10*	<9.5	2070.2	(1⁺,2)
		5744.8 *10*	47 *9*	2047.8	(1,2)
		5749.7[e] *15*	<15	2042.4	(1,2)
		5781.9 *10*	45 *4*	2009.8	1⁽⁺⁾
		5797.2 *10*	55 *5*	1995.22	(2)⁺
		5821.4 *10*	37 *4*	1970.50	(1⁺,2)
		5850.2[e] *10*	<6.6	1943.5	(2⁺)
		5873.8 *10*	15 *3*	1918.4	(1,2)
		5881.2[e] *10*	<6.6	1910.58	(2)⁺
		5932.2 *10*	71 *7*	1859.11	(2⁺)
		5968.8[e] *15*	<6.6	1823.65	(1,2)⁺
		6058.5 *10*	100 *9*	1732.89	0⁺
		6112.3 *15*	22 *3*	1680.6	(1)
		6222.7[e] *15*	<6.6	1570.3	(1,2)
		6246.5[e] *10*	<6.6	1545.30	0⁺
		6356.6[e] *10*	<6.6	1436.39	2⁺
		6408.7 *10*	75 *7*	1382.42	0⁺
		6677.4 *10*	14 *3*	1114.69	2⁺
		7035.6[e] *15*	<5.1	756.016	3⁺
		7234.3 *10*	28 *3*	557.978	2⁺
		7605.9 *10*	53 *4*	186.718	2⁺
		7792.8 *10*	42 *4*	0.0	0⁺
S(n)+0.00896	2⁻	5315.5 *10*	44 *7*	2477.0	(1⁺,2⁺)
		5324.7 *10*	25 *6*	2468	(1,2)
		5409.5 *10*	44 *5*	2381	(1,2)
		5444.8[e] *10*	<3.8	2350.7	(1,2⁺)
		5478.2 *15*	35 *5*	2315	(1,2)
		5486.1 *15*	33 *5*	2307	(1,2)
		5502.0 *10*	14 *3*	2288.8	(1,2)
		5529.0 *10*	43 *6*	2263.5	(1,2⁺)

$^{190}_{76}Os_{114}$-27

Adopted Levels, Gammas (continued)

γ(^{190}Os) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
S(n)+0.00896	2⁻	5568.5 *15*	35 *5*	2224	(1,2)
		5580.9[e] *15*	<3.8	2210.1	(1,2)
		5593.7 *10*	73 *8*	2198.5	(1,2)
		5599.6 *15*	32 *5*	2191.4	(1,2⁺)
		5616.7[e] *20*	<3.8	2175.5	(0⁺,1,2)
		5638.4 *10*	11 *3*	2150.6	(1,2⁺)
		5680.9[e] *10*	<3.8	2111.8	(1,2⁺)
		5720.7 *10*	35 *6*	2070.2	(1⁺,2)
		5744.8 *10*	21 *3*	2047.8	(1,2)
		5749.7[e] *15*	<9.0	2042.4	(1,2)
		5781.9 *10*	7.5 *23*	2009.8	1⁽⁺⁾
		5797.2 *10*	10.5 *23*	1995.22	(2)⁺
		5821.4[e] *10*	<3.8	1970.50	(1⁺,2)
		5850.2 *10*	62 *8*	1943.5	(2⁺)
		5873.8[e] *10*	<7.5	1918.4	(1,2)
		5881.2 *10*	85 *7*	1910.58	(2)⁺
		5932.2 *10*	46 *4*	1859.11	(2⁺)
		5968.8 *15*	28 *3*	1823.65	(1,2)⁺
		6058.5[e] *10*	<4.5	1732.89	0⁺
		6112.3[e] *15*	<4.5	1680.6	(1)
		6222.7 *15*	20 *4*	1570.3	(1,2)
		6246.5[e] *10*	<4.5	1545.30	0⁺
		6356.6 *10*	100 *8*	1436.39	2⁺
		6408.7[e] *10*	<4.5	1382.42	0⁺
		6677.4 *10*	28 *3*	1114.69	2⁺
		7035.6[e] *15*	<4.5	756.016	3⁺
		7234.3 *10*	94 *7*	557.978	2⁺
		7605.9 *10*	9.0 *15*	186.718	2⁺
		7792.8 *10*	<4.5	0.0	0⁺
S(n)+0.01031	1⁻	5315.5 *10*	24 *4*	2477.0	(1⁺,2⁺)
		5324.7[e] *10*	<9.9	2468	(1,2)
		5409.5[e] *10*	<6.3	2381	(1,2)
		5444.8 *10*	29 *5*	2350.7	(1,2⁺)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
S(n)+0.01031	1⁻	5478.2[e] *15*	<6.3	2315	(1,2)
		5486.1[e] *15*	<6.3	2307	(1,2)
		5502.0 *10*	36 *6*	2288.8	(1,2)
		5529.0 *10*	18 *3*	2263.5	(1,2⁺)
		5568.5[e] *15*	<5.2	2224	(1,2)
		5580.9 *15*	22 *5*	2210.1	(1,2)
		5593.7 *10*	23 *4*	2198.5	(1,2)
		5599.6[e] *15*	<14	2191.4	(1,2⁺)
		5616.7 *20*	19 *5*	2175.5	(0⁺,1,2)
		5638.4 *10*	58 *6*	2150.6	(1,2⁺)
		5680.9[e] *10*	<5.2	2111.8	(1,2⁺)
		5720.7[e] *10*	<14	2070.2	(1⁺,2)
		5744.8 *10*	35 *5*	2047.8	(1,2)
		5749.7[e] *15*	<7.1	2042.4	(1,2)
		5781.9[e] *10*	<5.2	2009.8	1⁽⁺⁾
		5797.2[e] *10*	<5.2	1995.22	(2)⁺
		5821.4[e] *10*	<5.2	1970.50	(1⁺,2)
		5850.2[e] *10*	<5.2	1943.5	(2⁺)
		5873.8 *10*	26.6 *10*	1918.4	(1,2)
		5881.2[e] *10*	<5.2	1910.58	(2)⁺
		5932.2 *10*	90 *8*	1859.11	(2⁺)
		5968.8[e] *15*	<5.2	1823.65	(1,2)⁺
		6058.5[e] *10*	<5.2	1732.89	0⁺
		6112.3 *15*	19 *3*	1680.6	(1)
		6222.7[e] *15*	<5.2	1570.3	(1,2)
		6246.5 *10*	65 *7*	1545.30	0⁺
		6356.6 *10*	29 *6*	1436.39	2⁺
		6408.7 *10*	100 *13*	1382.42	0⁺
		6677.4 *10*	43 *4*	1114.69	2⁺
		7035.6[e] *15*	<5.2	756.016	3⁺
		7234.3 *10*	25 *3*	557.978	2⁺
		7605.9 *10*	38 *3*	186.718	2⁺
		7792.8 *10*	57 *4*	0.0	0⁺

[†] From (n,γ) (E=th and E=res), unless otherwise noted. Note that almost all data of (n,γ) E=th and E=res are from 1979Ca02. Eγ values reported in 1979Ca02 are from weighted averages of all those measurements and thus the same set of Eγ values are used in those datasets, while different set of values are reported for γ-ray intensities for each (n,γ) measurement and weighted average are taken where applicable.

[‡] From γγ(θ), γ(θ) and ce data in ^{190}Ir ε decay (11.78 d), unless otherwise noted.

[#] This γ from (n,γ) (E=th and E=res) only.

$^{190}_{76}Os_{114}$-28

$\gamma(^{190}Os)$ (continued)

[@] γ from ^{190}Ir ε decay (11.78 d) only.
[&] γ from ^{190}Re β^- decay (3.1 h) only.
[a] γ from (n,n′γ) only.
[b] γ from ^{190}Re β^- decay (3.0 min) only.
[c] 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.
[d] Multiply placed with intensity suitably divided.
[e] Placement of transition in the level scheme is uncertain.

$^{190}_{76}Os_{114}$-29

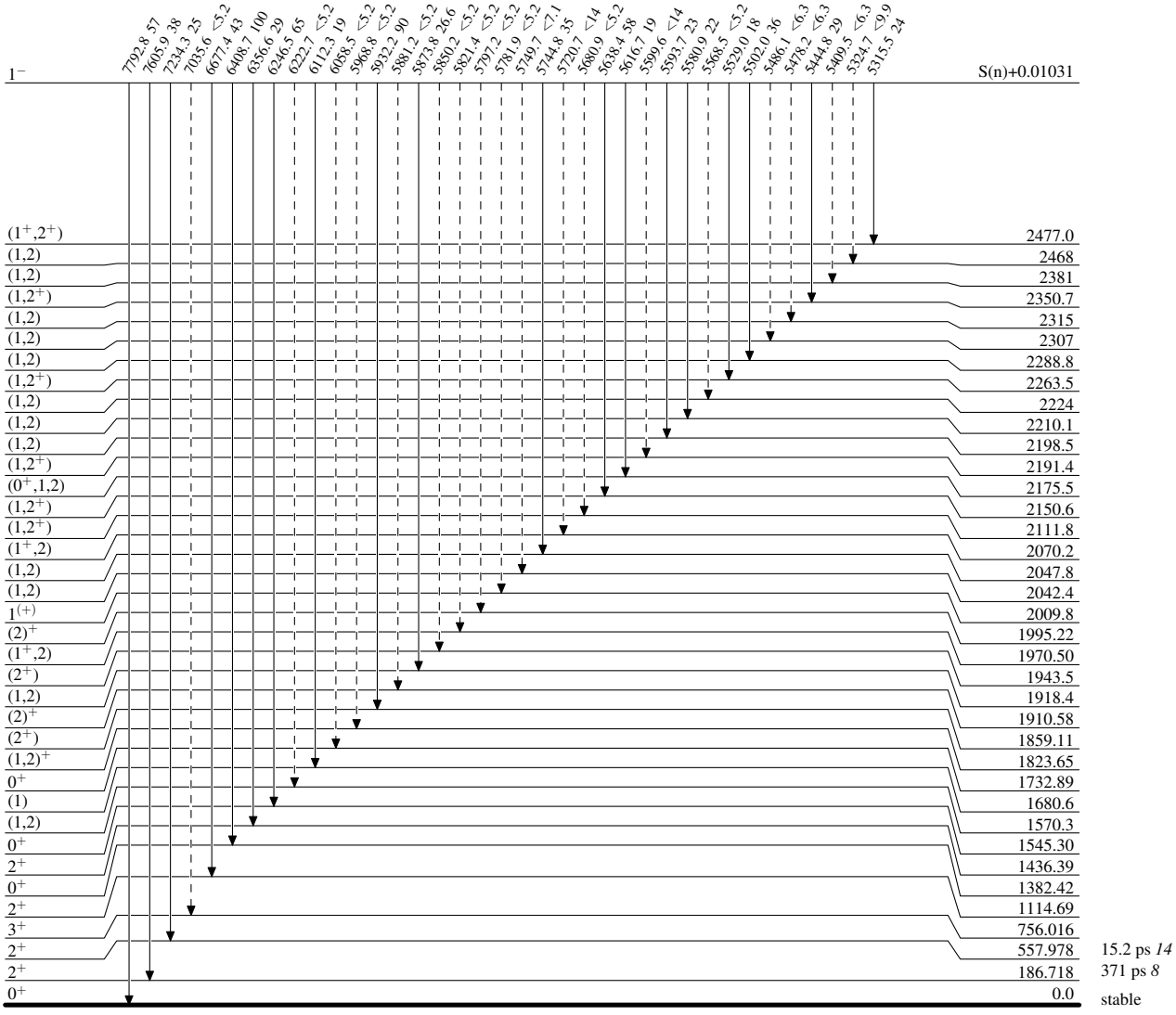
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{190}_{76}Os_{114}$

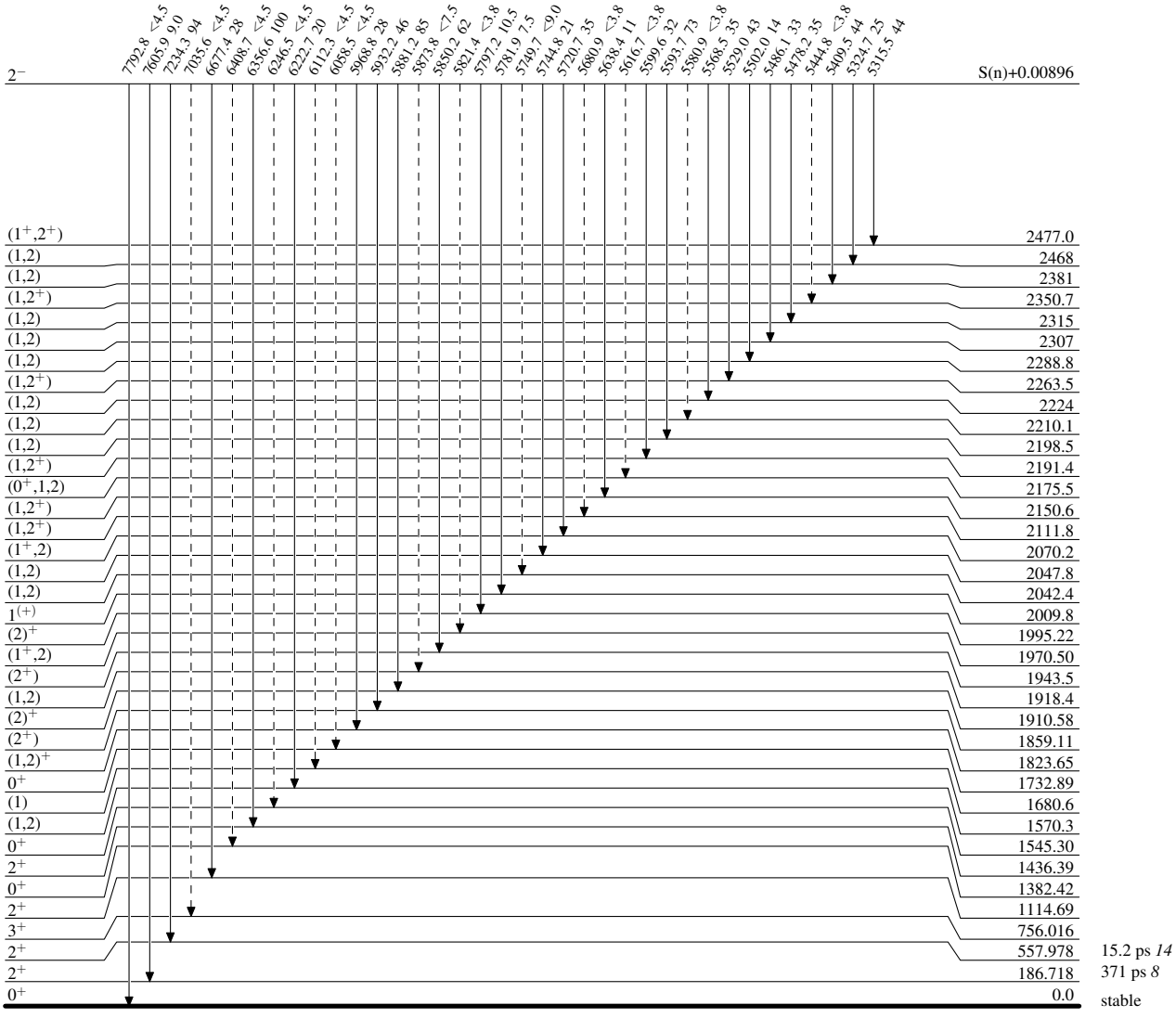
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{190}_{76}Os_{114}$

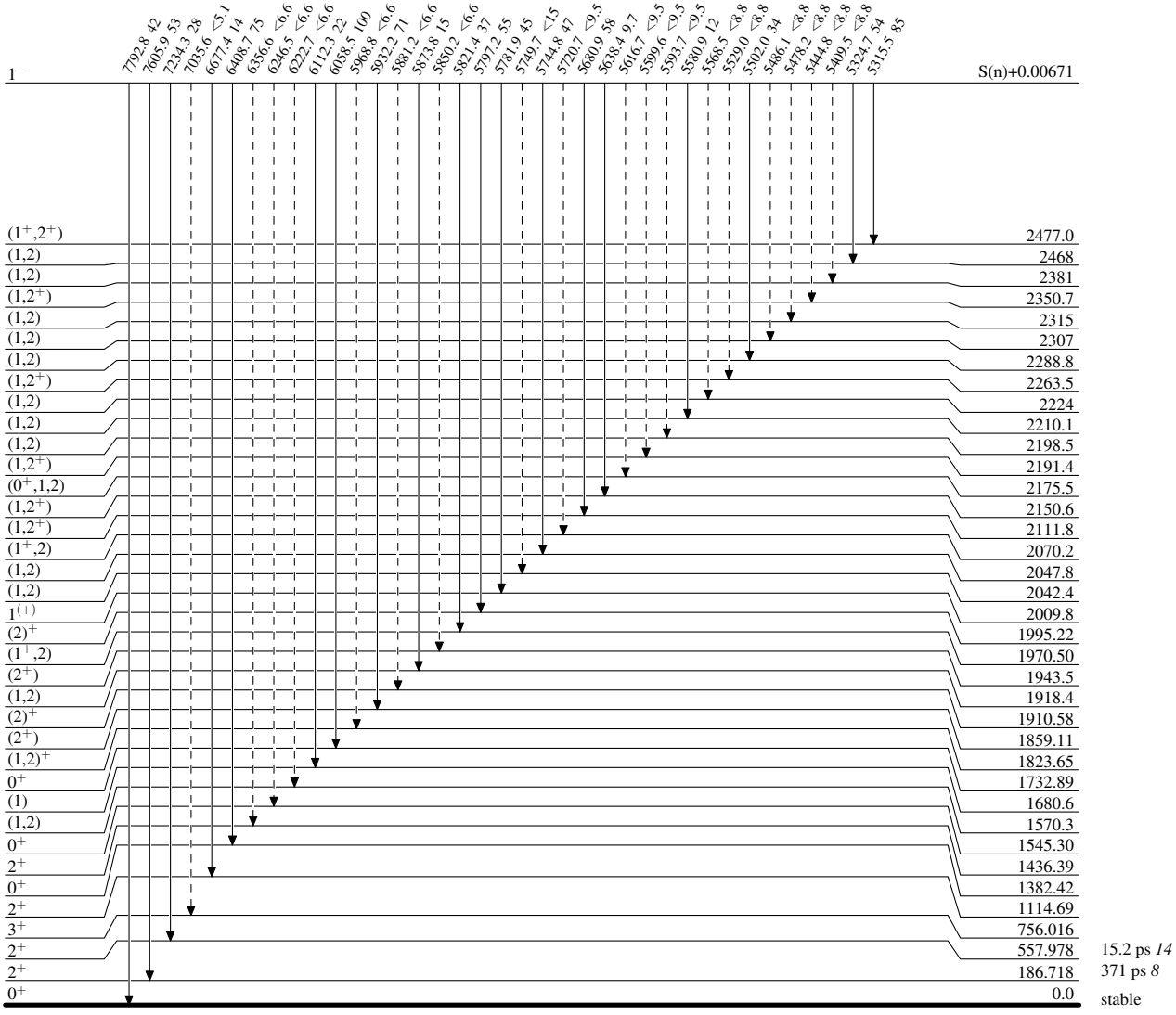
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{190}_{76}Os_{114}$

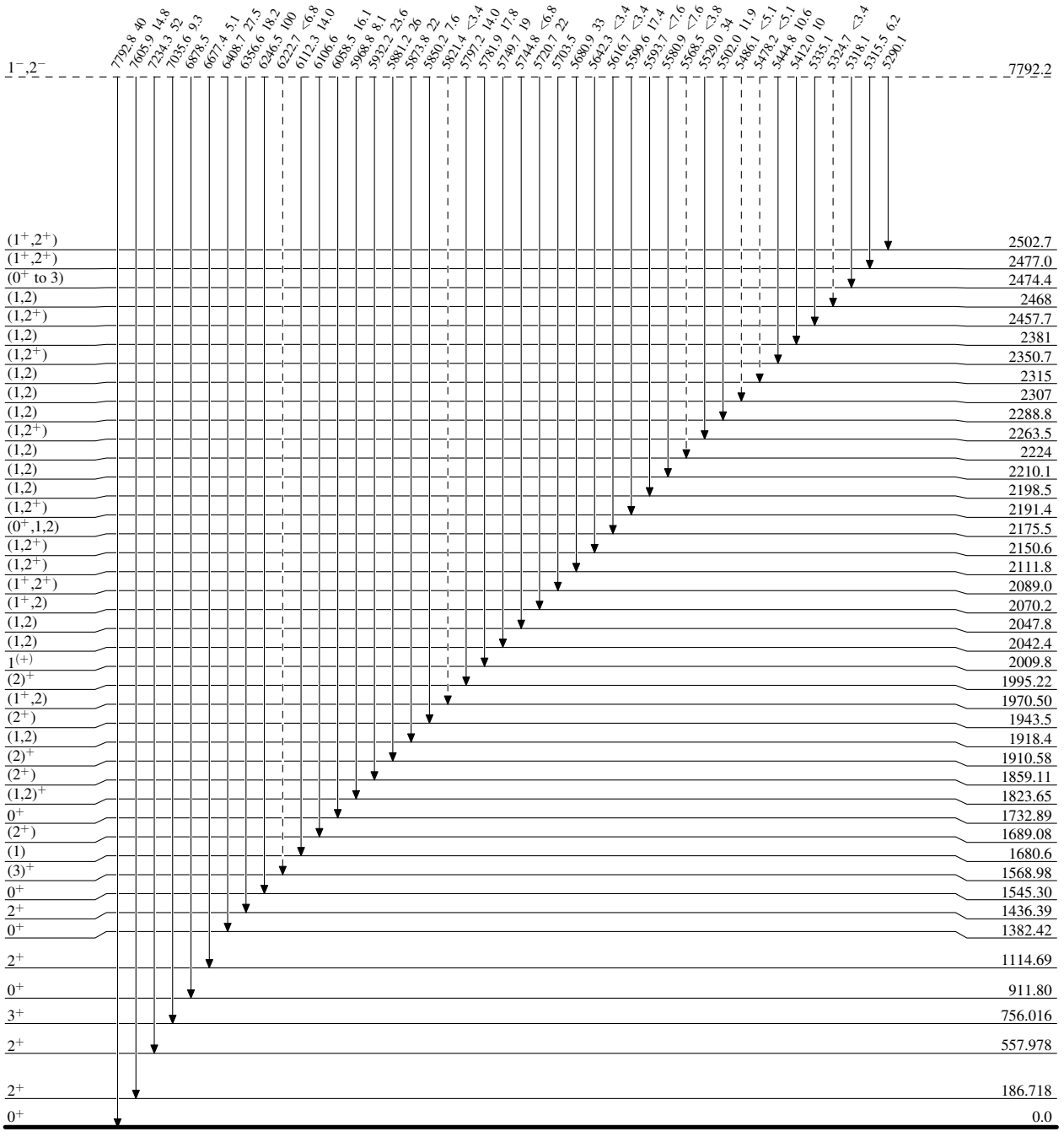
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

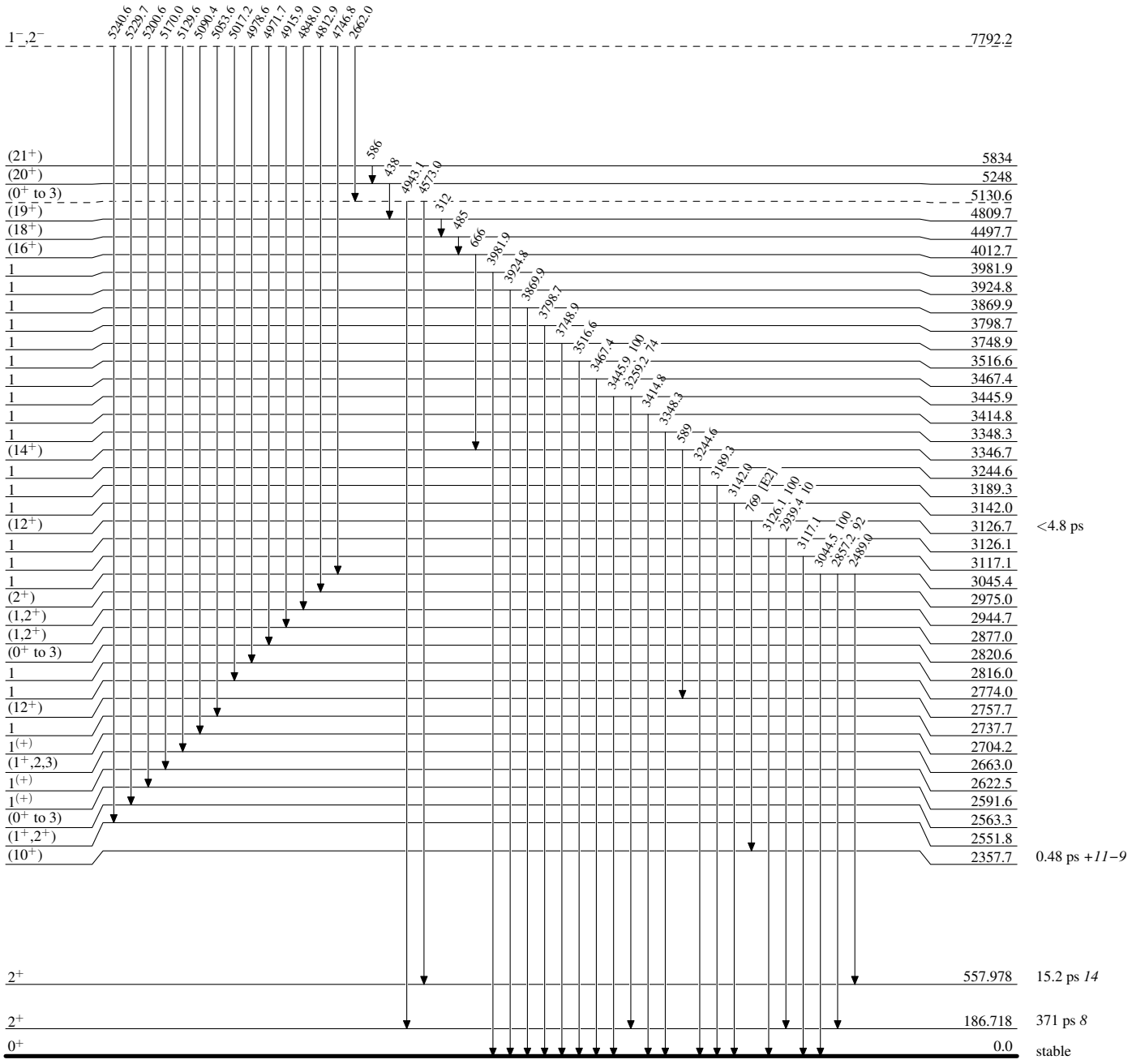


$^{190}_{76}Os_{114}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

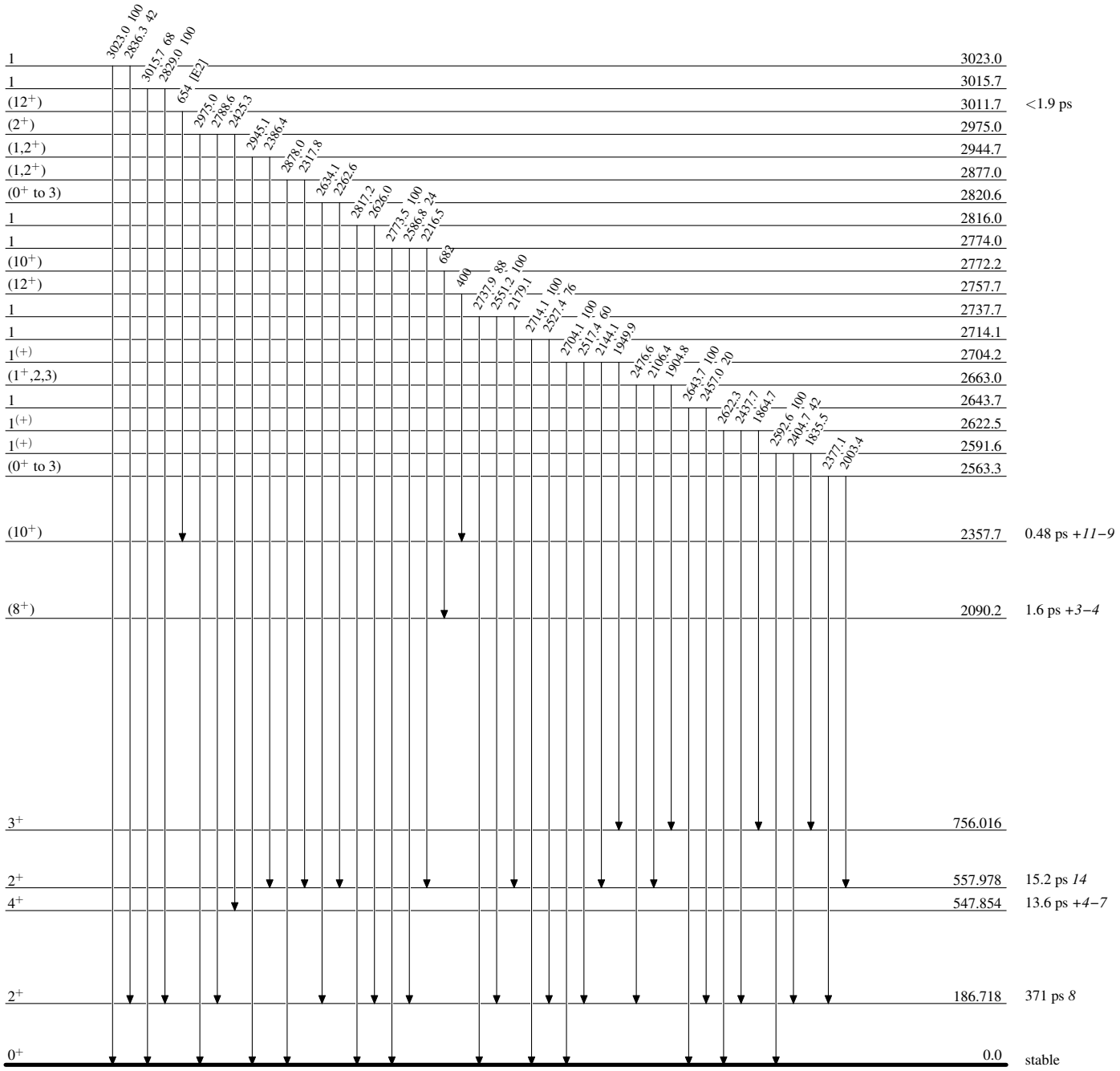


$^{190}_{76}Os_{114}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{190}_{76}Os_{114}$

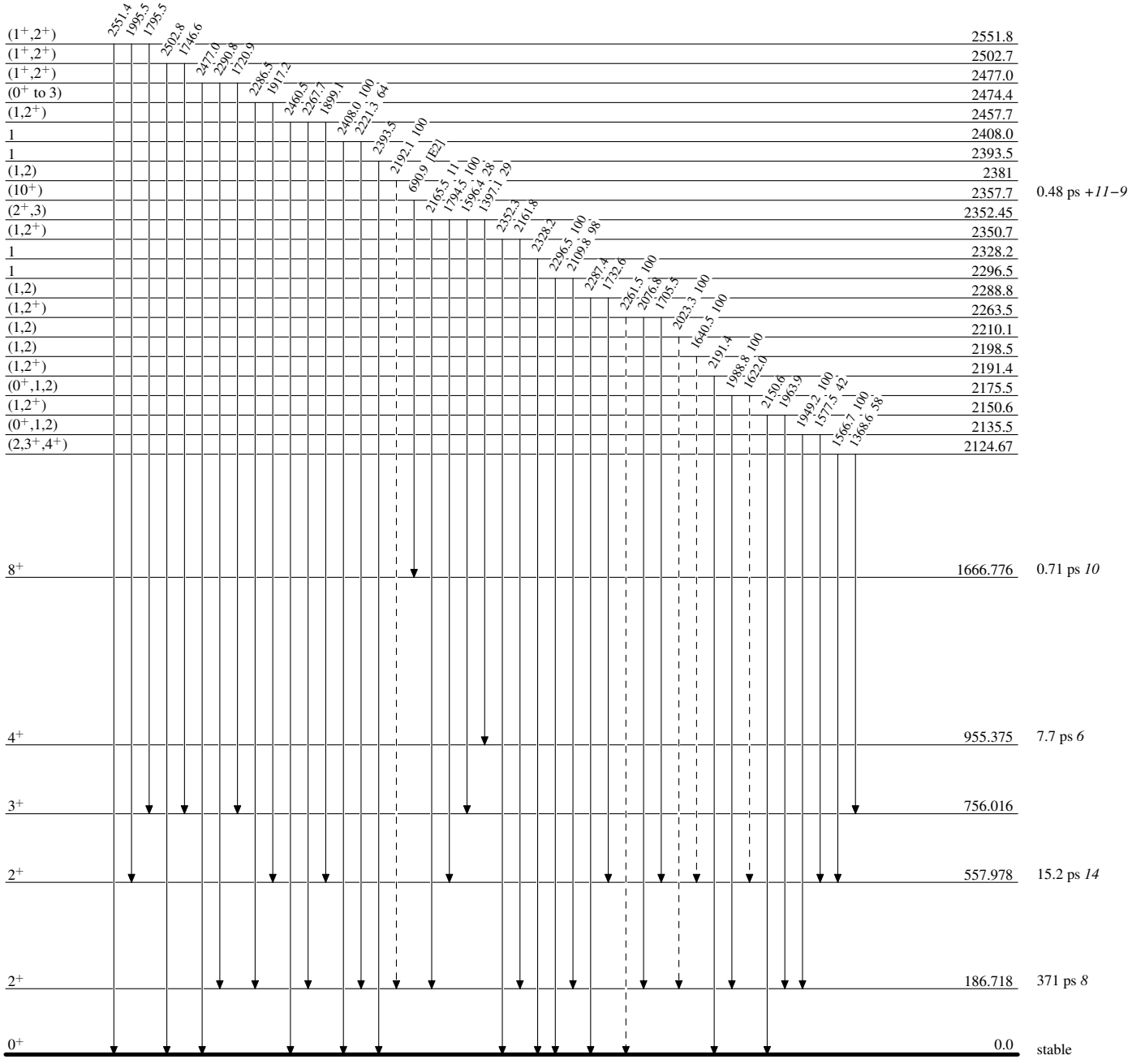
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

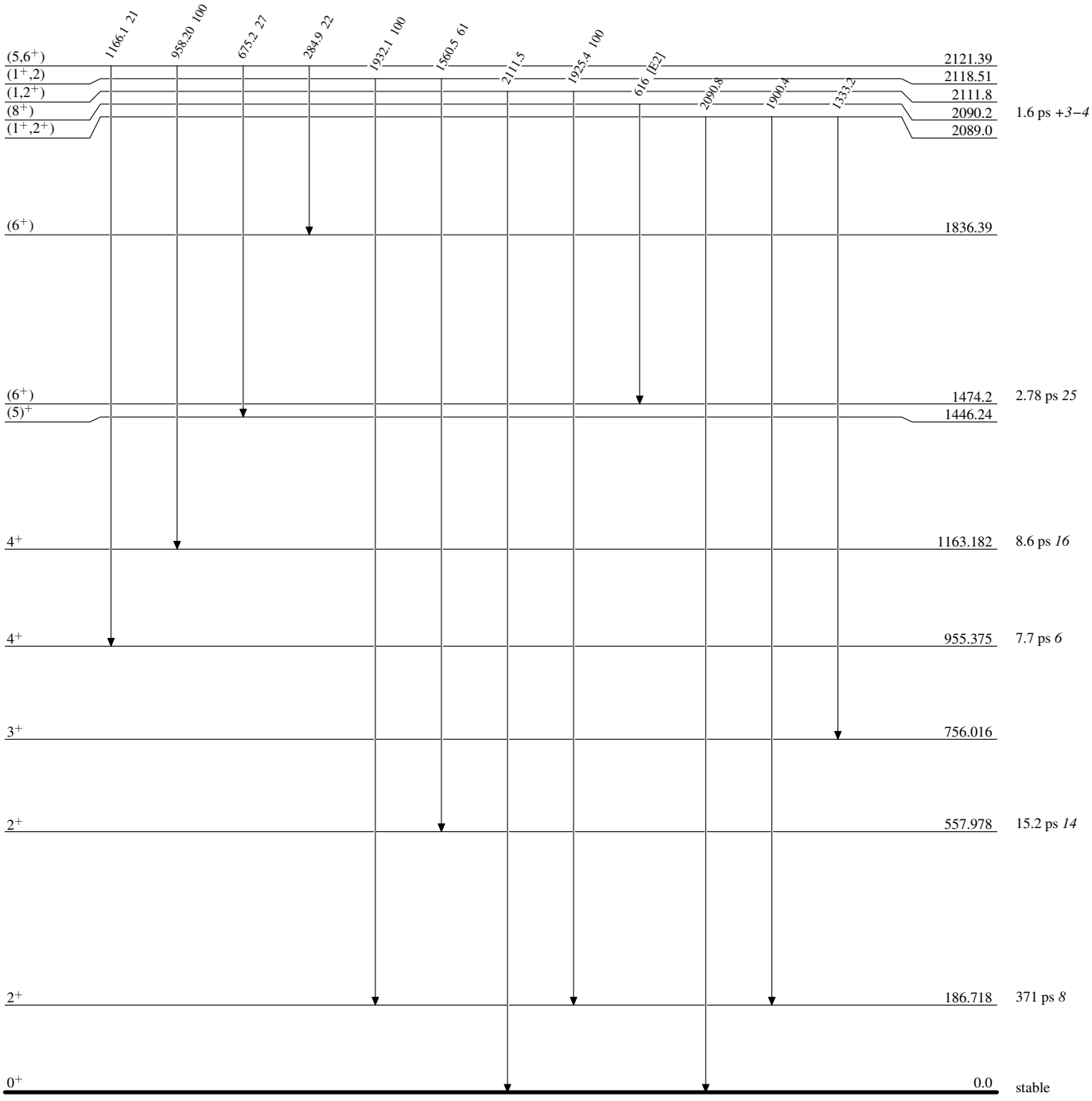


$^{190}_{76}Os_{114}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{190}_{76}Os_{114}$

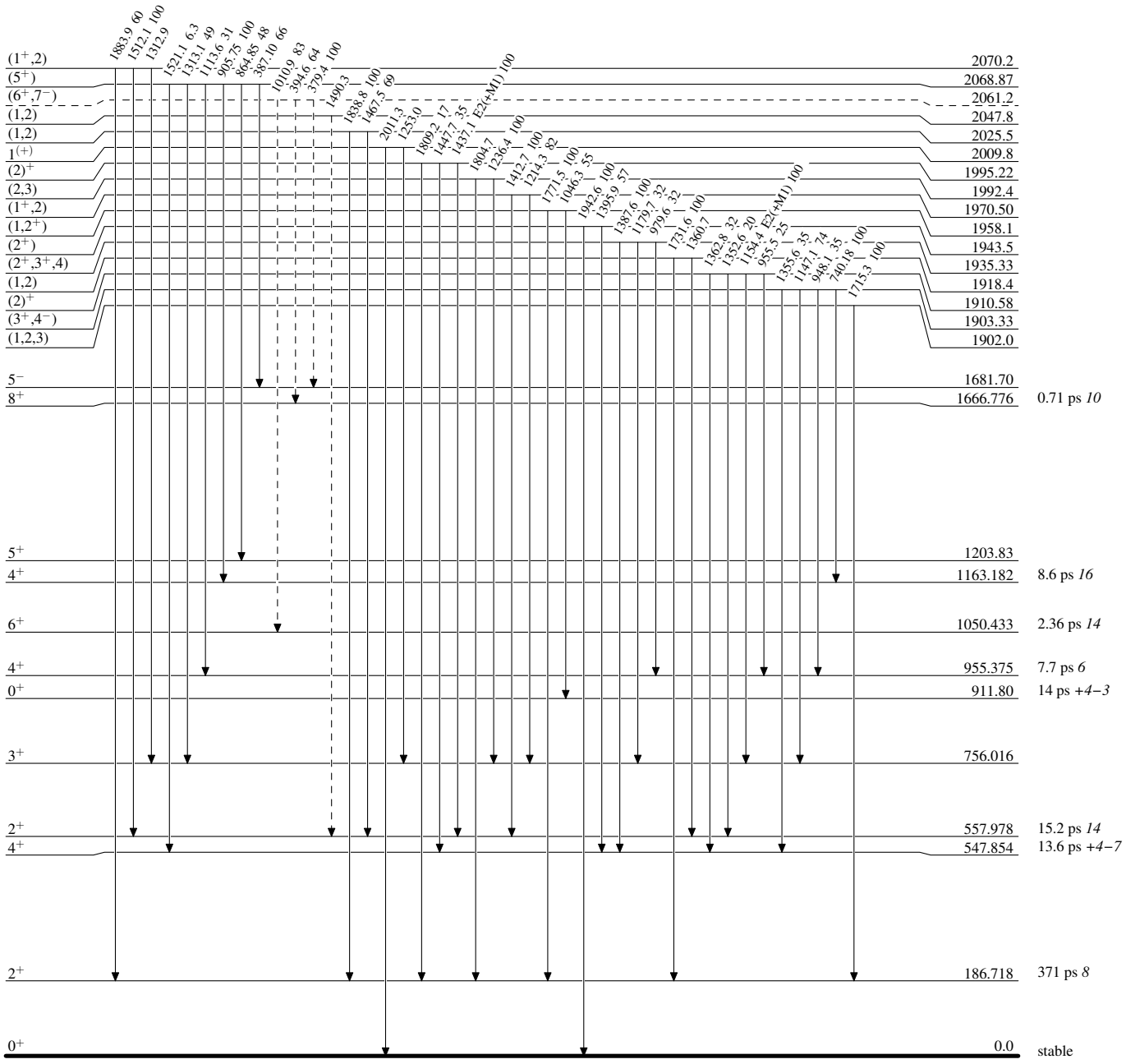
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



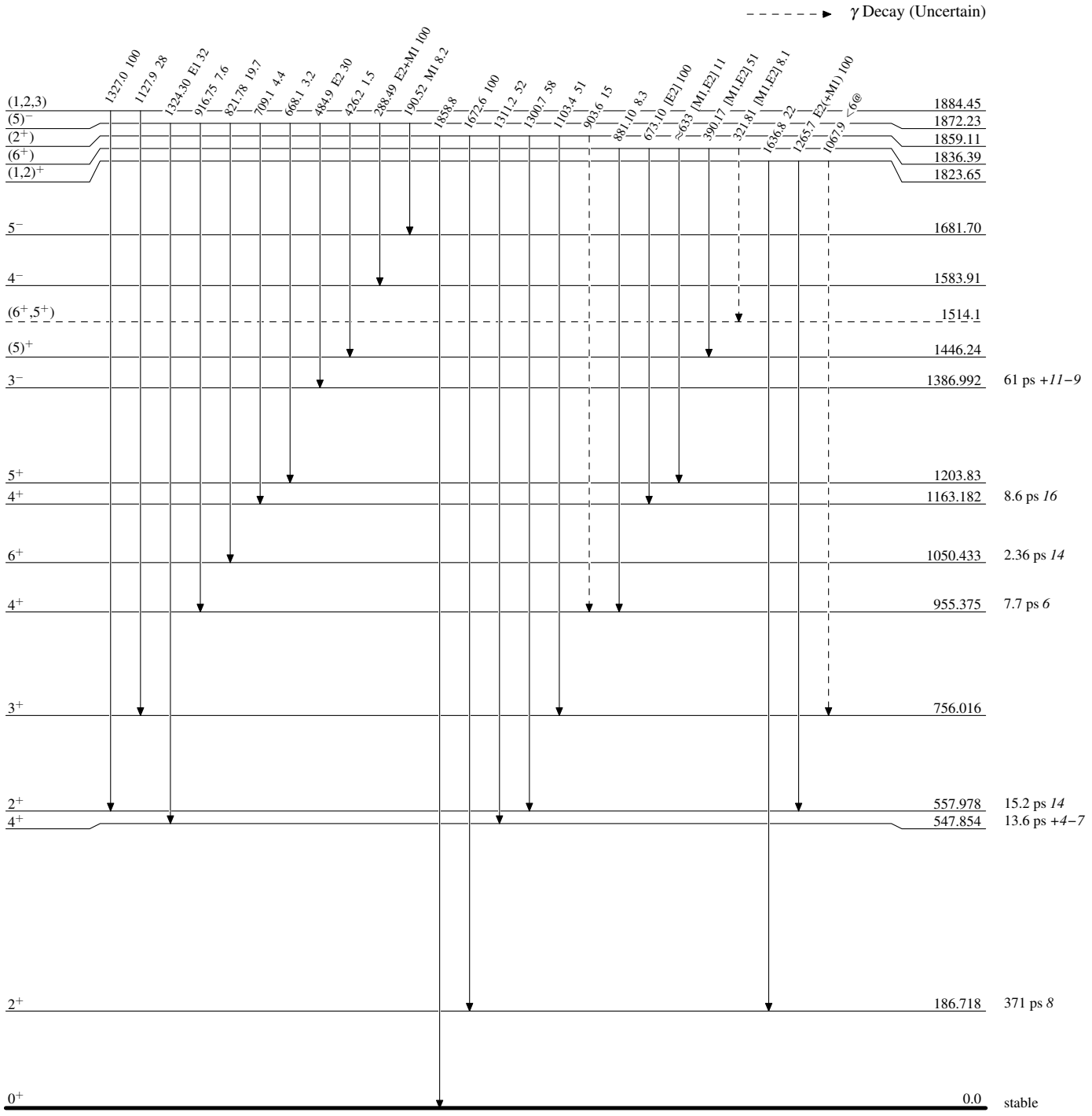
$^{190}_{76}Os_{114}$

Adopted Levels, Gammas

Level Scheme (continued)

Legend

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{190}_{76}Os_{114}$

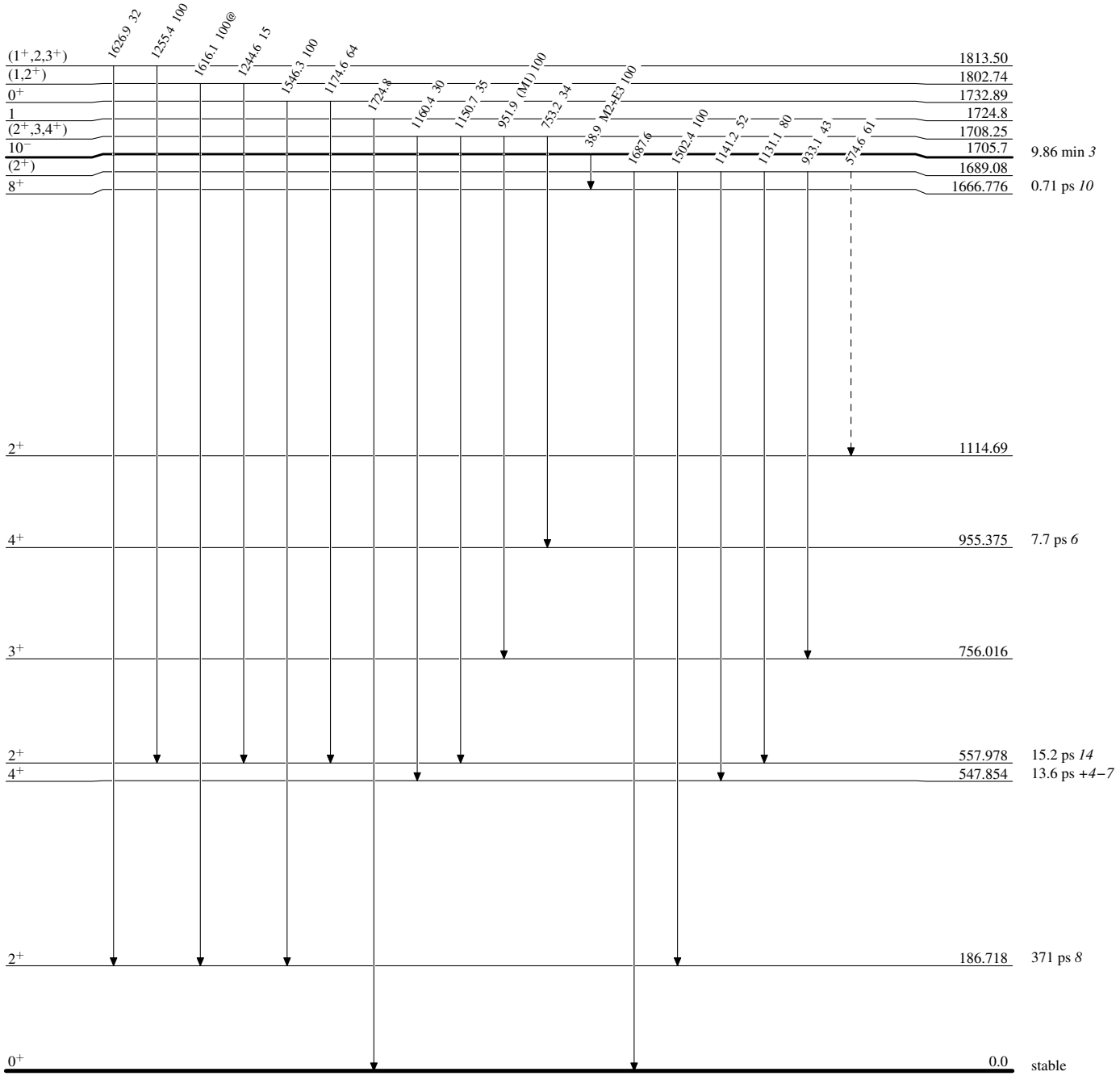
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)

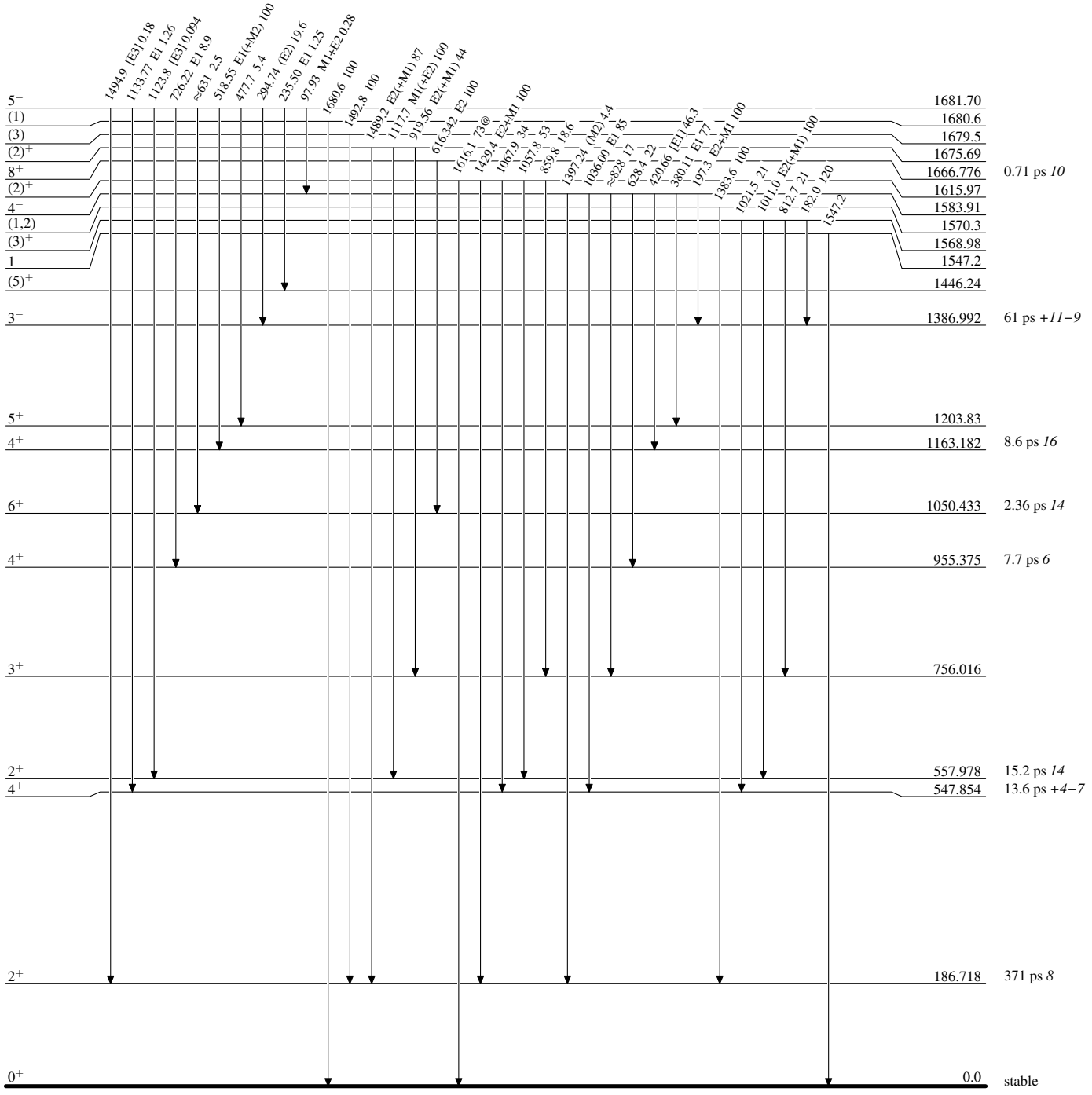


$^{190}_{76}Os_{114}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{190}_{76}Os_{114}$

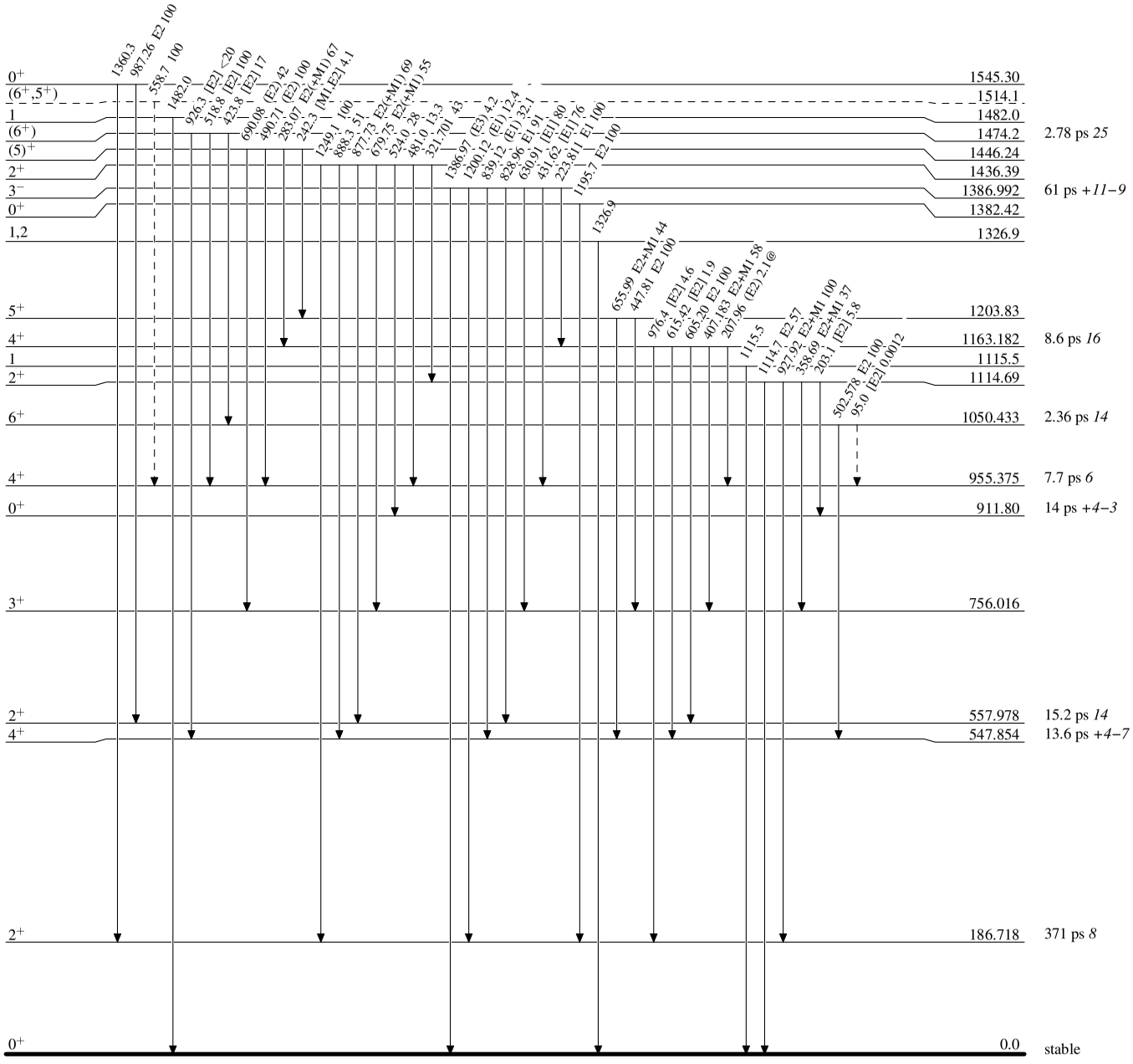
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

- - - - - - ► γ Decay (Uncertain)

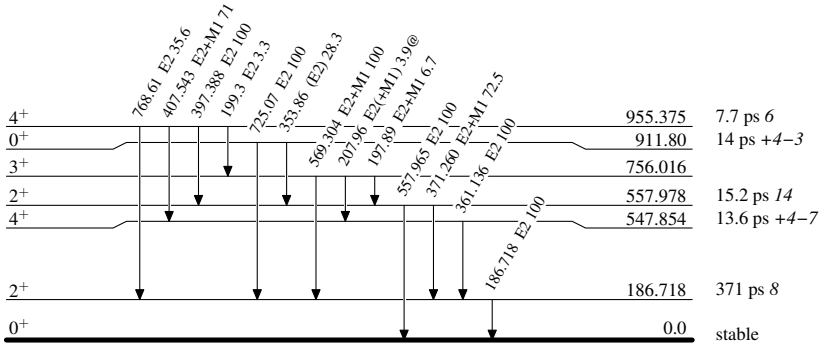


$^{190}_{76}Os_{114}$

Adopted Levels, Gammas

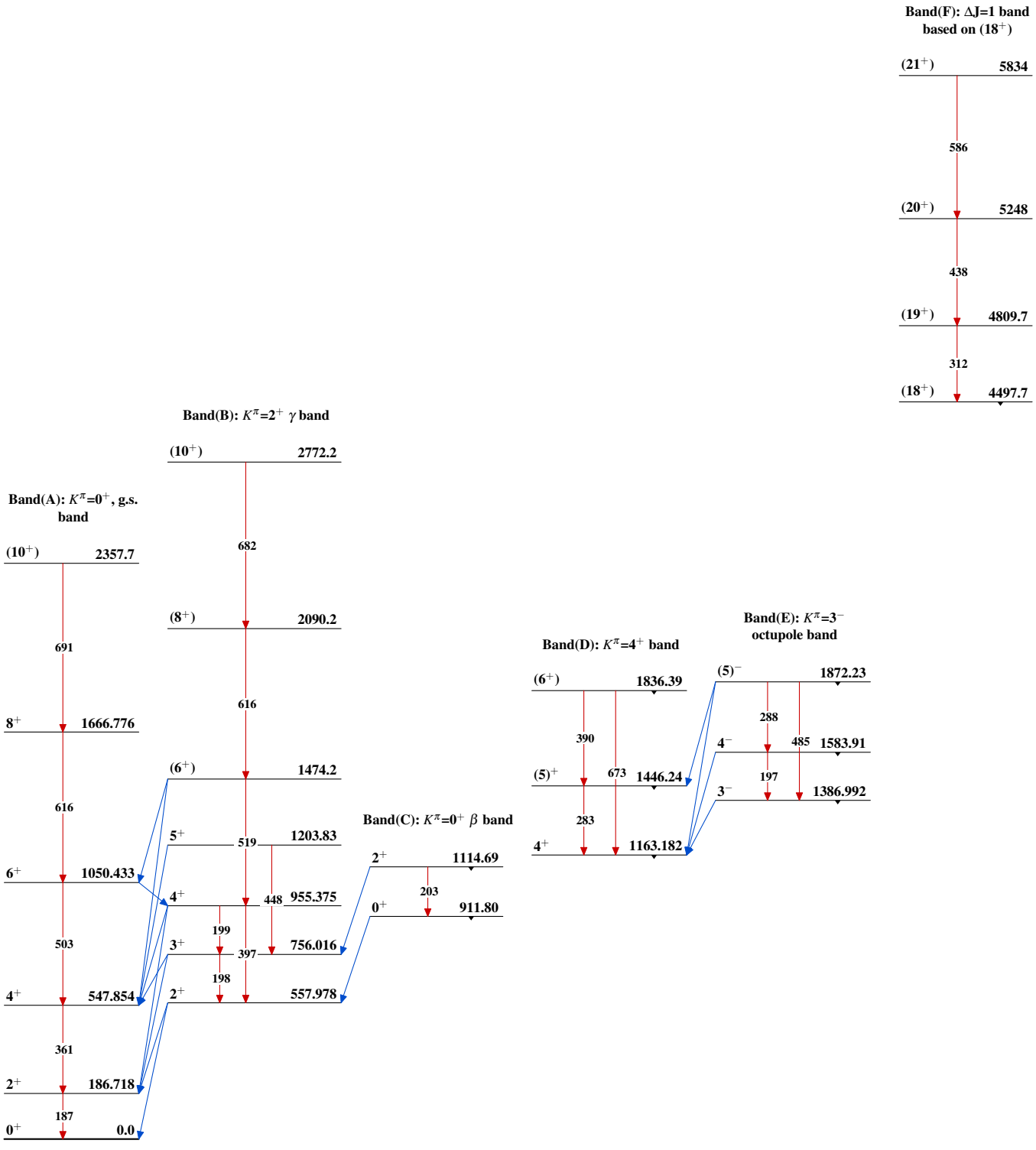
Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



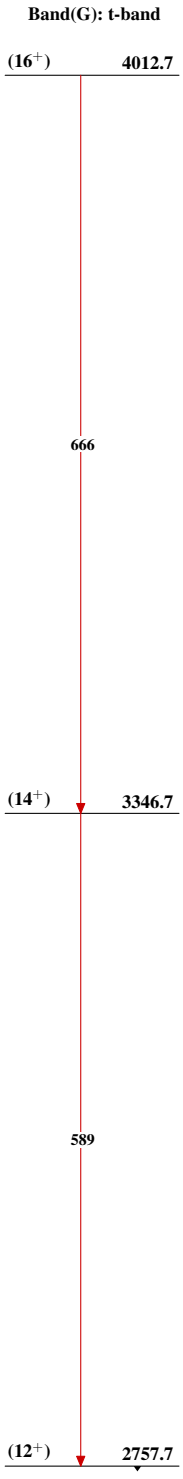
$^{190}_{76}Os_{114}$

Adopted Levels, Gammas



$^{190}_{76}Os_{114}$

Adopted Levels, Gammas (continued)



$^{190}_{76}Os_{114}$