Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev, S. Juutinen, D. J. Hartley	NDS 150, 1 (2018)	1-Feb-2018

Q(β^-)=2120.42 *15*; S(n)=5871.65 *4*; S(p)=6401.8 *11*; Q(α)=1398 *26* 2017Wa10
Additional information 1.

^{188}Re Levels

Cross Reference (XREF) Flags

A	^{188}W β^- decay (69.78 d)	D	^{187}Re(n,γ) E=res
B	^{188}Re IT decay (18.59 min)	E	^{187}Re(d,p)
C	^{187}Re(n,γ) E=th	F	^{189}Os(t,α)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[@]	1$^-$[#]	17.005 h *3*	ABCDEF	%β^-=100 μ=+1.788 *5* (1965Ar01) Q=+0.572 *6* (1981Bu13,2016St14) J$^\pi$: from atomic-beam method (1963Do13); π from μ. $T_{1/2}$: weighted average of 17.001 h *23* (2014Un01), 17.003 h *3* (2004Sc04), 17.007 h *15* (2002Po17) and 17.006 h *4* (1989Ab18). Others: 17.0035 h *22* (2001Sc23 − superseded by 2004Sc04), 17.001 h *22* (2002Un02, updated from 17.021 h *25* in 1994Co02 and 1992Un01 − superseded by 2014Un01), 16.93 h *17* (1984Zh08), 16.98 h *2* (1971Mi16), 16.74 h *6* (1958Gu09), 16.7 h *5* (1954Dz19), 16.9 h *3* (1951Li07). μ: atomic-beam magnetic resonance (1965Ar01). others: 1965Sc13, 1964Wi09. Q: from atomic-beam method (1981Bu13). Others: +0.36 *16* (1983Oe01,nuclear orientation), +0.88 *14* (1981Er01,nuclear orientation). 1981Er01 assumed β mixing ratio for 1$^-$ to 2$^+$ β^- transition as 0.424 *25*. Other values for this ratio are 0.387 *23* (1981Oe01) from $\gamma(\theta,T)$ of 155γ; ≈0.4 (1965Ar01,1966Ku07). configuration: π5/2[402]⊗ν3/2[512], K$^\pi$=1$^-$.
63.5959[@] *10*	2$^-$[#]	56 ps *7*	ABCDEF	XREF: D(65.7)E(61.5). J$^\pi$: 63.583γ M1+E2 to 1$^-$; band member. $T_{1/2}$: from 63γ-105γ(Δt) (1968Ma14). Others: ≤1.2 ns (1965Hu02) and ≤20 ns (1964Ta07).
156.0558[@] *17*	3$^-$[#]		BCDE	J$^\pi$: 92.464γ M1+E2 to 2$^-$, 156.050γ to 1$^-$; band member.
169.4490[g] *11*	3$^-$[#]		ABC e	XREF: e(169.8). J$^\pi$: 105.8530γ M1+E2 to 2$^-$, 169.441γ to 1$^-$; assigned configuration. configuration: π5/2[402]⊗ν1/2[510], K$^\pi$=3$^-$.
172.0848 *24*	6$^-$	18.59 min *4*	BCDe	%IT=100 XREF: e(169.8). J$^\pi$: 15.93γ M3 to 3$^-$. $T_{1/2}$: from 1989Ab18. Others: 18.5 min *3* (1965Na01), 18.7 min *2* (1964Ta07), and 18.7 min *3* (1953Fl07). configuration: π5/2[402]⊗ν7/2[503], K$^\pi$=6$^-$.
182.7594[h] *24*	(4$^-$)[#]	20.3 ns *18*	CDEF	XREF: D(185)F(183). J$^\pi$: 13.3γ and 26.7γ to 3$^-$; absence of transitions to J^π=1$^-$; assignment in (d,p). $T_{1/2}$: From $\gamma\gamma$(t) in 1978Sc10. Other: 17.6 ns *30* (1972Sh13). configuration: π5/2[402]⊗ν3/2[512], K$^\pi$=4$^-$.
205.3539[c] *11*	2$^-$[#]	3.6 ns *3*	A CdE	XREF: d(206.5). J$^\pi$: 141.7588γ M1+E2 to 2$^-$, 35.9γ to 3$^-$. $T_{1/2}$: Weighted average of 3.7 ns *3* (1978Sc10) and 3.2 ns *6* (1972Sh13). configuration: π5/2[402]⊗ν9/2[505], K$^\pi$=2$^-$.
207.8490[i] *10*	0$^+$	3.68 ns *18*	A Cd	XREF: d(206.5).

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Adopted Levels, Gammas (continued)

^{188}Re Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
				Jπ: 207.8477γ E1 to 1⁻; Absence of transitions to $J^\pi=2^-$ and 3^-. $T_{1/2}$: Weighted average of 3.8 ns *2* (1978Sc10) and 3.2 ns *4* (1972Sh13). configuration: π9/2[514]⊗ν9/2[505], $K^\pi=0^+$.
230.9213[k] *12*	$3^{+\#}$	21.2 ns *12*	CD	XREF: D(231.7). Jπ: 167.327γ E1 to 2^-, 74.864γ (E1) to 3^-; assigned configuration. $T_{1/2}$: Weighted average of 21.4 ns *15* (1978Sc10) and 20.9 ns *20* (1972Sh13). configuration: π9/2[514]⊗ν3/2[512], $K^\pi=3^+$.
256.9316[d] *14*	$2^{-\#}$	<0.2 ns	CDE	XREF: D(258.3). Jπ: 256.92γ M1+E2 to 1^-, 193.35γ M1+E2 to 3^-. $T_{1/2}$: From 1978Sc10. configuration: π5/2[402]⊗ν1/2[510], $K^\pi=2^-$.
287.1310[@] *19*	$4^{-\#}$		C EF	XREF: E(285.8)F(284). Jπ: 131.0755γ M1+E2 to 3^-, 223.527γ to 2^-; band member.
290.6736[&] *10*	$1^{-\#}$	<0.2 ns	A CD	Jπ: 290.6828γ M1+E2 to 1^-, 227.0731γ M1+E2 to 2^-; configuration assignment. $T_{1/2}$: From 1978Sc10. configuration: π5/2[402]⊗ν7/2[503], $K^\pi=1^-$.
300.2094[i] *17*	$2^{+\#}$	1.5 ns *2*	C	Jπ: 92.355γ to 0^+, 236.65γ (E1) to 2^-; band member. $T_{1/2}$: From 1978Sc10.
316.9370[c] *14*	$3^{-\#}$		CDE	XREF: D(317.7)E(306). Jπ: 111.5835γ (M1) to 2^-; band member; proposed configuration.
325.8761[g] *16*	$4^{-\#}$		CDE	XREF: E(321.2). Jπ: 156.421γ M1(+E2) to 3^-; band member.
339.956[h] *3*	(5^-)		CDE	XREF: D(330.7)E(335.7). Jπ: 157.1971γ M1+E2 to (4^-); band member.
342.5947[k] *15*	$4^{+\#}$		C F	Jπ: 111.6733γ (M1) to 3^+; band member.
353.5741[i] *14*	$(1^+)^{\#}$		C E	XREF: E(357). Jπ: 145.721 (M1) to 0^+, 53.439γ to 2^+; band member. Note, that $J^\pi=2^-$ was assigned in ^{187}Re(d,p).
360.8959[n] *22*	5^+	5.5 ns *6*	C	Jπ: 188.8109 E1 to 6^-, 129.9797γ to 3^+. $T_{1/2}$: Weighted average of 5.5 ns 6 (1978Sc10) and 6.0 ns *25* and 5.2 ns *10* (1972Sh13). configuration: π9/2[514]⊗ν1/2[510], $K^\pi=5^+$.
362.731[&] *4*	$2^{-\#}$		CDe	XREF: D(364.7)e(368). Jπ: 362.68γ M1+E2 to 1^-, 206.673γ to 3^-; band member.
372.0803[d] *17*	$3^{-\#}$		CDe	XREF: D(373)e(368). Jπ: 115.1478 M1(+E2) to 2^-, 189.330γ to 4^-; band member.
391.36 *4*			C F	XREF: F(393).
439.7623[l] *25*	$(3)^{+\#}$		C e	XREF: e(443). Jπ: 208.8408γ M1+E2 to 3^+, 234.412γ to 2^-. configuration: π5/2[402]⊗ν11/2[615], $K^\pi=3^+$.
446.348[@] *4*	5^-		C e	XREF: e(433). Jπ: 159.217γ to 4^-, 290.274γ to 3^-; band member.
462.0875[c] *20*	$4^{-\#}$		C E	XREF: E(465). Jπ: 145.1505γ M1+E2 to 3^-; band member.
470.154[&] *4*	$3^{-\#}$		C	Jπ: 107.4218γ M1(+E2) to 2^-, 183.062γ to 4^-; band member.
482.1429[j] *17*	$2^{+\#}$	0.26 ns *10*	C ef	XREF: e(489)f(486). Jπ: 274.31γ E2 to 0^+, 251.226γ M1+E2 to 3^+. $T_{1/2}$: From 1978Sc10.
483.5598 *23*	$(5)^+$		C ef	XREF: e(489)f(486). Jπ: 140.9651γ M1 to 4^+; population in ^{187}Re(n,γ) E=Th. consistent with J=5.
493.716[m] *3*	(4^+)		C ef	XREF: e(489)f(486).

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Adopted Levels, Gammas (continued)

^{188}Re Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
				Jπ: 132.8210γ to 5^+, 262.796γ to 3^+; assigned configuration. configuration: π9/2[514]⊗ν1/2[510], $K^\pi=4^+$. Assignment is tentative.
499.7402[i] *21*	3^+#		C	Jπ: 199.5307γ M1+E2 to 2^+; band member.
511.720[i] *3*	4^+#		C E	XREF: E(512). Jπ: 211.510γ to 2^+; band member.
516.247[g] *4*	5^-		C	Jπ: 190.371γ M1(+E2) to 4^-; band member.
523.0514[d] *25*	4^-#		CDE	XREF: E(521). Jπ: 150.9708γ to 3^-, 235.925γ to 4^-, 459.46γ to 2^-; band member.
550.846 *5*	3^+,4,5^+		C	Jπ: 189.951γ to 5^+, 319.87γ to 3^+.
554.329[l] *23*	$(4)^+$#		C E	XREF: E(555). Jπ: 114.67γ M1+E2 to $(3)^+$; band member.
558.240 *4*	$(4,5)^-$#		CD	Jπ: 241.308γ to 3^-, 386.167γ to 6^-.
575.724[j] *4*	3^+#		C ef	XREF: e(588)f(591). Jπ: 93.63γ M1(+E2) to 2^+; band member.
582.160[a] *4*	1^-#	<0.2 ns	C ef	XREF: e(588)f(591). Jπ: 219.430γ M1+E2 to 2^-, 374.51γ to 0^+. $T_{1/2}$: From 1978Sc10. configuration: π1/2[400]⊗ν3/2[512], $K^\pi=1^-$.
608.891[&] *4*	4^-#		C e	XREF: e(606). Jπ: 138.7373γ M1+E2 to 3^-; band member.
609.008[b] *6*	(1^-)		C e	XREF: e(606). Jπ: 609.2γ to 1^-, 352.13γ to 2^-. configuration: π9/2[514]⊗ν11/2[615], $K^\pi=1^-$. The assignment is tentative.
611.635 *10*	(1,2)		C	Jπ: 320.962γ to 1^-. Assignment is tentative.
628.859[e] *6*	$(2)^-$#		CD	XREF: D(629.4). Jπ: 46.692γ M1(+E2) to 1^-, 158.710γ to 3^-. configuration: π1/2[400]⊗ν3/2[512], $K^\pi=2^-$.
641.058[c] *11*	(5^-)		C e	XREF: e(647). Jπ: 178.77γ to 4^-, 268.85γ to 3^-; band member.
644.99 *3*	$1,2^+$		C e	XREF: e(647). Jπ: 437.58γ to 0^+, 282.8γ to 2^-.
647.305[a] *5*	2^-#		C eF	XREF: e(647)F(651). Jπ: 65.137γ to 1^-, 177.153γ to 3^-; band member. configuration: π5/2[402]⊗ν3/2[501] mixed with γ band is suggested in 1972Sh13.
654.794[m] *5*	(5^+)		C	Jπ: 161.078γ to (4^+); band member.
656.835 *12*	3^+,4,5^+		C	Jπ: 217.07γ to 3^+, 295.99γ to 5^+.
680.123[b] *15*	(2^-)#		C E	XREF: E(674). Jπ: 389.421γ to 1^-, 363.15γ to 3^-; band member.
695.559[l] *24*	(5^+)		C	Jπ: 141.230γ to $(4)^+$; possibly a band member (by the evaluator).
701.407 *7*	0^-,1,2,3^-		C e	XREF: e(703). Jπ: 119.26γ to 1^-.
703.456[j] *5*	4^+		C e	XREF: e(703). Jπ: 127.733 to 3^+, 221.30γ to 2^+; band member.
704.17[f] *9*	(2^-)#		C e	XREF: e(703). Jπ: 75.2γ to 2^-; proposed configuration; assignment is tentative.
708.691[d] *6*	5^-		C	Jπ: 185.639γ to 4^-, 336.626γ to 3^-; band member.
719.642 *10*	3^+,4,5^+		CDE	XREF: D(711)E(717). Jπ: 358.739γ to 5^+ and 488.5γ to 3^+.
723.187 *12*	1^-,2,3^-#		C	Jπ: 252.952γ to 3^-, 432.76γ to 1^-.
734.913 *13*	1,2		C e	XREF: e(733). Jπ: 444.22γ to 1^-, 123.278γ to $(0,1)^-$.

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Adopted Levels, Gammas (continued)

^{188}Re Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
737.031[e] *8*	(3)$^{-}$[#]	C e	XREF: e(733). Jπ: 108.19γ to (2)$^{-}$, 554.26γ to 4^{-}; band member.
739.21[g] *4*	(6^{-})	Cde	XREF: d(741.7)e(733). Jπ: 222.96γ to 5^{-}; possibly a band member (by the evaluator).
739.816 *9*	3^{-},4,5^{-}	Cde	XREF: d(741.7)e(733). Jπ: 399.90γ to 5^{-}, 423.10γ to 3^{-}.
745.22 *15*	2,3,4[#]	Cd f	XREF: d(741.7)f(748). Jπ: 575.57γ to 3^{-}; direct feeding by primary γ ray from the J^{π}=2^{+},3^{+} neutron capture state; the absence of γ ray to the g.s. would argue against J=1.
748.130 *21*	2,3,4^{-}	C f	XREF: f(748). Jπ: 277.96γ to 3^{-}, 542.91γ to 2^{-}; the absence of γ ray to the g.s. would argue against J=1.
750.067 *11*	2^{+},3,4	C f	XREF: f(748). Jπ: 238.356γ to 4^{+}.
754.593 *6*	3^{-},4^{-}[#]	C f	XREF: f(748). Jπ: 549.30γ to 2^{-}, 113.533γ to 5^{-}.
756.598 *21*	1^{+},2,3^{-}	C E	XREF: E(761). Jπ: 465.96γ to 1^{-}, 525.90γ to 3^{+}.
781.899[&] *7*	5^{-}	C	Jπ: 173.008γ to 4^{-}; band member.
782.804[b] *9*	(3^{-})[#]	C e	XREF: e(788). Jπ: 102.7γ to (2^{-}); band member.
791.523 *23*	1^{-},2,3^{-}[#]	C e	XREF: e(788). Jπ: 501.01γ to 1^{-}, 474.7γ to 3^{-}.
798.38[f] *9*	(3^{-})[#]	C	Jπ: 94.21γ to (2^{-}); band member.
799.551[i] *14*	5^{+}	C	Jπ: 287.815γ to 4^{+}, 300.2γ to 3^{+}; band member.
800.453 *19*	2^{-},3,4^{-}	C f	XREF: f(803). Jπ: 437.83γ to 2^{-}, 191.535γ to 4^{-}.
807.632 *11*	1^{+},2^{+}[#]	C f	XREF: f(803). Jπ: 599.80γ to 0^{+},231.894γ to 3^{+}.
810.535 *12*	3^{+},4^{+}	C e	XREF: e(813). Jπ: 328.36γ to 2^{+}, 449.78γ to 5^{+}.
813.00 *3*	1,2,3^{-}	Cde	XREF: d(815.5)e(813). Jπ: 522.33γ to 1^{-}, 607.64γ to 2^{-}.
817.684 *13*	1^{+},2,3,4^{+}	Cde	XREF: d(815.5)e(813). Jπ: 335.510γ to 2^{+}, 241.941γ to 3^{+}.
822.813 *19*	1,2,3^{-}[#]	C	Jπ: 822.32γ to 1^{-}, 565.56γ to 2^{-}.
831.835 *18*	2^{-},3^{-}[#]	C e	XREF: e(844). Jπ: 831.8γ to 1^{-}, 273.539γ to (4,5)$^{-}$.
851.88 *3*	3,4^{-}[#]	C e	XREF: e(844). Jπ: 646.64γ to 2^{-}, 293.5γ to (4,5)$^{-}$.
854.365 *19*	3^{+},4,5	C	Jπ: 341.81γ to 4^{+}, 492.8γ to 5^{+}.
859.233 *23*	2^{-},3^{-}[#]	CD	XREF: D(861.1). Jπ: 568.62γ to 1^{-}, 572.4γ to 4^{-}.
868.359 *19*	1^{-},2,3,4^{-}	CDe	XREF: D(870.5)e(866). Jπ: 663.01γ to 2^{-}, 551.39γ to 3^{-}.
871.454 *24*	1^{-},2,3^{-}[#]	CD	XREF: D(870.5). Jπ: 871.3γ to 1^{-}, 499.38γ to 3^{-}.
874.419 *11*	2^{+},3,4,5^{+}	C	Jπ: 298.5γ to 3^{+}, 362.77γ to 4^{+}.
883.84 *5*	1^{-},2,3^{-}[#]	C f	XREF: f(886). Jπ: 883.6γ to 1^{-}, 727.5γ to 3^{-}.
884.52 *8*	2^{-},3,4,5^{-}	C f	XREF: f(886). Jπ: 714.94γ to 3^{-}, 701.79γ to (4^{-}).
890.232 *16*	3^{+},4,5^{+}	C e	XREF: e(895).

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Adopted Levels, Gammas (continued)

^{188}Re Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
			Jπ: 659.5γ to 3+, 498.77γ to (5,6)+.
896.197 *19*	2+,3+	CDe	XREF: e(895). Jπ: 542.86γ to 1+, 384.47γ to 4+.
897.26 *4*	2−,3,4−[#]	CDe	XREF: e(895). Jπ: 691.93γ to 2−, 571.54γ to 4−.
899.351 *13*	3−,4,5−	CDe	XREF: e(895). Jπ: 162.318γ to (3)−, 453.05γ to 5−.
900.219 *15*	3+,4,5+	C	Jπ: 180.577γ to 3+,4,5+, 539.33γ to 5+.
910.990 *13*	1−,2,3−	Cd	XREF: d(912.6). Jπ: 187.794γ to 1−,2,3−, 594.08γ to 3−.
913.821 *15*	2+,3,4[#]	Cd	XREF: d(912.6). Jπ: 338.29γ to 3+, 431.675γ to 4+.
914.24 *12*	1−,2,3,4,5−	Cd	XREF: d(912.6). Jπ: 744.41γ to 3−.
916.25 *4*	2,3,4,5−	C	Jπ: 167.8γ to 2,3,4−; 454.26γ to 3−.
924.11 *5*	1−,2,3−	Cdef	XREF: d(920.4)e(926)f(926). Jπ: 923.9γ to 1−, 768.05γ to 3−.
924.40 *8*	1+,2,3+	Cdef	XREF: d(920.4)e(926)f(926). Jπ: 168.0γ to 1+,2,3−; 348.64γ to 3+.
925.20 *4*	2−,3,4−	CDef	XREF: D(926.6)e(926)f(926). Jπ: 562.41γ to 2−, 463.3γ to 4−.
932.42 *13*	3+,4,5+	C	Jπ: 571.47γ to 5+, 702.0γ to 3+.
932.70 *5*	1−,2,3−	C	Jπ: 642.29γ to 1−, 560.68γ to 3−.
944.37 *8*	1−,2,3−[#]	C e	XREF: e(946). Jπ: 653.9γ to 1−, 788.39γ to 3−.
945.79 *5*	1+,2,3,4+	C e	XREF: e(946). Jπ: 463.78γ to 2+, 714.86γ to 3+.
955.70 *4*	2−,3,4[#]	C	Jπ: 638.22γ to 3−, 630.07γ to 4−.
963.24 *4*	3+,4,5+	C e	XREF: e(965). Jπ: 152.56γ to 3+,4+; 602.29γ to 5+.
965.22 *7*	2−,3,4,5−	C e	XREF: e(965). Jπ: 808.67γ to 3−, 678.18γ to 4−.
977.11 *4*	(2+,3,4+)	C e	XREF: e(981). Jπ: 494.96γ to 2+; 483.55γ to (4+).
978.23 *14*	1−,2,3,4−[#]	C e	XREF: e(981). Jπ: 914.63γ to 2−, 822.2γ to 3−.
983.48 *4*	2−,3,4−[#]	C e	XREF: e(981). Jπ: 726.88γ to 2−, 696.29γ to 4−.
986.62 *3*	2+,3,4+	C e	XREF: e(981). Jπ: 504.43γ to 2+, 493.04γ to (4+).
994.033 *19*	2+,3,4,5+	C e	XREF: e(996). Jπ: 554.54γ to (3)+, 500.39γ to (4+).
997.09 *7*	2+,3,4,5+	C e	XREF: e(996). Jπ: 766.17γ to 3+, 654.50γ to 4+.
1000.38 *5*	2−,3,4−	C	Jπ: 744.02γ to 2−, 537.68γ to 4−.
1001.44 *3*	2+,3,4+	C	Jπ: 519.22γ to 2+, 298.42γ to 4+.
1002.491 *25*	(2+,3,4+)	C	Jπ: 520.41γ to 2+, 509.2γ to (4+).
1009.4 *3*	1,2,3−	C f	XREF: f(1008). Jπ: 718.7γ to 1−, 945.6γ to 2−.
1011.20 *5*	2−,3,4−	C f	XREF: f(1008). Jπ: 946.51γ to 2−, 724.18γ to 4−.
1012.97 *6*	(3−,4,5−)	C f	XREF: f(1008). Jπ: 843.9γ to 3−, 672.98γ to (5−).
1013.41 *3*	2+,3,4+	C f	XREF: f(1008).

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Adopted Levels, Gammas (continued)

^{188}Re Levels (continued)

E(level)†	Jπ‡	XREF	Comments
			Jπ: 531.79γ to 2^+, 501.64γ to 4^+.
1026.001 *18*	2^+,3,4^+	C e	XREF: e(1029).
			Jπ: 543.56γ to 2^+, 683.72γ to 4^+.
1026.23 *7*	2^-,3,4^-	C e	XREF: e(1029).
			Jπ: 379.3γ to 2^-, 565.3γ to 4^-.
1034.52 *11*	2^-,3,4^-	C e	XREF: e(1029).
			Jπ: 971.04γ to 2^-, 425.67γ to 4^-.
1035.38 *8*	2^-,3,4,5^-	C e	XREF: e(1029).
			Jπ: 718.8γ to 3^-, 573.26γ to 4^-.
1039.05 *7*	2^-,3,4^-	C	Jπ: 676.07γ to 2^-, 515.94γ to 4^-.
1049.16 *21*	1^-,2,3^-	C	Jπ: 1048.8γ to 1^-, 892.8γ to 3^-.
1061.91 *16*	2^-,3^-	C e	XREF: e(1058).
			Jπ: 1062.3γ to 1^-, 879.16γ to (4^-).
1063.34 *6*	3^+,4,5	C e	XREF: e(1058).
			Jπ: 721.2γ to 4^+, 702.5γ to 5^+.
1070.58 *6*	1^+,2,3,4^+	C e	XREF: e(1075).
			Jπ: 588.7γ to 2^+, 494.85γ to 3^+.
1075.61 *9*	2^+,3,4,5^+	C e	XREF: e(1075).
			Jπ: 844.19γ to 3^+, 733.11γ to 4^+.
1082.01 *7*	1^-,2,3^-	C	Jπ: 1081.8γ to 1^-, 709.99γ to 3^-.
1083.64 *8*	2^+,3,4,5^+	C	Jπ: 852.84γ to 3^+, 590.3γ to (4^+).
1086.55 *5*	3^-,4,5^-	C	Jπ: 714.51γ to 3^-, 746.59γ to (5^-).
1088.555 *24*	(2^-,3,4,5^-)	C e	XREF: e(1094).
			Jπ: 217.083γ to 1^-,2,3^-; 763.10γ to 4^-.
1093.527 *21*	(1^-,2,3)	C e	XREF: e(1094).
			Jπ: 370.37γ to 1^-,2,3^-; 623.33γ to 3^-.
1097.23 *13*	2,3,4,5^-	C e	XREF: e(1094).
			Jπ: 941.42γ to 3^-.
1099.29 *9*	3^+,4,5^+	C e	XREF: e(1094).
			Jπ: 868.00γ to 3^+, 738.86γ to 5^+.
1106.27 *5*	2^-,3,4,5^-	C	Jπ: 323.44γ to (3^-), 583.64γ to 4^-.
1108.62 *13*	3^-,4,5^-	C	Jπ: 938.25γ to 3^-, 662.7γ to 5^-.
1117.11 *5*	2^-,3^-	C e	XREF: e(1118).
			Jπ: 1117.5γ to 1^-, 508.19γ to 4^-.
1118.93 *3*	2^+,3,4,5^+	C e	XREF: e(1118).
			Jπ: 543.30γ to 3^+, 415.46γ to 4^+.
1122.10 *18*	2^-,3,4^-	C e	XREF: e(1118).
			Jπ: 1058.8γ to 2^-, 835.2γ to 4^-.
1124.07 *9*	2^-,3,4^-	C e	XREF: e(1118).
			Jπ: 867.10γ to 2^-, 837.1γ to 4^-.
1137.42 *3*	2^+,3,4,5^+	C	Jπ: 907.1γ to 3^+, 795.42γ to 4^+.
1138.52 *6*	2^-,3,4,5^-	C	Jπ: 355.70γ to (3^-), 676.64γ to 4^-.
1143.74 *24*	3^-,4,5^-	C	Jπ: 856.6γ to 4^-, 697.4γ to 5^-.
1146.01 *9*	1,2^+	C	Jπ: 938.09γ to 0^+, 792.49γ to 1^+.
1146.2 *3*	1,2,3,4^-	C	Jπ: 499.1γ to 2^-.
1157.806 *21*	1^-,2,3^-	C e	XREF: e(1160?).
			Jπ: 867.21γ to 1^-, 988.0γ to 3^-.
1165.63 *7*	(1,2,3^-)	C e	XREF: e(1160?).
			Jπ: 874.6γ to 1^-; 374.13γ to 1^-,2,3^-.
1166.79 *10*	2^-,3,4^-	C e	XREF: e(1160?).
			Jπ: 1101.4γ to 2^-, 879.74γ to 4^-.
1183.05 *11*	2^-,3,4,5^-	C	Jπ: 810.95γ to 3^-, 660.01γ to 4^-.
1188.33 *8*	3^-,4,5	C	Jπ: 901.06γ to 4^-, 671.5γ to 5^-.
1204.75 *15*	2^-,3,4,5	C	Jπ: 878.74γ to 4^-.
1207.95 *3*	1^-,2,3^-	C	Jπ: 1208.0γ to 1^-, 1052.0γ to 3^-.
1208.85 *5*	3^-,4,5^-	C	Jπ: 454.25γ to 3^-,4^-;693.03γ to 5^-.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{188}Re Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
1217.34 *9*	$1^+,2,3,4^+$	C	Jπ: 917.09γ to 2^+, 718.0γ to 3^+.
1218.00 *16*	$(3,4)^-$	C	Jπ: 1062.0γ to 3^-, 771.55γ to 5^-.
1224.31 *9*	$3^-,4,5^-$	C	Jπ: 1054.71γ to 3^-, 707.7γ to 5^-.
1226.52 *7*	$1^+,2^+$	C	Jπ: 1018.47γ to 0^+, 726.88γ to 3^+.
1226.60 *11*	$3^-,4,5^-$	C	Jπ: 1070.9γ to 3^-, 780.43γ to 5^-.
1232.29 *11*	$2^-,3,4,5^-$	C	Jπ: 1063.0γ to 3^-, 623.38γ to 4^-.
1242.34 *15*	$2^-,3,4,5$	C	Jπ: 916.52γ to 4^-.
1247.11 *10*	$2^+,3,4,5^+$	C	Jπ: 1016.3γ to 3^+, 753.37γ to (4^+).
1249.82 *20*	$1^-,2,3,4^-$	C	Jπ: 887.20γ to 2^-, 779.5γ to 3^-.
1252.74 *15*	$1^+,2,3,4,5^+$	C	Jπ: 1021.8γ to 3^+.
1255.27 *15*	$1^-,2,3,4^-$	C	Jπ: 1049.80γ to 2^-, 938.5γ to 3^-.
1258.12 *6*	$1,2^+$	C	Jπ: 1050.19γ to 0^+, 958.2γ to 2^+.
1261.55 *4*	$2^-,3,4^-$	C	Jπ: 1055.87γ to 2^-, 652.37γ to 4^-.
1301.27 *10*	$3^-,4,5$	C	Jπ: 1014.07γ to 4^-, 784.8γ to 5^-.
1326.22 *20*	$2^-,3,4,5^-$	C	Jπ: 1156.8γ to 3^-, 1000.6γ to 4^-.
1341.83 *10*	$2^+,3,4^+$	C	Jπ: 1041.7γ to 2^+, 830.04γ to 4^+.
1345.55 *13*	$2^-,3,4,5$	C	Jπ: 883.63γ to 4^-.
1433.19 *15*	$1^-,2,3,4^-$	C	Jπ: 962.5γ to 3^-, 730.10γ to 2^-.
1448.18 *12*	$3^-,4,5$	C	Jπ: 1122.1γ to 4^-, 1108.7γ to (5^-).
1464.4 *4*	$1^-,2,3,4^-$	C	Jπ: 1101.9γ to 2^-, 1294.0γ to 3^-.
1513.74 *24*	$1^+,2,3,4^+$	C	Jπ: 1213.6γ to 2^+, 1013.99γ to 3^+.
1557.45 *18*	$1^+,2,3^+$	C	Jπ: 1203.8γ to 1^+, 1057.4γ to 3^+.
1584.45 *16*	$1,2,3,4^-$	C	Jπ: 1218.9γ to 2^-.
(5871.65 *4*)	$2^+,3^+$	C	Additional information 2. E(level): From 2017Wa10. Jπ: s-wave capture on ^{187}Re g.s. ($J^\pi=5/2^+$).

[†] From a least-squares fit to Eγ′s, unless otherwise stated.
[‡] From the measured γ-ray transition multipolarities, the observed γ-ray branches, apparent band structure and proposed configurations. Specific arguments are given with each level.
[#] Population by primary γ-ray transition from the neutron-capture state ($J^\pi=2^+,3^+$).
[@] Band(A): $K^\pi=1^-$, $\pi5/2[402]\otimes\nu3/2[512]$.
[&] Band(B): $K^\pi=1^-$, $\pi5/2[402]\otimes\nu7/2[503]$.
[a] Band(C): $K^\pi=1^-$, $\pi1/2[400]\otimes\nu3/2[512]$.
[b] Band(D): $K^\pi=1^-$, $\pi9/2[514]\otimes\nu11/2[615]$. The assignment is tentative.
[c] Band(E): $K^\pi=2^-$, $\pi5/2[402]\otimes\nu9/2[505]$.
[d] Band(F): $K^\pi=2^-$, $\pi5/2[402]\otimes\nu1/2[510]$.
[e] Band(G): $K^\pi=2^-$, $\pi1/2[400]\otimes\nu3/2[512]$.
[f] Band(H): $K^\pi=2^-$.
[g] Band(I): $K^\pi=3^-$, $\pi5/2[402]\otimes\nu1/2[510]$.
[h] Band(J): $K^\pi=4^-$, $\pi5/2[402]\otimes\nu3/2[512]$.
[i] Band(K): $K^\pi=0^+$, $\pi9/2[514]\otimes\nu9/2[505]$.
[j] Band(L): $K^\pi=1^+$, $\pi9/2[514]\otimes\nu7/2[503]$. The assignment is tentative.
[k] Band(M): $K^\pi=3^+$, $\pi9/2[514]\otimes\nu3/2[512]$.
[l] Band(N): $K^\pi=3^+$, $\pi5/2[402]\otimes\nu11/2[615]$.
[m] Band(O): $K^\pi=4^+$, $\pi9/2[514]\otimes\nu1/2[510]$.
[n] Band(P): $K^\pi=5^+$, $\pi9/2[514]\otimes\nu1/2[510]$.

Adopted Levels, Gammas (continued)

γ(^{188}Re)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[@]	Comments
63.5959	2⁻	63.583 *3*	100	0.0	1⁻	M1+E2	0.061 *23*	3.42 *10*	α(L)=2.64 *8*; α(M)=0.606 *18* α(N)=0.147 *5*; α(O)=0.0245 *7*; α(P)=0.001742 *25* B(M1)(W.u.)=0.34 *5*; B(E2)(W.u.)=1.3×10^2 *10* E_γ: Other: 63.581 keV *3* (1963Sc05) in ^{187}Re(n,γ) E=th.
156.0558	3⁻	92.464 *3*	100 *4*	63.5959	2⁻	M1+E2	0.44 *13*	6.34 *12*	α(K)=4.6 *4*; α(L)=1.30 *23*; α(M)=0.31 *6* α(N)=0.075 *14*; α(O)=0.0117 *19*; α(P)=0.00051 *5* E_γ: Other: 92.447 keV *6* (1963Sc05) in ^{187}Re(n,γ) E=th. I_γ: From ^{188}Re IT decay. Mult.: From K:L12:M=10.3:2.4:1.0 and corresponding conversion electron coefficients (1968Su01) in ^{187}Re(n,γ) E=th. δ: From subshell ratios and α(K)exp=5.9 *9*, α(L)exp=0.9 *2* (1964Ta07).
		156.050 *6*	7.4 *8*	0.0	1⁻	[E2]		0.759	α(K)=0.322 *5*; α(L)=0.330 *5*; α(M)=0.0833 *12* α(N)=0.0198 *3*; α(O)=0.00287 *4*; α(P)=2.69×10^{-5} *4* E_γ: Other: 156.03 (1968Ma14).
169.4490	3⁻	(13.3932[#] *20*)		156.0558	3⁻				E_γ: from level energy differences.
		105.8530 *3*	100.0 *18*	63.5959	2⁻	M1+E2	0.44 *19*	4.21 *15*	α(K)=3.2 *4*; α(L)=0.80 *17*; α(M)=0.19 *5* α(N)=0.046 *10*; α(O)=0.0072 *14*; α(P)=0.00034 *4* Mult.: From K:L12:M=13.1:2.2:0.9 and corresponding conversion electron coefficients (1968Su01) in ^{187}Re(n,γ) E=th. δ: From subshell ratios and α(K)exp=3.8 *5*, α(L)exp=0.7 *2* (1964Ta07). E_γ: Other: 105.960 keV *8* (1963Sc05) in ^{187}Re(n,γ) E=th.
		169.441 *5*	4.4 *4*	0.0	1⁻	[E2]		0.566	α(N)=0.01384 *20*; α(O)=0.00201 *3*; α(P)=2.20×10^{-5} *3* α(K)=0.261 *4*; α(L)=0.231 *4*; α(M)=0.0581 *9*
172.0848	6⁻	(2.636[#] *3*)	0.0019 *7*	169.4490	3⁻	(M3)		1.6×10^{12} *5*	B(M3)(W.u.)=0.024 *6* E_γ: from level energy differences. I_γ: From intensity balance in ^{188}Re IT decay. Mult.: from ce(N) observed by 1964Ta07.
		15.93 *10*	100	156.0558	3⁻	M3		1.96×10^7 *9*	α(L)=1.38×10^7 *7*; α(M)=4.51×10^6 *21* α(N)=1.12×10^6 *5*; α(O)=1.61×10^5 *8*; α(P)=1.98×10^3 *9* B(M3)(W.u.)=0.0043 *13* E_γ: From the observed M-shell conversion electron line in 1964Ta07. Mult.: from the observed ce(L3) (ce(L1) and ce(L2) were not detected) and ce(M1)/ce(M3)≈0.2 (ce(M2), ce(M4) and ce(M5) were not detected) in 1964Ta07.
182.7594	(4⁻)	(13.310[#] *3*)		169.4490	3⁻	[M1]			E_γ: from level energy differences.
		(26.704[#] *3*)		156.0558	3⁻	[M1]			E_γ: from level energy differences.

$^{188}_{75}Re_{113}$-8

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[@]	Comments
205.3539	2⁻	(35.9049[#] *16*)		169.4490	3⁻	[M1]		17.9	α(L)=13.81 *20*; α(M)=3.16 *5* α(N)=0.766 *11*; α(O)=0.1286 *18*; α(P)=0.00937 *14* E_γ: from level energy differences.
		141.7588 *5*	100.0 *14*	63.5959	2⁻	M1+E2	0.38 *23*	1.80 *13*	α(K)=1.43 *18*; α(L)=0.29 *4*; α(M)=0.067 *11* α(N)=0.0161 *24*; α(O)=0.0026 *3*; α(P)=0.000155 *21* B(M1)(W.u.)=0.00056 *10*; B(E2)(W.u.)≤3.3 Mult.: From K/L12=5.5 8 and α(K)exp=1.65 *60* (1968Su01) in ^{187}Re(n,γ) E=th. δ: From α(K)exp and K/L12.
		205.3403 *23*	34.3 *10*	0.0	1⁻	[M1]		0.674	α(K)=0.559 *8*; α(L)=0.0890 *13*; α(M)=0.0203 *3* α(N)=0.00493 *7*; α(O)=0.000829 *12*; α(P)=6.07×10^{-5} *9* B(M1)(W.u.)=7.2×10^{-5} *7*
207.8490	0⁺	207.8477 *10*	100	0.0	1⁻	E1		0.0585	B(E1)(W.u.)=5.9×10^{-6} *3* α(K)=0.0484 *7*; α(L)=0.00778 *11*; α(M)=0.001775 *25* α(N)=0.000425 *6*; α(O)=6.87×10^{-5} *10*; α(P)=4.10×10^{-6} *6* Mult.: α(K)exp=0.026 *11* (1968Su01) in ^{187}Re(n,γ) E=th.
230.9213	3⁺	61.1 *3*	48 *5*	169.4490	3⁻	[E1]		0.277 *6*	α(L)=0.214 *5*; α(M)=0.0494 *10* α(N)=0.01166 *23*; α(O)=0.00177 *4*; α(P)=7.62×10^{-5} *14* B(E1)(W.u.)=7.3×10^{-6} *8*
		74.864 *3*	60 *6*	156.0558	3⁻	(E1)		0.794	α(K)=0.635 *9*; α(L)=0.1226 *18*; α(M)=0.0282 *4* α(N)=0.00667 *10*; α(O)=0.001026 *15*; α(P)=4.75×10^{-5} *7* B(E1)(W.u.)=5.0×10^{-6} *5*
		167.3258 *6*	100.0 *13*	63.5959	2⁻	E1		0.1016	α(K)=0.0838 *12*; α(L)=0.01378 *20*; α(M)=0.00315 *5* α(N)=0.000753 *11*; α(O)=0.0001206 *17*; α(P)=6.90×10^{-6} *10* B(E1)(W.u.)=7.4×10^{-7} *6*
256.9316	2⁻	87.481[&] *3*	13.9[&] *21*	169.4490	3⁻	M1		7.59	α(K)=6.27 *9*; α(L)=1.015 *15*; α(M)=0.232 *4* α(N)=0.0563 *8*; α(O)=0.00945 *14*; α(P)=0.000690 *10* Mult.: α(K)exp=10.5 *35*, α(L1)exp=3.2 *14* (1968Su01) in ^{187}Re(n,γ) E=th.
		193.3382 *14*	98.6 *21*	63.5959	2⁻	M1(+E2)	<1.8	0.63 *17*	α(K)=0.48 *19*; α(L)=0.115 *11*; α(M)=0.027 *4* α(N)=0.0066 *8*; α(O)=0.00104 *7*; α(P)=5.0×10^{-5} *22* Mult.: α(K)exp=0.56 *26* (1968Su01) in ^{187}Re(n,γ) E=th.
		256.924 *3*	100 *5*	0.0	1⁻	M1+E2	1.4 *6*	0.216 *61*	α(K)=0.160 *59*; α(L)=0.0436 *19*; α(M)=0.01048 *24* α(N)=0.00252 *7*; α(O)=0.000392 *23*; α(P)=1.63×10^{-5} *68* Mult.: α(K)exp=0.16 *3* (1968Su01) in ^{187}Re(n,γ) E=th.
287.1310	4⁻	117.679[&] *5*	6.7[&] *10*	169.4490	3⁻	[M1]		3.24	α(K)=2.69 *4*; α(L)=0.431 *6*; α(M)=0.0986 *14* α(N)=0.0239 *4*; α(O)=0.00402 *6*; α(P)=0.000293 *5*
		131.0755 *10*	100 *3*	156.0558	3⁻	M1		2.38	α(K)=1.97 *3*; α(L)=0.317 *5*; α(M)=0.0724 *11* α(N)=0.01756 *25*; α(O)=0.00295 *5*; α(P)=0.000216 *3* Mult.: α(L1)exp=0.41 *21* (1968Su01) in ^{187}Re(n,γ) E=th.
		223.527 *14*	22 *3*	63.5959	2⁻	[E2]		0.221	α(K)=0.1260 *18*; α(L)=0.0721 *11*; α(M)=0.0180 *3* α(N)=0.00429 *6*; α(O)=0.000632 *9*; α(P)=1.113×10^{-5} *16*

$^{188}_{75}Re_{113}$-9

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	α@	Comments
290.6736	1⁻	85.32 *3*	0.76 *16*	205.3539	2⁻	[M1]		8.15	α(K)=6.74 *10*; α(L)=1.091 *16*; α(M)=0.250 *4* α(N)=0.0605 *9*; α(O)=0.01017 *15*; α(P)=0.000742 *11* I_γ: Other: 0.60 *20* from ^{188}W β^- decay.
		227.0731 *8*	47.2 *10*	63.5959	2⁻	M1(+E2)	<0.4	0.489 *22*	α(K)=0.402 *22*; α(L)=0.0673 *10*; α(M)=0.01547 *24* α(N)=0.00375 *6*; α(O)=0.000624 *9*; α(P)=4.3×10^{-5} *3* I_γ: Other: 56.59 *23* from ^{188}W β^- decay. Mult.: α(K)exp=0.42 *4*, α(L1)exp+α(L2)exp=0.068 *15*. δ: ≤ 0.4 from K/L12=6.2 13 and α(K)=0.42 4 (1968Su01) in ^{187}Re(n,γ) E=th.
		290.6828 *12*	100.0 *20*	0.0	1⁻	M1+E2	0.42 *17*	0.235 *18*	α(K)=0.193 *17*; α(L)=0.0328 *10*; α(M)=0.00756 *19* α(N)=0.00183 *5*; α(O)=0.000304 *11*; α(P)=2.07×10^{-5} *19* Mult.: α(K)exp=0.189 14, α(L1)exp+α(L2)exp=0.026 *3* (1968Su01) in ^{187}Re(n,γ) E=th. δ: from K/(L1+L2)=7.3 10 and α(K)exp=0.189 *14*.
300.2094	2⁺	92.355 *3*	14.1 *21*	207.8490	0⁺	[E2]		5.70	α(K)=0.935 *13*; α(L)=3.60 *5*; α(M)=0.915 *13* α(N)=0.217 *3*; α(O)=0.0309 *5*; α(P)=9.33×10^{-5} *13* B(E2)(W.u.)=50 *8*
		144.1550 *21*	6.3 *7*	156.0558	3⁻	[E1]		0.1491	α(K)=0.1226 *18*; α(L)=0.0205 *3*; α(M)=0.00469 *7* α(N)=0.001121 *16*; α(O)=0.0001785 *25*; α(P)=9.88×10^{-6} *14* B(E1)(W.u.)=1.17×10^{-6} *21*
		236.65 *3*	100.0 *6*	63.5959	2⁻	(E1)		0.0422	α(K)=0.0351 *5*; α(L)=0.00557 *8*; α(M)=0.001268 *18* α(N)=0.000304 *5*; α(O)=4.94×10^{-5} *7*; α(P)=3.02×10^{-6} *5* B(E1)(W.u.)=4.2×10^{-6} *6* Mult.: α(K)exp=0.073 *19* (1968Su01) in ^{187}Re(n,γ) E=th.
		300.20 *6*	41.0 *3*	0.0	1⁻	[E1]		0.0236	α(K)=0.0197 *3*; α(L)=0.00306 *5*; α(M)=0.000696 *10* α(N)=0.0001673 *24*; α(O)=2.73×10^{-5} *4*; α(P)=1.737×10^{-6} *25* B(E1)(W.u.)=8.4×10^{-7} *13*
316.9370	3⁻	111.5835 *9*	100 *4*	205.3539	2⁻	(M1)		3.78	α(K)=3.13 *5*; α(L)=0.503 *7*; α(M)=0.1149 *16* α(N)=0.0279 *4*; α(O)=0.00468 *7*; α(P)=0.000342 *5* Mult.: α(K)exp(111.59γ+111.68γ)=3.3 *4* (1968Su01) in ^{187}Re(n,γ) E=th.
		147.452 *22*	6 *3*	169.4490	3⁻	[M1]		1.707	α(K)=1.414 *20*; α(L)=0.226 *4*; α(M)=0.0518 *8* α(N)=0.01255 *18*; α(O)=0.00211 *3*; α(P)=0.0001542 *22*
325.8761	4⁻	143.118 *3*	20.2 *13*	182.7594	(4⁻)	[M1]		1.86	α(K)=1.539 *22*; α(L)=0.246 *4*; α(M)=0.0563 *8* α(N)=0.01366 *20*; α(O)=0.00230 *4*; α(P)=0.0001678 *24*
		156.4267 *12*	100 *3*	169.4490	3⁻	M1(+E2)	0.3 *3*	1.39 *13*	α(K)=1.12 *16*; α(L)=0.203 *25*; α(M)=0.047 *7* α(N)=0.0114 *17*; α(O)=0.00187 *20*; α(P)=0.000122 *19* Mult.,δ: α(K)exp=1.13 *15* (1968Su01) in ^{187}Re(n,γ) E=th.
		169.816 *16*	4.7 *12*	156.0558	3⁻	[M1]		1.146	α(K)=0.950 *14*; α(L)=0.1518 *22*; α(M)=0.0347 *5* α(N)=0.00841 *12*; α(O)=0.001413 *20*; α(P)=0.0001034 *15*
339.956	(5⁻)	157.1971 *17*	100	182.7594	(4⁻)	M1+E2	1.1 *8*	1.05 *32*	α(K)=0.71 *41*; α(L)=0.26 *6*; α(M)=0.064 *18* α(N)=0.0153 *41*; α(O)=0.0023 *5*; α(P)=7.3×10^{-5} *48* Mult.,δ: α(K)exp=0.7 *4* (1968Su01) in ^{187}Re(n,γ) E=th.

$^{188}_{75}Re_{113}$-10

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	α@	Comments
342.5947	4+	111.6733 *9*	100	230.9213	3+	(M1)		3.77	α(K)=3.12 *5*; α(L)=0.501 *7*; α(M)=0.1146 *16* α(N)=0.0278 *4*; α(O)=0.00467 *7*; α(P)=0.000341 *5* Mult.: α(K)exp(111.59γ+111.67γ)=3.3 *4* (1968Su01) in ^{187}Re(n,γ) E=th.
353.5741	(1+)	53.439 *12*	3.8 *13*	300.2094	2+	[M1+E2]		5.54	α(L)=4.28 *6*; α(M)=0.979 *14* α(N)=0.237 *4*; α(O)=0.0399 *6*; α(P)=0.00291 *4*
		145.7241 *11*	100 *3*	207.8490	0+	(M1)		1.765	α(K)=1.462 *21*; α(L)=0.234 *4*; α(M)=0.0535 *8* α(N)=0.01298 *19*; α(O)=0.00218 *3*; α(P)=0.0001594 *23* Mult.: α(K)exp=0.97 *18* (1968Su01) in ^{187}Re(n,γ) E=th. δ: 0.9 *4* from α(K)exp=0.97 *18* (1968Su01) in ^{187}Re(n,γ) E=th., but the value is inconsistent with a 1+ to 0+ transition, which should be a pure M1.
360.8959	5+	129.9797 *24*	8.4 *6*	230.9213	3+	[E2]		1.486	α(K)=0.501 *7*; α(L)=0.745 *11*; α(M)=0.189 *3* α(N)=0.0449 *7*; α(O)=0.00644 *9*; α(P)=4.17×10^{-5} *6* B(E2)(W.u.)=2.4 *3*
		178.1359 *22*	21.7 *8*	182.7594	(4−)	[E1]		0.0866	α(K)=0.0715 *10*; α(L)=0.01167 *17*; α(M)=0.00266 *4* α(N)=0.000638 *9*; α(O)=0.0001024 *15*; α(P)=5.94×10^{-6} *9* B(E1)(W.u.)=9.5×10^{-7} *11*
		188.8109 *9*	100.0 *14*	172.0848	6−	E1		0.0746	α(K)=0.0617 *9*; α(L)=0.01001 *14*; α(M)=0.00228 *4* α(N)=0.000547 *8*; α(O)=8.80×10^{-5} *13*; α(P)=5.16×10^{-6} *8* B(E1)(W.u.)=3.7×10^{-6} *4* Mult.: α(K)exp≤0.13.
362.731	2−	72.060 *20*	71 *7*	290.6736	1−	[M1]			
		206.673 *11*	9.2 *11*	156.0558	3−	[M1]		0.662	α(K)=0.549 *8*; α(L)=0.0874 *13*; α(M)=0.0200 *3* α(N)=0.00484 *7*; α(O)=0.000814 *12*; α(P)=5.96×10^{-5} *9*
		299.109 *12*	33.9 *24*	63.5959	2−	M1(+E2)	<1.3	0.19 *5*	α(K)=0.155 *45*; α(L)=0.029 *3*; α(M)=0.0067 *5* α(N)=0.00162 *13*; α(O)=0.00027 *3*; α(P)=1.65×10^{-5} *51* Mult.,δ: α(K)exp=0.33 *17* (1968Su01) in ^{187}Re(n,γ) E=th.
		362.68 *13*	100 *7*	0.0	1−	M1+E2	1.2 *+31−7*	0.089 *36*	α(K)=0.070 *33*; α(L)=0.014 *3*; α(M)=0.0034 *6* α(N)=0.00082 *14*; α(O)=0.00013 *3*; α(P)=7.3×10^{-6} *37* Mult.,δ: α(K)exp=0.07 *3* (1968Su01) in ^{187}Re(n,γ) E=th.
372.0803	3−	115.1487 *9*	79 *3*	256.9316	2−	M1(+E2)	<1.5	3.1 *4*	α(K)=2.09 *77*; α(L)=0.75 *29*; α(M)=0.182 *78* α(N)=0.044 *19*; α(O)=0.0067 *24*; α(P)=2.23×10^{-4} *89* Mult.,δ: α(K)exp=2.2 *8* (1968Su01) in ^{187}Re(n,γ) E=th.
		166.729 *14*	9.9 *22*	205.3539	2−				
		189.330 *10*	11.5 *16*	182.7594	(4−)				
		202.630 *16*	10.5 *19*	169.4490	3−				
		216.021 *7*	100 *7*	156.0558	3−				
		308.44 *3*	24 *3*	63.5959	2−				
		372.35 *13*	20 *5*	0.0	1−				
391.36		(30.46# *4*)	100	360.8959	5+				E_γ: From level energy differences.
439.7623	(3)+	208.8408 *22*	100 *3*	230.9213	3+	M1+E2	0.77 *+24−21*	0.51 *5*	α(K)=0.39 *6*; α(L)=0.0888 *19*; α(M)=0.0210 *7*

$^{188}_{75}Re_{113}$-11

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ‡	α@	Comments
									α(N)=0.00507 *15*; α(O)=0.000807 *13*; α(P)=4.1×10^{-5} *6* Mult.,δ: α(K)exp=0.39 *5* (1968Su01) in ^{187}Re(n,γ) E=th.
439.7623	(3)$^+$	234.412 *20*	1.9 *6*	205.3539	2$^-$				
446.348	5$^-$	159.217 *3*	100 *5*	287.1310	4$^-$				
		290.274 *25*	30 *9*	156.0558	3$^-$				
462.0875	4$^-$	145.1505 *14*	100 *3*	316.9370	3$^-$	M1+E2	0.9 *4*	1.43 *20*	α(K)=0.99 *27*; α(L)=0.33 *6*; α(M)=0.081 *15* α(N)=0.019 *4*; α(O)=0.0030 *5*; α(P)=1.03×10^{-4} *32* Mult.,δ: α(K)exp=0.97 *18* (1968Su01) in ^{187}Re(n,γ) E=th.
		256.54 *4*	5 *3*	205.3539	2$^-$				
		306.03 *7*	6 *3*	156.0558	3$^-$				
470.154	3$^-$	107.4218 *11*	100 *5*	362.731	2$^-$	M1(+E2)	<0.7	4.03 *20*	α(K)=3.0 *5*; α(L)=0.76 *20*; α(M)=0.181 *54* α(N)=0.044 *13*; α(O)=0.0069 *17*; α(P)=0.00033 *6* Mult.,δ: α(K)exp=3.5 *9* (1968Su01) in ^{187}Re(n,γ) E=th.
		183.062 *19*	6.0 *15*	287.1310	4$^-$				
		213.28 *9*	2.7 *7*	256.9316	2$^-$				
		264.75 *14*	5.4 *18*	205.3539	2$^-$				
		406.58 *13*	11 *4*	63.5959	2$^-$				
482.1429	2$^+$	128.5675 *21*	12.6 *9*	353.5741	(1$^+$)	[M1]		2.52	α(K)=2.09 *3*; α(L)=0.335 *5*; α(M)=0.0765 *11* α(N)=0.0186 *3*; α(O)=0.00312 *5*; α(P)=0.000228 *4* B(M1)(W.u.)=0.0014 *6*
		181.9314 *18*	39.0 *11*	300.2094	2$^+$	[M1]		0.945	α(K)=0.783 *11*; α(L)=0.1250 *18*; α(M)=0.0286 *4* α(N)=0.00693 *10*; α(O)=0.001164 *17*; α(P)=8.52×10^{-5} *12* B(M1)(W.u.)=0.0015 *6*
		251.226 *3*	100 *3*	230.9213	3$^+$	M1+E2	0.9 *4*	0.28 *6*	α(K)=0.218 *57*; α(L)=0.0483 *16*; α(M)=0.01143 *19* α(N)=0.00275 *6*; α(O)=0.000439 *20*; α(P)=2.29×10^{-5} *66* B(M1)(W.u.)=0.0008 *5*; B(E2)(W.u.)=4 *3* Mult.,δ: α(K)exp=0.22 *4* (1968Su01) in ^{187}Re(n,γ) E=th.
		274.31 *8*	68.6 *22*	207.8490	0$^+$	E2		0.1155	α(K)=0.0733 *11*; α(L)=0.0321 *5*; α(M)=0.00793 *12* α(N)=0.00190 *3*; α(O)=0.000283 *4*; α(P)=6.73×10^{-6} *10* B(E2)(W.u.)=4.2 *17* Mult.: α(K)exp=0.19 *3* (1968Su01) in ^{187}Re(n,γ) E=th.
		276.809 *18*	8.3 *9*	205.3539	2$^-$	[E1]		0.0287	α(K)=0.0239 *4*; α(L)=0.00374 *6*; α(M)=0.000852 *12* α(N)=0.000205 *3*; α(O)=3.34×10^{-5} *5*; α(P)=2.09×10^{-6} *3* B(E1)(W.u.)=9×10^{-7} *4*
		312.716 *12*	18 *3*	169.4490	3$^-$	[E1]		0.0214	α(K)=0.01784 *25*; α(L)=0.00277 *4*; α(M)=0.000629 *9* α(N)=0.0001513 *22*; α(O)=2.48×10^{-5} *4*; α(P)=1.583×10^{-6} *23* B(E1)(W.u.)=1.3×10^{-6} *6*
		482.17 *3*	4.2 *9*	0.0	1$^-$	[E1]		0.00798	α(K)=0.00669 *10*; α(L)=0.001003 *14*; α(M)=0.000227 *4* α(N)=5.48×10^{-5} *8*; α(O)=9.06×10^{-6} *13*; α(P)=6.14×10^{-7} *9* B(E1)(W.u.)=8×10^{-8} *4*
483.5598	(5)$^+$	140.9651 *18*	100	342.5947	4$^+$	M1		1.94	α(K)=1.606 *23*; α(L)=0.257 *4*; α(M)=0.0588 *9* α(N)=0.01427 *20*; α(O)=0.00240 *4*; α(P)=0.0001752 *25* Mult.: α(K)exp=1.9 *8* (1968Su01) in ^{187}Re(n,γ) E=th.

$^{188}_{75}Re_{113}$-12

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[@]	Comments
493.716	(4$^+$)	132.8210 *20*	52 *3*	360.8959	5$^+$				
		151.2 *3*	19 *4*	342.5947	4$^+$				
		262.796 *7*	100 *5*	230.9213	3$^+$				
499.7402	3$^+$	199.5307 *11*	100	300.2094	2$^+$	M1+E2	0.82 *17*	0.57 *5*	α(K)=0.43 *5*; α(L)=0.1040 *25*; α(M)=0.0248 *8* α(N)=0.00596 *19*; α(O)=0.000942 *18*; α(P)=4.5×10^{-5} *6* Mult.,δ: α(K)exp=0.43 *4* (1968Su01) in ^{187}Re(n,γ) E=th.
511.720	4$^+$	(11.980[#] *4*)		499.7402	3$^+$				E$_\gamma$: From level energy differences.
		211.510 *3*	100	300.2094	2$^+$				
516.247	5$^-$	190.371 *3*	100 *4*	325.8761	4$^-$	M1(+E2)	<1.2	0.70 *14*	α(K)=0.54 *15*; α(L)=0.119 *9*; α(M)=0.028 *3* α(N)=0.0068 *7*; α(O)=0.00108 *6*; α(P)=5.8×10^{-5} *18* Mult.,δ: α(K)exp=1.0 *5* (1968Su01) in ^{187}Re(n,γ) E=th.
		346.776 *17*	9.9 *21*	169.4490	3$^-$				
523.0514	4$^-$	150.9708 *20*	100 *4*	372.0803	3$^-$				
		197.178 *12*	14.7 *19*	325.8761	4$^-$				
		206.14 *6*	2.8 *19*	316.9370	3$^-$				
		235.925 *18*	29 *4*	287.1310	4$^-$				
		266.4 *3*	9.4 *16*	256.9316	2$^-$				
		340.34 *6*	7.8 *19*	182.7594	(4$^-$)				
		353.7 *5*	9.1 *19*	169.4490	3$^-$				
		459.46 *4*	10 *3*	63.5959	2$^-$				
550.846	3$^+$,4,5$^+$	189.951 *4*	100 *5*	360.8959	5$^+$				
		319.87 *3*	13 *5*	230.9213	3$^+$				
554.329	(4)$^+$	114.67 *10*	100	439.7623	(3)$^+$	M1+E2	1.3 *+25−7*	2.8 *4*	α(K)=1.49 *82*; α(L)=1.00 *31*; α(M)=0.250 *83* α(N)=0.060 *20*; α(O)=0.0087 *26*; α(P)=1.53×10^{-4} *95* Mult.,δ: α(K)exp=1.5 *7* (1968Su01) in ^{187}Re(n,γ) E=th.
558.240	(4,5)$^-$	218.27 *5*	4.9 *21*	339.956	(5$^-$)				
		232.354 *5*	26 *3*	325.8761	4$^-$				
		241.308 *13*	14 *3*	316.9370	3$^-$				
		271.08 *3*	9.1 *19*	287.1310	4$^-$				
		375.455 *11*	100 *4*	182.7594	(4$^-$)				
		386.167 *9*	39 *4*	172.0848	6$^-$				
		388.87 *9*	3.0 *23*	169.4490	3$^-$				
		402.18 *4*	4.2 *16*	156.0558	3$^-$				
575.724	3$^+$	93.63 *20*	13.0 *12*	482.1429	2$^+$	M1(+E2)	<1.6	5.9 *4*	α(K)=3.6 *16*; α(L)=1.75 *92*; α(M)=0.43 *24* α(N)=0.103 *57*; α(O)=0.0154 *77*; α(P)=4.0×10^{-4} *18* Mult.,δ: α(K)exp=3.8 *16* (1968Su01) in ^{187}Re(n,γ) E=th.
		275.513 *4*	100 *5*	300.2094	2$^+$				
		344.72 *15*	4.6 *5*	230.9213	3$^+$				
		406.223 *18*	11.8 *18*	169.4490	3$^-$				
582.160	1$^-$	219.430 *3*	73 *3*	362.731	2$^-$	M1+E2	0.9 *3*	0.41 *6*	α(K)=0.32 *6*; α(L)=0.0757 *13*; α(M)=0.0180 *6* α(N)=0.00434 *12*; α(O)=0.000686 *10*; α(P)=3.3×10^{-5} *8* B(M1)(W.u.)>0.0010; B(E2)(W.u.)>6.1

$^{188}_{75}Re_{113}$-13

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[@]	Comments
									Mult.: α(K)exp=0.43 *7*, α(L1)exp+α(L2)exp=0.088 *16* (1968Su01) in ^{187}Re(n,γ) E=th.
									δ: from K/(L1+L2)=4.9 6 (1968Su01) in ^{187}Re(n,γ) E=th.
582.160	1$^-$	228.573 *24*	5.0 *10*	353.5741	(1$^+$)	[E1]		0.0461	α(K)=0.0382 *6*; α(L)=0.00609 *9*; α(M)=0.001387 *20* α(N)=0.000333 *5*; α(O)=5.39×10^{-5} *8*; α(P)=3.28×10^{-6} *5* B(E1)(W.u.)>1.5×10^{-6}
		291.480 *4*	100 *3*	290.6736	1$^-$	[M1]		0.258	α(K)=0.214 *3*; α(L)=0.0338 *5*; α(M)=0.00771 *11* α(N)=0.00187 *3*; α(O)=0.000315 *5*; α(P)=2.31×10^{-5} *4* B(M1)(W.u.)>0.0015
		374.51 *4*	4.4 *8*	207.8490	0$^+$	[E1]		0.01404	α(K)=0.01173 *17*; α(L)=0.00179 *3*; α(M)=0.000407 *6* α(N)=9.80×10^{-5} *14*; α(O)=1.611×10^{-5} *23*; α(P)=1.057×10^{-6} *15* B(E1)(W.u.)>2.9×10^{-7}
		376.85 *18*	3.9 *8*	205.3539	2$^-$	[M1]		0.1290	α(K)=0.1073 *15*; α(L)=0.01683 *24*; α(M)=0.00384 *6* α(N)=0.000931 *13*; α(O)=0.0001567 *22*; α(P)=1.153×10^{-5} *17* B(M1)(W.u.)>2.7×10^{-5}
		425.95 *22*	16 *4*	156.0558	3$^-$	[E2]		0.0329	α(K)=0.0241 *4*; α(L)=0.00672 *10*; α(M)=0.001618 *23* α(N)=0.000388 *6*; α(O)=6.02×10^{-5} *9*; α(P)=2.36×10^{-6} *4* B(E2)(W.u.)>0.17
		518.61 *15*	23.8 *13*	63.5959	2$^-$	[M1]		0.0556	α(K)=0.0463 *7*; α(L)=0.00720 *10*; α(M)=0.001640 *23* α(N)=0.000398 *6*; α(O)=6.70×10^{-5} *10*; α(P)=4.95×10^{-6} *7* B(M1)(W.u.)>6.4×10^{-5}
		581.9 *3*	8.1 *8*	0.0	1$^-$	[M1]		0.0413	α(K)=0.0344 *5*; α(L)=0.00532 *8*; α(M)=0.001212 *17* α(N)=0.000294 *5*; α(O)=4.95×10^{-5} *7*; α(P)=3.67×10^{-6} *6* B(M1)(W.u.)>1.5×10^{-5}
608.891	4$^-$	138.7373 *17*	100 *4*	470.154	3$^-$	M1+E2	<4	1.62 *41*	α(K)=1.09 *59*; α(L)=0.40 *14*; α(M)=0.099 *38* α(N)=0.0237 *88*; α(O)=0.0036 *11*; α(P)=1.14×10^{-4} *70* Mult.,δ: α(K)exp=1.5 *10* (1968Su01) in ^{187}Re(n,γ) E=th.
		236.79 *9*	10 *3*	372.0803	3$^-$				
		291.97 *6*	8 *6*	316.9370	3$^-$				
		321.73 *6*	11 *6*	287.1310	4$^-$				
		439.48 *7*	29 *5*	169.4490	3$^-$				
		452.81 *6*	28 *8*	156.0558	3$^-$				
609.008	(1$^-$)	246.259 *24*	27 *5*	362.731	2$^-$				
		318.30 *8*	39 *8*	290.6736	1$^-$				
		352.082 *6*	69 *6*	256.9316	2$^-$				
		403.627 *23*	22 *4*	205.3539	2$^-$				
		545.36 *3*	24 *4*	63.5959	2$^-$				
		608.986 *20*	100 *9*	0.0	1$^-$				
611.635	(1,2)	(2.627[#] *12*)		609.008	(1$^-$)				E_γ: From level energy differences.
		(29.475[#] *11*)		582.160	1$^-$				E_γ: From level energy differences.
		320.962 *15*	100	290.6736	1$^-$				
628.859	(2)$^-$	46.692 *8*	26 *5*	582.160	1$^-$	M1(+E2)		8.24	α(L)=6.37 *9*; α(M)=1.456 *21*

$^{188}_{75}Re_{113}$-14

Adopted Levels, Gammas (continued)

$\gamma(^{188}Re)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Comments
						α(N)=0.353 *5*; α(O)=0.0593 *9*; α(P)=0.00432 *6*
						Mult.: α(L1)exp+α(L2)exp=17 *14*, α(L3)exp=3.8 *28* (1968Su01) in ^{187}Re(n,γ) E=th.
628.859	$(2)^-$	158.710 *5*	28.3 *25*	470.154	3^-	
		266.6 *3*	25.1 *21*	362.731	2^-	
		338.19 *5*	100.0 *25*	290.6736	1^-	
		372.1 *5*	7.1 *21*	256.9316	2^-	
		423.49 *5*	12 *3*	205.3539	2^-	
		565.3 *3*	38 *4*	63.5959	2^-	
		628.86 *5*	23 *5*	0.0	1^-	
641.058	(5^-)	178.77 *13*	100 *50*	462.0875	4^-	
		268.85 *8*	18 *9*	372.0803	3^-	
644.99	$1,2^+$	282.8 *3*	24 *9*	362.731	2^-	
		354.30 *3*	100 *9*	290.6736	1^-	
		437.58 *24*	19 *5*	207.8490	0^+	
		644.99 *7*	62 *14*	0.0	1^-	
647.305	2^-	65.137 *18*	55 *5*	582.160	1^-	
		177.153 *5*	24.4 *20*	470.154	3^-	
		275.237 *14*	24 *5*	372.0803	3^-	
		284.570 *7*	100 *5*	362.731	2^-	
		390.27 *9*	2.6 *17*	256.9316	2^-	
		441.97 *3*	36 *6*	205.3539	2^-	
		491.29 *3*	13 *3*	156.0558	3^-	
		583.7 *4*	14 *3*	63.5959	2^-	
		647.29 *8*	13 *3*	0.0	1^-	
654.794	(5^+)	161.078 *4*	100 *8*	493.716	(4^+)	
		294.26 *16*	40 *12*	360.8959	5^+	
656.835	$3^+,4,5^+$	102.51 *2*	6.8 *21*	554.329	$(4)^+$	
		163.150 *14*	14 *3*	493.716	(4^+)	
		217.07 *11*	100 *16*	439.7623	$(3)^+$	
		295.99 *8*	12 *4*	360.8959	5^+	
		425.91 *5*	23 *6*	230.9213	3^+	
680.123	(2^-)	317.2 *3*	59 *7*	362.731	2^-	
		363.15 *3*	52 *12*	316.9370	3^-	
		389.421 *24*	100 *7*	290.6736	1^-	
		423.24 *5*	12 *3*	256.9316	2^-	
		474.90 *4*	79 *14*	205.3539	2^-	
		524.16 *15*	51 *11*	156.0558	3^-	
695.559	(5^+)	141.230 *5*	100	554.329	$(4)^+$	
701.407	$0^-,1,2,3^-$	92.52 *14*	100 *23*	609.008	(1^-)	
		119.247 *6*	42 *7*	582.160	1^-	
703.456	4^+	127.733 *3*	100 *8*	575.724	3^+	
		191.76 *3*	11 *3*	511.720	4^+	
		221.30 *4*	16 *6*	482.1429	2^+	

$^{188}_{75}Re_{113}$-15

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
703.456	4^+	263.69 *8*	10 *5*	439.7623	$(3)^+$
704.17	(2^-)	75.2 *2*	100	628.859	$(2)^-$
708.691	5^-	185.639 *5*	100 *7*	523.0514	4^-
		246.60 *3*	19 *9*	462.0875	4^-
		262.29 *4*	29 *8*	446.348	5^-
		336.626 *22*	23 *6*	372.0803	3^-
		368.93 *8*	23 *7*	339.956	(5^-)
719.642	$3^+,4,5^+$	358.739 *10*	100 *4*	360.8959	5^+
		376.49 *42*	6 *5*	342.5947	4^+
		488.5 *4*	17 *5*	230.9213	3^+
723.187	$1^-,2,3^-$	114.5 *3*	15 *5*	609.008	(1^-)
		252.952 *21*	50 *8*	470.154	3^-
		360.423 *18*	100 *8*	362.731	2^-
		406.47 *6*	26 *3*	316.9370	3^-
		432.76 *10*	45 *4*	290.6736	1^-
		517.78 *4*	36 *8*	205.3539	2^-
734.913	1,2	123.278 *8*	51 *12*	611.635	(1,2)
		444.22 *9*	100 *21*	290.6736	1^-
		529.85 *22*	63 *9*	205.3539	2^-
737.031	$(3)^-$	108.176 *7*	8.2 *24*	628.859	$(2)^-$
		128.124 *14*	4.0 *15*	608.891	4^-
		179.1 *4*	6.7 *12*	558.240	$(4,5)^-$
		213.97 *4*	4.9 *18*	523.0514	4^-
		266.84 *3*	13.7 *24*	470.154	3^-
		374.2 *4*	4.0 *12*	362.731	2^-
		411.6 *3*	3.9 *7*	325.8761	4^-
		449.91 *7*	5.8 *3*	287.1310	4^-
		480.12 *4*	13 *3*	256.9316	2^-
		554.26 *9*	100 *5*	182.7594	(4^-)
		673.64 *13*	14 *5*	63.5959	2^-
739.21	(6^-)	222.96 *4*	100	516.247	5^-
739.816	$3^-,4,5^-$	181.558 *8*	46 *5*	558.240	$(4,5)^-$
		399.90 *3*	25 *7*	339.956	(5^-)
		414.03 *12*	22.5 *18*	325.8761	4^-
		423.10 *3*	34 *6*	316.9370	3^-
		557.09 *5*	100 *23*	182.7594	(4^-)
745.22	2,3,4	575.57 *19*	100 *16*	169.4490	3^-
		589.48 *24*	97 *29*	156.0558	3^-
748.130	$2,3,4^-$	277.96 *3*	97 *16*	470.154	3^-
		385.40 *3*	47 *14*	362.731	2^-
		542.91 *10*	100 *6*	205.3539	2^-
750.067	$2^+,3,4$	238.356 *10*	100 *10*	511.720	4^+
		407.16 *6*	8 *5*	342.5947	4^+
754.593	$3^-,4^-$	113.533 *9*	8 *3*	641.058	(5^-)
		196.353 *4*	100 *6*	558.240	$(4,5)^-$
		437.81 *13*	47 *5*	316.9370	3^-
		549.30 *3*	45 *7*	205.3539	2^-
		572.10 *23*	22 *7*	182.7594	(4^-)
756.598	$1^+,2,3^-$	274.43 *4*	100.0 *20*	482.1429	2^+
		393.83 *9*	6.7 *17*	362.731	2^-
		456.50 *7*	12.9 *7*	300.2094	2^+
		465.96 *4*	8.3 *19*	290.6736	1^-
		499.61 *4*	25 *4*	256.9316	2^-
		525.90 *14*	8.5 *9*	230.9213	3^+
781.899	5^-	141.2 *7*	≤29	641.058	(5^-)
		173.008 *5*	100 *7*	608.891	4^-
782.804	(3^-)	102.8 *4*	100 *40*	680.123	(2^-)
		135.494 *8*	16 *3*	647.305	2^-
		420.087 *18*	38 *6*	362.731	2^-
		577.46 *3*	55 *7*	205.3539	2^-
791.523	$1^-,2,3^-$	321.38 *4*	15 *9*	470.154	3^-
		428.73 *5*	92 *13*	362.731	2^-
		474.7 *3*	28 *6*	316.9370	3^-
		501.01 *10*	70 *5*	290.6736	1^-
		586.25 *5*	100 *6*	205.3539	2^-
798.38	(3^-)	94.21 *3*	100	704.17	(2^-)
799.551	5^+	248.8 *3*	14 *6*	550.846	$3^+,4,5^+$
		287.815 *15*	100 *8*	511.720	4^+
		300.2 *2*	80 *16*	499.7402	3^+
		438.70 *3*	26 *6*	360.8959	5^+
800.453	$2^-,3,4^-$	191.535 *22*	22 *6*	608.891	4^-
		330.27 *7*	24 *6*	470.154	3^-
		428.45 *5*	18 *9*	372.0803	3^-
		437.83 *6*	100 *9*	362.731	2^-
807.632	$1^+,2^+$	231.894 *16*	3.3 *10*	575.724	3^+
		325.492 *20*	11.6 *11*	482.1429	2^+
		454.25 *6*	8.7 *3*	353.5741	(1^+)
		507.394 *25*	11.0 *16*	300.2094	2^+
		599.80 *4*	9.8 *16*	207.8490	0^+
		602.45 *8*	100 *10*	205.3539	2^-
810.535	$3^+,4^+$	234.50 *4*	17 *5*	575.724	3^+
		317.21 *21*	7 *4*	493.716	(4^+)
		328.36 *6*	10 *3*	482.1429	2^+
		370.55 *7*	17 *3*	439.7623	$(3)^+$
		419.48 *10*	5 *3*	391.36	
		449.78 *2*	100 *9*	360.8959	5^+

$^{188}_{75}Re_{113}$-16

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
810.535	$3^+,4^+$	579.543 *19*	93 *8*	230.9213	3^+
		641.05 *6*	26 *6*	169.4490	3^-
813.00	$1,2,3^-$	450.27 *25*	40 *7*	362.731	2^-
		522.33 *3*	69 *12*	290.6736	1^-
		607.64 *9*	100 *22*	205.3539	2^-
817.684	$1^+,2,3,4^+$	241.941 *17*	61 *17*	575.724	3^+
		318.16 *17*	38 *6*	499.7402	3^+
		335.510 *23*	100 *11*	482.1429	2^+
822.813	$1,2,3^-$	142.701 *13*	13 *4*	680.123	(2^-)
		565.56 *10*	100 *4*	256.9316	2^-
		758.69 *19*	45 *15*	63.5959	2^-
		822.32 *20*	32.2 *18*	0.0	1^-
831.835	$2^-,3^-$	273.539 *25*	32 *4*	558.240	$(4,5)^-$
		541.11 *5*	17 *4*	290.6736	1^-
		626.58 *3*	100 *4*	205.3539	2^-
		831.8 *8*	24 *6*	0.0	1^-
851.88	$3,4^-$	293.5 *3*	17 *3*	558.240	$(4,5)^-$
		389.77 *3*	36 *10*	462.0875	4^-
		526.1 *4*	11 *3*	325.8761	4^-
		646.64 *7*	75 *6*	205.3539	2^-
		669.25 *20*	100 *9*	182.7594	(4^-)
		682.38 *13*	47 *17*	169.4490	3^-
854.365	$3^+,4,5$	197.561 *15*	75 *12*	656.835	$3^+,4,5^+$
		341.81 *11*	98 *15*	511.720	4^+
		492.8 *1*	100 *10*	360.8959	5^+
859.233	$2^-,3^-$	179.1 *4*	5.3 *10*	680.123	(2^-)
		487.24 *5*	38 *11*	372.0803	3^-
		496.48 *3*	78 *14*	362.731	2^-
		542.3 *7*	6.4 *15*	316.9370	3^-
		568.62 *21*	30.0 *16*	290.6736	1^-
		572.4 *7*	6.35 *14*	287.1310	4^-
		602.19 *9*	100 *5*	256.9316	2^-
		676.42 *11*	90 *3*	182.7594	(4^-)
		689.98 *11*	60 *22*	169.4490	3^-
		703.4 *7*	5.5 *11*	156.0558	3^-
		795.50 *12*	99 *5*	63.5959	2^-
		859.2 *3*	66 *26*	0.0	1^-
868.359	$1^-,2,3,4^-$	551.39 *14*	16 *6*	316.9370	3^-
		611.65 *21*	7.9 *15*	256.9316	2^-
		663.01 *2*	100.0 *15*	205.3539	2^-
871.454	$1^-,2,3^-$	400.8 *4*	17 *3*	470.154	3^-
		499.38 *7*	100 *5*	372.0803	3^-
		615.11 *18*	53 *12*	256.9316	2^-
871.454	$1^-,2,3^-$	715.21 *18*	63 *5*	156.0558	3^-
		807.39 *11*	60 *13*	63.5959	2^-
		871.3 *4*	37 *4*	0.0	1^-
874.419	$2^+,3,4,5^+$	170.962 *10*	78 *11*	703.456	4^+
		298.5 *3*	50 *9*	575.724	3^+
		362.77 *8*	100 *19*	511.720	4^+
883.84	$1^-,2,3^-$	567.07 *5*	67 *14*	316.9370	3^-
		626.62 *10*	80 *6*	256.9316	2^-
		727.5 *3*	100 *25*	156.0558	3^-
		819.66 *13*	93 *29*	63.5959	2^-
		883.6 *11*	19 *7*	0.0	1^-
884.52	$2^-,3,4,5^-$	701.79 *8*	100 *5*	182.7594	(4^-)
		714.94 *18*	19.1 *21*	169.4490	3^-
890.232	$3^+,4,5^+$	170.52 *3*	19 *9*	719.642	$3^+,4,5^+$
		233.33 *4*	16 *10*	656.835	$3^+,4,5^+$
		450.43 *15*	93 *22*	439.7623	$(3)^+$
		498.77 *5*	83 *28*	391.36	
		529.42 *6*	100 *3*	360.8959	5^+
		547.56 *5*	65 *15*	342.5947	4^+
		659.5 *6*	17 *7*	230.9213	3^+
896.197	$2^+,3^+$	320.48 *3*	48 *19*	575.724	3^+
		384.47 *18*	31 *15*	511.720	4^+
		396.37 *4*	41 *14*	499.7402	3^+
		414.23 *11*	78 *19*	482.1429	2^+
		455.94 *20*	61 *10*	439.7623	$(3)^+$
		542.86 *14*	25.8 *20*	353.5741	(1^+)
		595.83 *5*	100 *19*	300.2094	2^+
897.26	$2^-,3,4^-$	435.1 *3*	15 *9*	462.0875	4^-
		571.54 *21*	25 *4*	325.8761	4^-
		580.32 *4*	61 *11*	316.9370	3^-
		691.93 *19*	100 *18*	205.3539	2^-
899.351	$3^-,4,5^-$	162.318 *11*	52 *9*	737.031	$(3)^-$
		341.0 *6*	9 *3*	558.240	$(4,5)^-$
		453.05 *17*	100 *19*	446.348	5^-
		559.46 *8*	31 *12*	339.956	(5^-)
		716.6 *6*	40 *9*	182.7594	(4^-)
900.219	$3^+,4,5^+$	180.577 *12*	100 *16*	719.642	$3^+,4,5^+$
		406.39 *24*	36 *19*	493.716	(4^+)
		539.33 *6*	74 *26*	360.8959	5^+
910.990	$1^-,2,3^-$	187.794 *6*	83 *6*	723.187	$1^-,2,3^-$
		440.86 *11*	40 *10*	470.154	3^-
		548.48 *3*	100 *13*	362.731	2^-
		594.08 *7*	31 *9*	316.9370	3^-

$^{188}_{75}Re_{113}$-17

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
913.821	2$^+$,3,4	338.29 *13*	33 *3*	575.724	3$^+$
		414.5 *6*	4.5 *20*	499.7402	3$^+$
		431.675 *15*	100 *11*	482.1429	2$^+$
914.24	1$^-$,2,3,4,5$^-$	542.54 *16*	54 *6*	372.0803	3$^-$
		744.41 *16*	100 *11*	169.4490	3$^-$
916.25	2,3,4,5$^-$	167.8 *3*	100 *26*	748.130	2,3,4$^-$
		179.1 *4*	28 *5*	737.031	(3)$^-$
		454.26 *5*	41 *5*	462.0875	4$^-$
		599.14 *7*	50 *13*	316.9370	3$^-$
924.11	1$^-$,2,3$^-$	552.13 *8*	32 *11*	372.0803	3$^-$
		667.14 *7*	100 *5*	256.9316	2$^-$
		753.9 *4*	19 *5*	169.4490	3$^-$
		768.05 *21*	95 *7*	156.0558	3$^-$
		859.8 *5*	38 *7*	63.5959	2$^-$
		923.9 *5*	35 *5*	0.0	1$^-$
924.40	1$^+$,2,3$^+$	168.0 *3*	100 *31*	756.598	1$^+$,2,3$^-$
		348.64 *8*	31 *9*	575.724	3$^+$
		442.47 *25*	32 *6*	482.1429	2$^+$
925.20	2$^-$,3,4$^-$	316.4 *8*	14 *6*	608.891	4$^-$
		455.10 *9*	95 *16*	470.154	3$^-$
		463.3 *5*	16 *4*	462.0875	4$^-$
		562.41 *5*	100 *20*	362.731	2$^-$
		608.35 *7*	89 *20*	316.9370	3$^-$
		742.0 *4*	30 *6*	182.7594	(4$^-$)
932.42	3$^+$,4,5$^+$	571.47 *13*	100 *10*	360.8959	5$^+$
		702.0 *4*	51 *12*	230.9213	3$^+$
932.70	1$^-$,2,3$^-$	462.12 *22*	34 *16*	470.154	3$^-$
		560.68 *9*	100 *10*	372.0803	3$^-$
		570.03 *7*	56 *15*	362.731	2$^-$
		642.29 *17*	25 *15*	290.6736	1$^-$
		675.44 *15*	51 *23*	256.9316	2$^-$
		763.01 *18*	56 *7*	169.4490	3$^-$
944.37	1$^-$,2,3$^-$	240.19 *3*	81 *21*	704.17	(2$^-$)
		581.92 *25*	55 *12*	362.731	2$^-$
		653.9 *3*	100 *29*	290.6736	1$^-$
		687.33 *17*	45 *24*	256.9316	2$^-$
		739.2 *4*	90 *29*	205.3539	2$^-$
		788.39 *16*	90 *29*	156.0558	3$^-$
		881.0 *8*	83 *22*	63.5959	2$^-$
		945.1 *8*	90 *24*	0.0	1$^-$
945.79	1$^+$,2,3,4$^+$	463.78 *20*	21 *3*	482.1429	2$^+$
		714.86 *5*	100 *4*	230.9213	3$^+$
955.70	2$^-$,3,4	432.13 *22*	7.9 *21*	523.0514	4$^-$
955.70	2$^-$,3,4	493.48 *9*	12.3 *12*	462.0875	4$^-$
		630.07 *6*	32 *6*	325.8761	4$^-$
		638.22 *23*	39 *10*	316.9370	3$^-$
		772.75 *8*	100 *12*	182.7594	(4$^-$)
963.24	3$^+$,4,5$^+$	152.56 *5*	53 *10*	810.535	3$^+$,4$^+$
		412.25 *20*	55 *8*	550.846	3$^+$,4,5$^+$
		469.64 *5*	93 *30*	493.716	(4$^+$)
		602.29 *16*	94 *8*	360.8959	5$^+$
		620.78 *10*	100 *33*	342.5947	4$^+$
965.22	2$^-$,3,4,5$^-$	442.61 *18*	53 *8*	523.0514	4$^-$
		678.18 *9*	89 *25*	287.1310	4$^-$
		808.67 *14*	100 *33*	156.0558	3$^-$
977.11	(2$^+$,3,4$^+$)	320.26 *5*	44 *9*	656.835	3$^+$,4,5$^+$
		401.44 *20*	38 *5*	575.724	3$^+$
		483.55 *6*	21 *8*	493.716	(4$^+$)
		494.96 *16*	45 *10*	482.1429	2$^+$
		537.22 *6*	100 *21*	439.7623	(3)$^+$
978.23	1$^-$,2,3,4$^-$	822.2 *3*	100 *7*	156.0558	3$^-$
		914.63 *17*	93 *28*	63.5959	2$^-$
983.48	2$^-$,3,4$^-$	460.53 *8*	21 *9*	523.0514	4$^-$
		611.3 *3*	38 *8*	372.0803	3$^-$
		696.29 *5*	84.5 *22*	287.1310	4$^-$
		726.88 *11*	100 *17*	256.9316	2$^-$
		800.0 *3*	12 *4*	182.7594	(4$^-$)
		814.0 *5*	15.8 *22*	169.4490	3$^-$
		827.13 *20*	84 *5*	156.0558	3$^-$
		919.93 *17*	69 *21*	63.5959	2$^-$
986.62	2$^+$,3,4$^+$	410.85 *8*	55 *12*	575.724	3$^+$
		493.04 *6*	100 *4*	493.716	(4$^+$)
		504.43 *4*	38 *9*	482.1429	2$^+$
994.033	2$^+$,3,4,5$^+$	176.288 *23*	26 *8*	817.684	1$^+$,2,3,4$^+$
		337.242 *22*	100 *10*	656.835	3$^+$,4,5$^+$
		500.39 *25*	16 *8*	493.716	(4$^+$)
		554.54 *11*	69 *6*	439.7623	(3)$^+$
997.09	2$^+$,3,4,5$^+$	654.50 *10*	35 *11*	342.5947	4$^+$
		766.17 *9*	100 *17*	230.9213	3$^+$
1000.38	2$^-$,3,4$^-$	537.68 *8*	38 *14*	462.0875	4$^-$
		683.63 *7*	76 *14*	316.9370	3$^-$
		744.02 *10*	100 *7*	256.9316	2$^-$
1001.44	2$^+$,3,4$^+$	298.42 *15*	58 *6*	703.456	4$^+$
		425.6 *4*	100 *15*	575.724	3$^+$
		502.03 *7*	25 *9*	499.7402	3$^+$
		519.22 *3*	63 *13*	482.1429	2$^+$

$^{188}_{75}Re_{113}$-18

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
1002.491	(2⁺,3,4⁺)	426.73 *3*	68 *10*	575.724	3⁺
		509.2 *6*	100 *21*	493.716	(4⁺)
		520.41 *4*	65 *13*	482.1429	2⁺
1009.4	1,2,3⁻	718.7 *3*	66 *9*	290.6736	1⁻
		945.6 *9*	100 *24*	63.5959	2⁻
1011.20	2⁻,3,4⁻	488.7 *3*	22 *6*	523.0514	4⁻
		724.18 *5*	91 *6*	287.1310	4⁻
		841.2 *5*	40 *6*	169.4490	3⁻
		854.65 *16*	100 *11*	156.0558	3⁻
		946.51 *19*	95 *18*	63.5959	2⁻
1012.97	(3⁻,4,5⁻)	672.98 *6*	100 *11*	339.956	(5⁻)
		830.49 *20*	30 *7*	182.7594	(4⁻)
		843.9 *4*	10.5 *25*	169.4490	3⁻
1013.41	2⁺,3,4⁺	117.13 *3*	35 *7*	896.197	2⁺,3⁺
		437.8 *5*	35 *16*	575.724	3⁺
		501.64 *5*	88 *23*	511.720	4⁺
		531.79 *11*	26 *16*	482.1429	2⁺
		573.90 *6*	100 *21*	439.7623	(3)⁺
1026.001	2⁺,3,4⁺	135.765 *11*	8.0 *24*	890.232	3⁺,4,5⁺
		450.0 *5*	5.7 *19*	575.724	3⁺
		543.56 *9*	9 *4*	482.1429	2⁺
		586.5 *3*	14 *3*	439.7623	(3)⁺
		683.72 *12*	28.3 *24*	342.5947	4⁺
		795.12 *3*	100 *5*	230.9213	3⁺
1026.23	2⁻,3,4⁻	346.05 *7*	100 *27*	680.123	(2⁻)
		379.3 *3*	64 *11*	647.305	2⁻
		565.3 *9*	50 *18*	462.0875	4⁻
		663.8 *3*	41 *18*	362.731	2⁻
		700.6 *6*	69 *11*	325.8761	4⁻
		709.5 *3*	22 *6*	316.9370	3⁻
		843.4 *4*	96 *11*	182.7594	(4⁻)
1034.52	2⁻,3,4⁻	353.6 *4*	23 *7*	680.123	(2⁻)
		425.67 *13*	59 *13*	608.891	4⁻
		971.04 *23*	100 *34*	63.5959	2⁻
1035.38	2⁻,3,4,5⁻	565.6 *5*	40 *13*	470.154	3⁻
		573.26 *8*	58 *19*	462.0875	4⁻
		718.8 *3*	100 *11*	316.9370	3⁻
1039.05	2⁻,3,4⁻	515.94 *11*	14 *8*	523.0514	4⁻
		568.8 *6*	22 *6*	470.154	3⁻
		666.7 *4*	46 *12*	372.0803	3⁻
		676.07 *22*	37 *5*	362.731	2⁻
		713.2 *3*	25 *16*	325.8761	4⁻
		752.05 *11*	22 *4*	287.1310	4⁻
1039.05	2⁻,3,4⁻	856.4 *7*	36 *7*	182.7594	(4⁻)
		882.6 *13*	100 *22*	156.0558	3⁻
1049.16	1⁻,2,3⁻	892.8 *3*	94 *28*	156.0558	3⁻
		985.9 *3*	100 *28*	63.5959	2⁻
		1048.8 *10*	50 *15*	0.0	1⁻
1061.91	2⁻,3⁻	879.16 *16*	10 *3*	182.7594	(4⁻)
		905.3 *8*	8.3 *23*	156.0558	3⁻
		1062.3 *9*	100 *30*	0.0	1⁻
1063.34	3⁺,4,5	343.68 *6*	100 *22*	719.642	3⁺,4,5⁺
		702.5 *3*	100 *14*	360.8959	5⁺
		721.2 *4*	59 *56*	342.5947	4⁺
1070.58	1⁺,2,3,4⁺	494.85 *20*	50 *8*	575.724	3⁺
		588.7 *3*	47 *8*	482.1429	2⁺
		630.81 *6*	100 *22*	439.7623	(3)⁺
1075.61	2⁺,3,4,5⁺	500.1 *3*	23 *5*	575.724	3⁺
		733.11 *10*	100 *19*	342.5947	4⁺
		844.19 *20*	68 *8*	230.9213	3⁺
1082.01	1⁻,2,3⁻	612.26 *23*	5.38 *17*	470.154	3⁻
		709.99 *9*	100 *4*	372.0803	3⁻
		825.06 *16*	53 *4*	256.9316	2⁻
		911.83 *23*	59 *17*	169.4490	3⁻
		925.8 *4*	16.9 *19*	156.0558	3⁻
		1018.5 *3*	58 *6*	63.5959	2⁻
		1081.8 *7*	19 *10*	0.0	1⁻
1083.64	2⁺,3,4,5⁺	590.3 *6*	13 *3*	493.716	(4⁺)
		643.68 *12*	18 *9*	439.7623	(3)⁺
		852.84 *10*	100 *13*	230.9213	3⁺
1086.55	3⁻,4,5⁻	714.51 *16*	31 *10*	372.0803	3⁻
		746.59 *5*	100 *10*	339.956	(5⁻)
		903.9 *8*	31 *10*	182.7594	(4⁻)
1088.555	(2⁻,3,4,5⁻)	217.083 *9*	100 *9*	871.454	1⁻,2,3⁻
		297.3 *5*	5.5 *18*	791.523	1⁻,2,3⁻
		441.47 *4*	12 *4*	647.305	2⁻
		459.93 *8*	6 *4*	628.859	(2)⁻
		726.12 *21*	19.2 *23*	362.731	2⁻
		763.10 *13*	16.9 *18*	325.8761	4⁻
		883.73 *22*	5.5 *18*	205.3539	2⁻
		932.9 *11*	7.3 *23*	156.0558	3⁻
1093.527	(1⁻,2,3)	370.37 *3*	46 *15*	723.187	1⁻,2,3⁻
		413.387 *23*	94 *19*	680.123	(2⁻)
		623.33 *14*	100 *17*	470.154	3⁻
1097.23	2,3,4,5⁻	927.58 *17*	61 *7*	169.4490	3⁻
		941.42 *19*	100 *31*	156.0558	3⁻

$^{188}_{75}Re_{113}$-19

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
1099.29	3^+,4,5^+	379.87 *18*	13 *3*	719.642	3^+,4,5^+
		605.59 *23*	100 *23*	493.716	(4^+)
		738.86 *24*	48 *19*	360.8959	5^+
		756.8 *3*	29 *7*	342.5947	4^+
		868.00 *15*	75 *7*	230.9213	3^+
1106.27	2^-,3,4,5^-	323.44 *5*	19 *9*	782.804	(3^-)
		583.64 *19*	100 *12*	523.0514	4^-
1108.62	3^-,4,5^-	662.7 *3*	24 *5*	446.348	5^-
		822.01 *19*	30 *7*	287.1310	4^-
		938.25 *22*	100 *7*	169.4490	3^-
1117.11	2^-,3^-	437.2 *4*	36 *6*	680.123	(2^-)
		508.19 *5*	100 *28*	608.891	4^-
		754.4 *3*	15 *6*	362.731	2^-
		826.79 *23*	51 *6*	290.6736	1^-
		860.1 *6*	36 *6*	256.9316	2^-
		1117.5 *6*	39 *6*	0.0	1^-
1118.93	2^+,3,4,5^+	415.46 *3*	56 *14*	703.456	4^+
		543.30 *9*	100 *6*	575.724	3^+
1122.10	2^-,3,4^-	474.2 *4*	52 *20*	647.305	2^-
		835.2 *5*	100 *32*	287.1310	4^-
		952.7 *3*	60 *32*	169.4490	3^-
		966.1 *4*	76 *20*	156.0558	3^-
		1058.8 *4*	84 *20*	63.5959	2^-
1124.07	2^-,3,4^-	752.1 *3*	36 *11*	372.0803	3^-
		837.1 *3*	56 *11*	287.1310	4^-
		867.10 *10*	100 *6*	256.9316	2^-
1137.42	2^+,3,4,5^+	247.117 *23*	100 *18*	890.232	3^+,4,5^+
		434.45 *7*	34 *10*	703.456	4^+
		561.93 *20*	56 *8*	575.724	3^+
		795.42 *16*	93 *10*	342.5947	4^+
		907.1 *4*	34 *8*	230.9213	3^+
1138.52	2^-,3,4,5^-	355.70 *6*	96 *21*	782.804	(3^-)
		676.64 *25*	100 *14*	462.0875	4^-
1143.74	3^-,4,5^-	697.4 *4*	17 *3*	446.348	5^-
		856.6 *3*	100 *17*	287.1310	4^-
1146.01	1,2^+	792.49 *12*	64 *9*	353.5741	(1^+)
		938.09 *13*	100 *9*	207.8490	0^+
1146.2	1,2,3,4^-	499.1 *3*	100 *18*	647.305	2^-
		784.9 *5*	96 *29*	360.8959	5^+
1157.806	1^-,2,3^-	286.52 *3*	82 *16*	871.454	1^-,2,3^-
		344.8 *6*	13 *4*	813.00	1,2,3^-
		366.31 *4*	31 *15*	791.523	1^-,2,3^-
		528.70 *7*	36 *15*	628.859	(2)$^-$
1157.806	1^-,2,3^-	575.4 *6*	17 *4*	582.160	1^-
		794.93 *3*	46 *7*	362.731	2^-
		867.21 *11*	100 *4*	290.6736	1^-
		952.5 *5*	32 *4*	205.3539	2^-
		988.0 *6*	21 *4*	169.4490	3^-
		1157.7 *4*	54 *4*	0.0	1^-
1165.63	(1,2,3^-)	374.13 *7*	87 *60*	791.523	1^-,2,3^-
		518.2 *4*	100 *40*	647.305	2^-
		874.6 *3*	78 *15*	290.6736	1^-
1166.79	2^-,3,4^-	879.74 *10*	100 *8*	287.1310	4^-
		1010.5 *4*	64 *25*	156.0558	3^-
		1101.4 *5*	98 *13*	63.5959	2^-
1183.05	2^-,3,4,5^-	660.01 *15*	100 *10*	523.0514	4^-
		810.95 *14*	95 *31*	372.0803	3^-
1188.33	3^-,4,5	671.5 *4*	27 *7*	516.247	5^-
		741.72 *16*	14.1 *12*	446.348	5^-
		862.72 *11*	51 *4*	325.8761	4^-
		901.06 *13*	100 *23*	287.1310	4^-
1204.75	2^-,3,4,5	646.9 *3*	25 *5*	558.240	(4,5)$^-$
		878.74 *17*	100 *10*	325.8761	4^-
1207.95	1^-,2,3^-	339.580 *24*	21 *7*	868.359	1^-,2,3,4^-
		408.04 *24*	19 *11*	799.551	5^+
		416.75 *19*	6 *6*	791.523	1^-,2,3^-
		836.2 *3*	59 *7*	372.0803	3^-
		845.5 *4*	40 *6*	362.731	2^-
		917.4 *4*	39 *6*	290.6736	1^-
		951.1 *5*	32 *6*	256.9316	2^-
		1052.0 *6*	31 *7*	156.0558	3^-
		1144.69 *25*	100 *8*	63.5959	2^-
		1208.0 *4*	42 *6*	0.0	1^-
1208.85	3^-,4,5^-	454.25 *15*	100 *10*	754.593	3^-,4^-
		469.14 *5*	97 *21*	739.816	3^-,4,5^-
		650.20 *9*	49 *16*	558.240	(4,5)$^-$
		693.03 *20*	39 *23*	516.247	5^-
1217.34	1^+,2,3,4^+	718.0 *3*	33 *5*	499.7402	3^+
		917.09 *9*	100 *5*	300.2094	2^+
1218.00	(3,4)$^-$	771.55 *19*	30 *6*	446.348	5^-
		931.4 *5*	30 *6*	287.1310	4^-
		1062.0 *3*	100 *28*	156.0558	3^-
1224.31	3^-,4,5^-	666.12 *25*	28 *3*	558.240	(4,5)$^-$
		707.7 *3*	20 *12*	516.247	5^-
		898.58 *13*	100 *20*	325.8761	4^-
		1041.5 *4*	17 *3*	182.7594	(4^-)

$^{188}_{75}Re_{113}$-20

Adopted Levels, Gammas (continued)

γ(^{188}Re) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
1224.31	3⁻,4,5⁻	1054.71 *16*	77 *4*	169.4490	3⁻
1226.52	1⁺,2⁺	726.88 *11*	100 *17*	499.7402	3⁺
		926.26 *10*	88 *5*	300.2094	2⁺
		1018.47 *23*	15.8 *22*	207.8490	0⁺
1226.60	3⁻,4,5⁻	780.43 *18*	38 *13*	446.348	5⁻
		939.35 *14*	100 *10*	287.1310	4⁻
		1070.9 *11*	31 *10*	156.0558	3⁻
1232.29	2⁻,3,4,5⁻	623.38 *11*	100 *25*	608.891	4⁻
		1063.0 *3*	75 *16*	169.4490	3⁻
1242.34	2⁻,3,4,5	683.9 *3*	55 *11*	558.240	(4,5)⁻
		916.52 *16*	100 *11*	325.8761	4⁻
1247.11	2⁺,3,4,5⁺	590.26 *11*	100 *14*	656.835	3⁺,4,5⁺
		753.37 *19*	52 *8*	493.716	(4⁺)
		1016.3 *3*	51 *8*	230.9213	3⁺
1249.82	1⁻,2,3,4⁻	779.5 *3*	36 *18*	470.154	3⁻
		887.20 *25*	100 *18*	362.731	2⁻
1252.74	1⁺,2,3,4,5⁺	812.98 *16*	100 *13*	439.7623	(3)⁺
		1021.8 *3*	81 *16*	230.9213	3⁺
1255.27	1⁻,2,3,4⁻	938.5 *4*	<50	316.9370	3⁻
		1049.89 *16*	100 *9*	205.3539	2⁻
1258.12	1,2⁺	958.20 *12*	100 *7*	300.2094	2⁺
		1050.19 *6*	78 *3*	207.8490	0⁺
1261.55	2⁻,3,4⁻	393.24 *4*	38 *15*	868.359	1⁻,2,3,4⁻
		523.9 *3*	42 *8*	737.031	(3)⁻
		652.37 *10*	63 *21*	609.008	(1⁻)
		1055.87 *18*	100 *10*	205.3539	2⁻
1301.27	3⁻,4,5	784.8 *3*	83 *16*	516.247	5⁻
		855.09 *16*	37 *3*	446.348	5⁻
		1014.07 *12*	100 *5*	287.1310	4⁻
1326.22	2⁻,3,4,5⁻	1000.6 *3*	37 *6*	325.8761	4⁻
		1143.2 *3*	100 *20*	182.7594	(4⁻)
		1156.8 *6*	23 *7*	169.4490	3⁻
1341.83	2⁺,3,4⁺	830.04 *14*	49 *9*	511.720	4⁺
		842.14 *13*	100 *7*	499.7402	3⁺
		1041.7 *5*	31 *7*	300.2094	2⁺
1345.55	2⁻,3,4,5	821.7 *4*	92 *22*	523.0514	4⁻
		883.63 *15*	100 *11*	462.0875	4⁻
		1058.2 *3*	53 *11*	287.1310	4⁻
1433.19	1⁻,2,3,4⁻	709.1 *4*	23 *10*	723.187	1⁻,2,3⁻
		730.10 *18*	87 *39*	703.456	4⁺
		962.5 *3*	100 *18*	470.154	3⁻
1448.18	3⁻,4,5	694.42 *15*	100 *28*	754.593	3⁻,4⁻
		888.11 *22*	88 *32*	558.240	(4,5)⁻
1448.18	3⁻,4,5	1108.7 *6*	53 *22*	339.956	(5⁻)
		1122.1 *5*	23 *7*	325.8761	4⁻
1464.4	1⁻,2,3,4⁻	1101.9 *4*	48 *14*	362.731	2⁻
		1294.0 *8*	100 *38*	169.4490	3⁻
1513.74	1⁺,2,3,4⁺	1013.99 *24*	100 *12*	499.7402	3⁺
		1213.6 *9*	38 *22*	300.2094	2⁺
1557.45	1⁺,2,3⁺	1057.4 *3*	38 *7*	499.7402	3⁺
		1076.0 *3*	100 *33*	482.1429	2⁺
		1203.8 *4*	13 *3*	353.5741	(1⁺)
		1256.3 *5*	49 *13*	300.2094	2⁺
1584.45	1,2,3,4⁻	792.8 *3*	71 *14*	791.523	1⁻,2,3⁻
		880.53 *23*	67 *8*	704.17	(2⁻)
		955.8 *3*	46 *8*	628.859	(2)⁻
		1218.9 *7*	100 *42*	362.731	2⁻
(5871.65)	2⁺,3⁺	4888.6 *4*	26 *5*	983.48	2⁻,3,4⁻
		4893.4 *4*	13.4 *28*	978.23	1⁻,2,3,4⁻
		4916.3 *4*	12.9 *28*	955.70	2⁻,3,4
		4927.2 *6*	6.4 *14*	944.37	1⁻,2,3⁻
		4958.7 *7*	23 *5*	913.821	2⁺,3,4
		4973.1 *7*	25 *5*	899.351	3⁻,4,5⁻
		4987.9 *5*	28 *6*	883.84	1⁻,2,3⁻
		5000.8 *5*	29 *6*	871.454	1⁻,2,3⁻
		5012.7 *4*	56 *11*	859.233	2⁻,3⁻
		5020.6 *5*	16 *4*	851.88	3,4⁻
		5040.1 *5*	7.9 *16*	831.835	2⁻,3⁻
		5049.3 *4*	26 *5*	822.813	1,2,3⁻
		5062.8 *7*	5.8 *14*	807.632	1⁺,2⁺
		5073.2 *4*	100 *20*	798.38	(3⁻)
		5080.3 *5*	16 *4*	791.523	1⁻,2,3⁻
		5088.6 *10*	3.8 *11*	782.804	(3⁻)
		5117.1 *4*	12.6 *26*	754.593	3⁻,4⁻
		5126.3 *8*	4.1 *9*	745.22	2,3,4
		5134.8 *4*	41 *9*	737.031	(3)⁻
		5148.9 *5*	4.6 *11*	723.187	1⁻,2,3⁻
		5167.6 *4*	23 *5*	704.17	(2⁻)
		5191.8 *6*	7.6 *16*	680.123	(2⁻)
		5224.5 *4*	20 *4*	647.305	2⁻
		5242.8 *4*	10.5 *25*	628.859	(2)⁻
		5263.2 *10*	1.6 *5*	608.891	4⁻
		5289.8 *8*	1.9 *5*	582.160	1⁻
		5296.5 *5*	2.4 *6*	575.724	3⁺
		5313.3 *10*	11 *5*	558.240	(4,5)⁻
		5314.8 *10*	3.6 *23*	554.329	(4)⁺

$^{188}_{75}Re_{113}$-21

Adopted Levels, Gammas (continued)

$\gamma(^{188}Re)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
(5871.65)	$2^+,3^+$	5348.7 *3*	49 *10*	523.0514	4^-	(5871.65)	$2^+,3^+$	5554.8 *4*	25 *5*	316.9370	3^-
		5359.7 *5*	4.3 *9*	511.720	4^+			5571.5 *4*	7.8 *16*	300.2094	2^+
		5371.9 *3*	15 *3*	499.7402	3^+			5580.9 *4*	7.9 *19*	290.6736	1^-
		5389.5 *5*	1.9 *5*	482.1429	2^+			5584.2 *8*	1.4 *5*	287.1310	4^-
		5401.2 *10*	0.9 *4*	470.154	3^-			5614.7 *3*	25 *5*	256.9316	2^-
		5409.5 *5*	2.1 *6*	462.0875	4^-			5640.7 *4*	5.1 *13*	230.9213	3^+
		5432.2 *6*	1.8 *6*	439.7623	$(3)^+$			5666.3 *4*	5.9 *13*	205.3539	2^-
		5499.6 *3*	12.5 *25*	372.0803	3^-			5688.8 *3*	29 *6*	182.7594	(4^-)
		5509.0 *4*	5.1 *13*	362.731	2^-			5702.1 *3*	33 *6*	169.4490	3^-
		5518.1 *10*	2.3 *6*	353.5741	(1^+)			5715.5 *3*	14.3 *25*	156.0558	3^-
		5528.4[a] *9*	1.3 *13*	342.5947	4^+			5807.8 *4*	5 *1*	63.5959	2^-
		5545.9 *4*	23 *5*	325.8761	4^-			5871.6 *3*	91 *19*	0.0	1^-

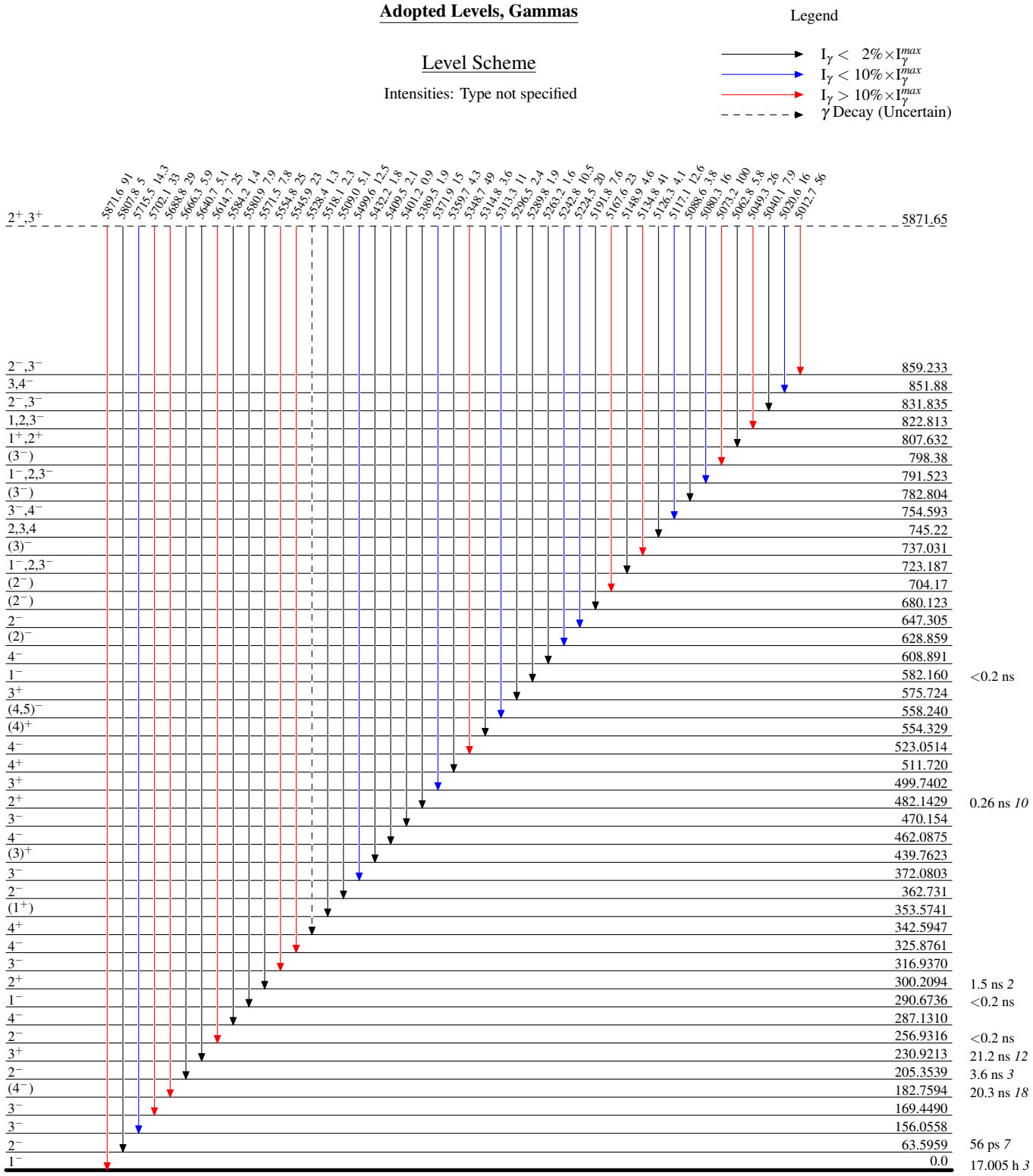
† From ^{187}Re(n,γ) E=th, unless otherwise stated.
‡ From ce data in ^{187}Re(n,γ) E=th, unless otherwise stated.
# Unobserved transition confirmed by $\gamma\gamma$ coincidences.
@ Additional information 3.
& Multiply placed with undivided intensity.
[a] Placement of transition in the level scheme is uncertain.

$^{188}_{75}Re_{113}$-22

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

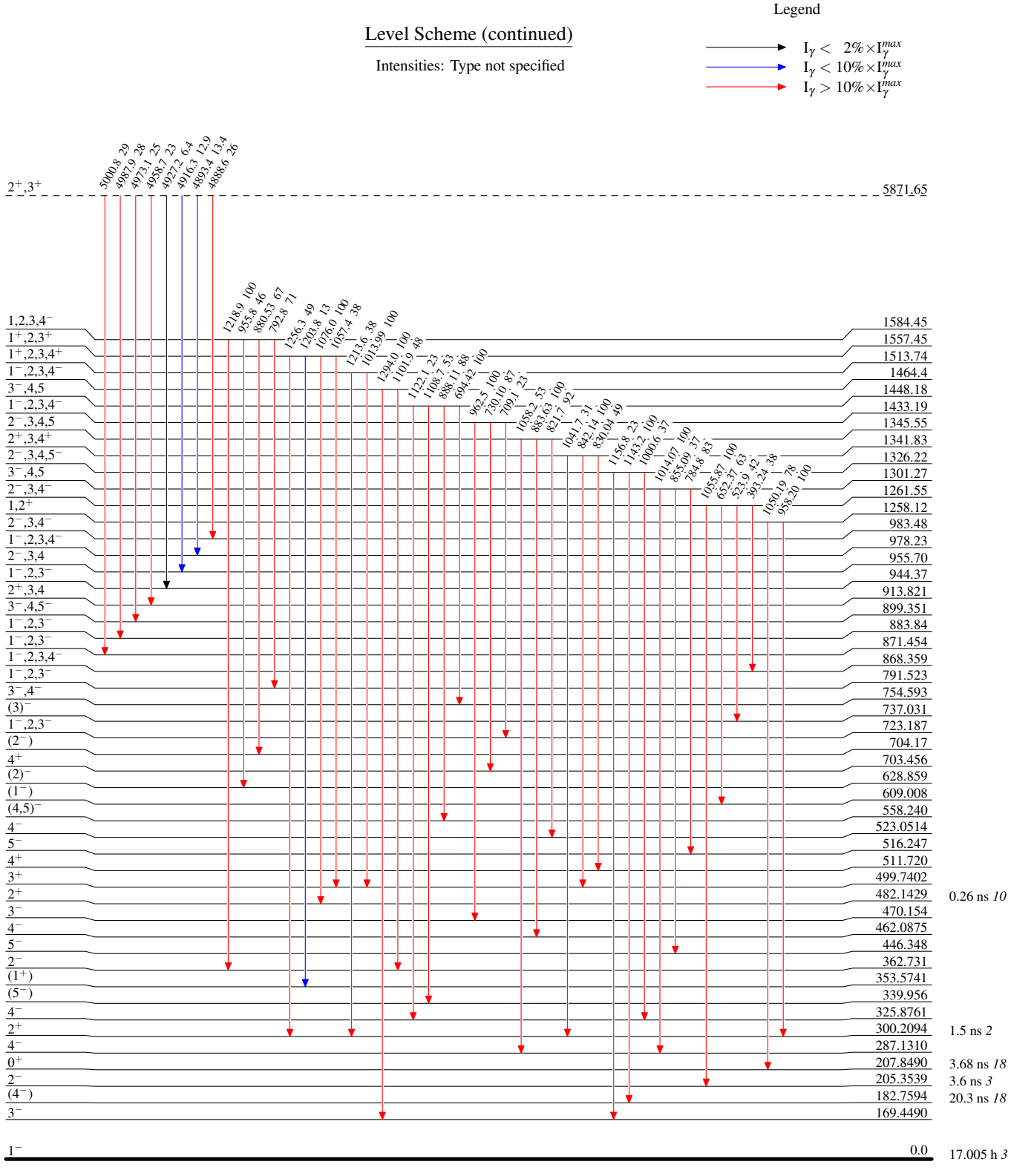


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

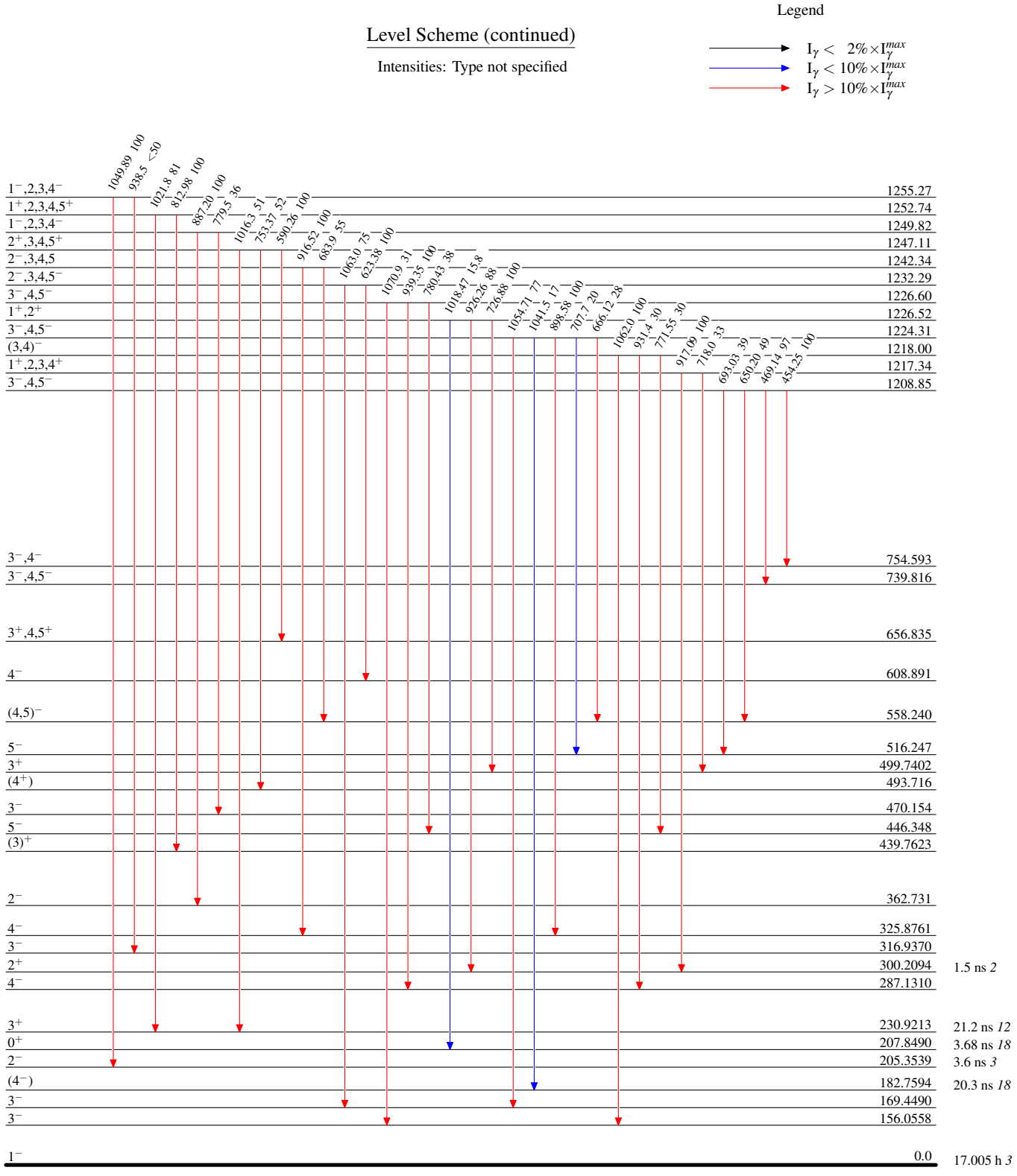
Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

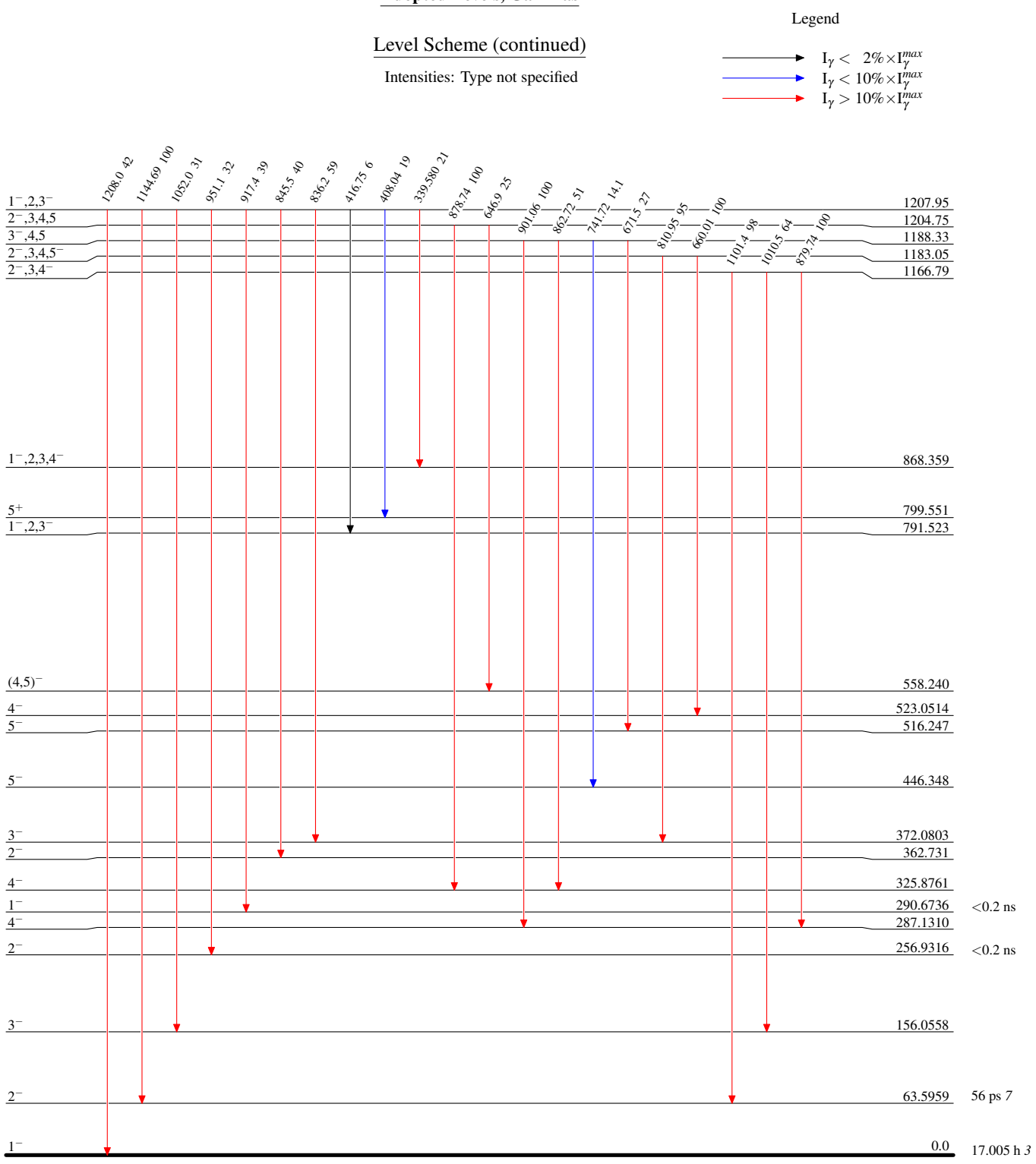


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



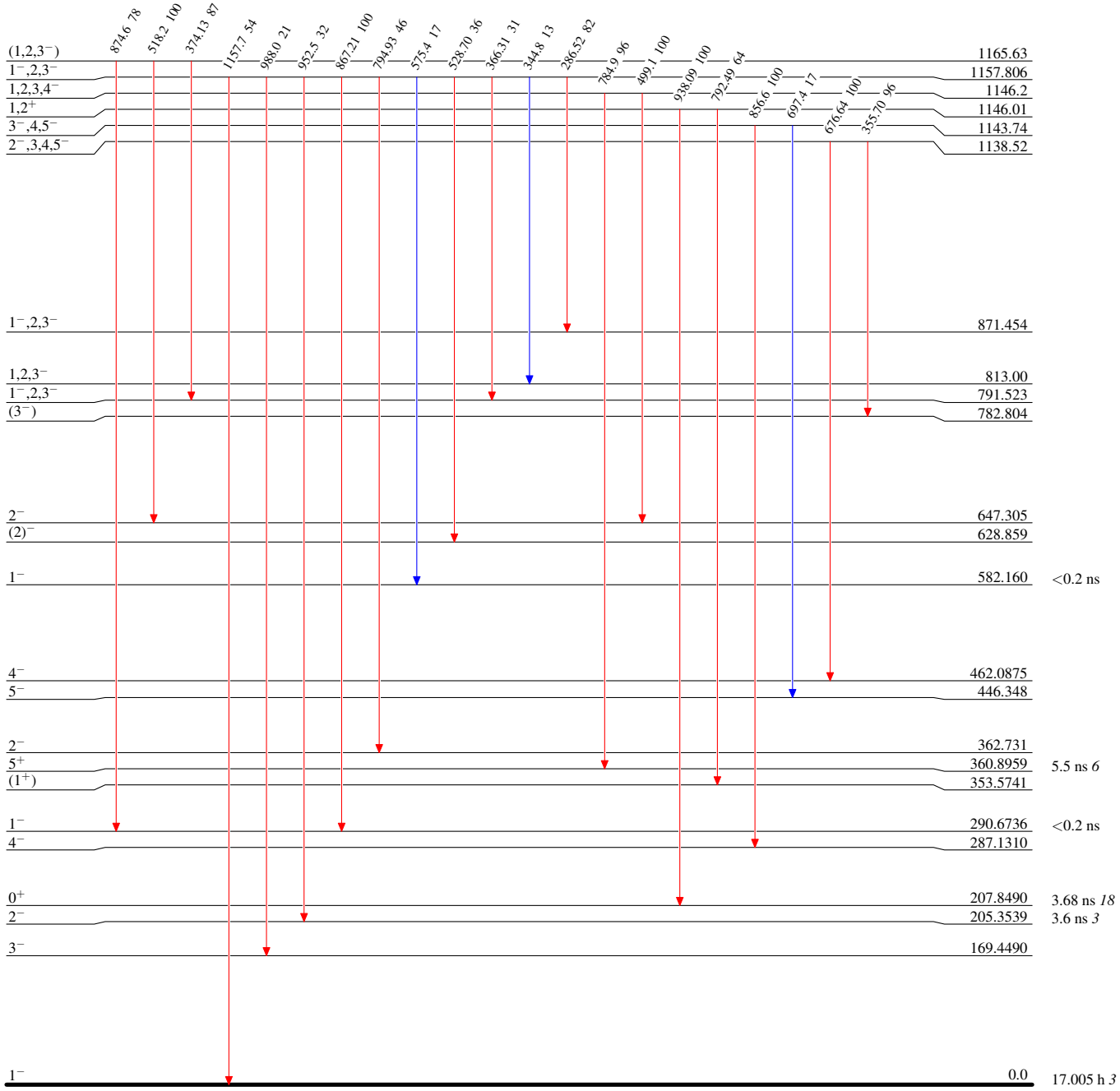
$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

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

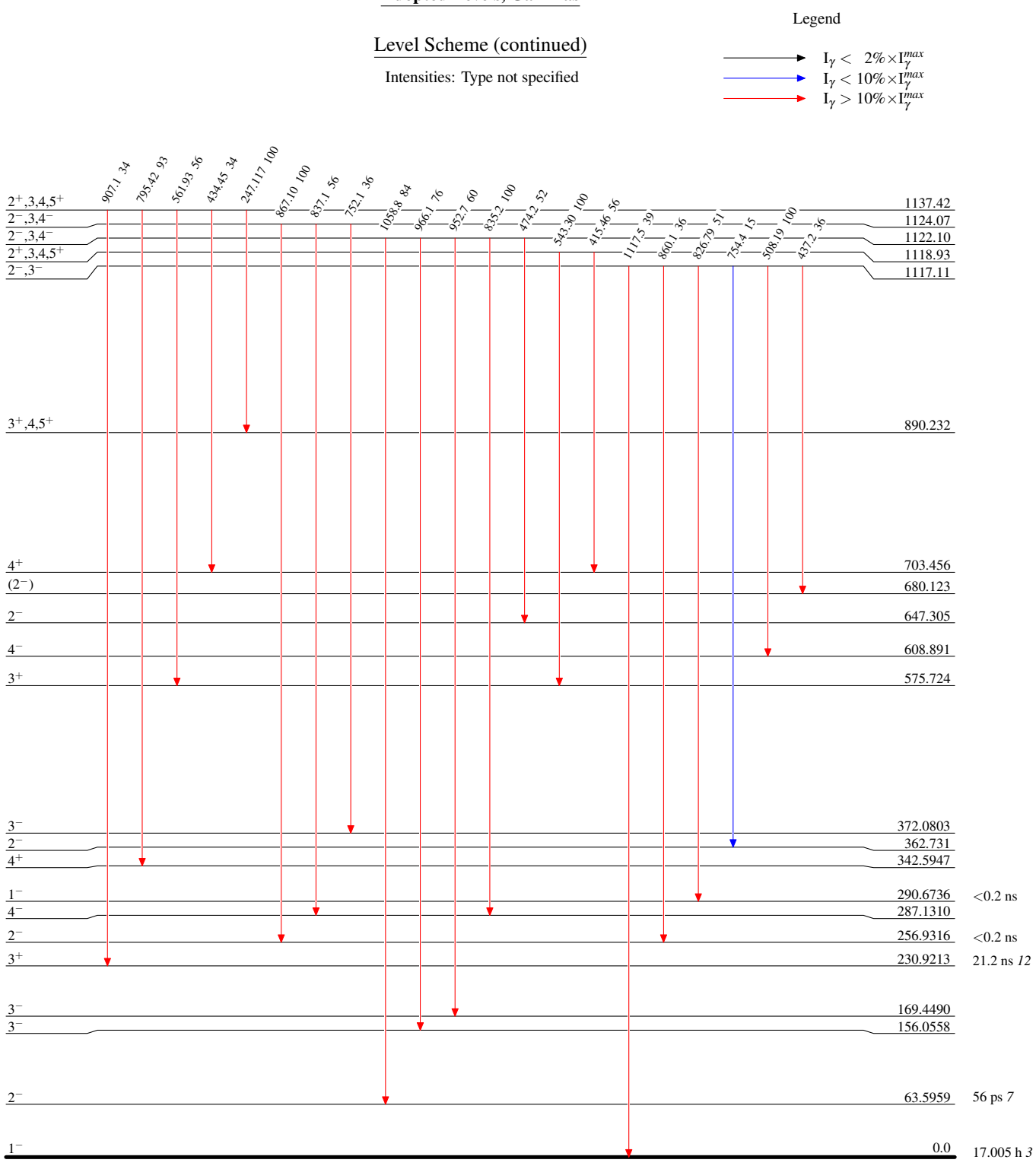


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

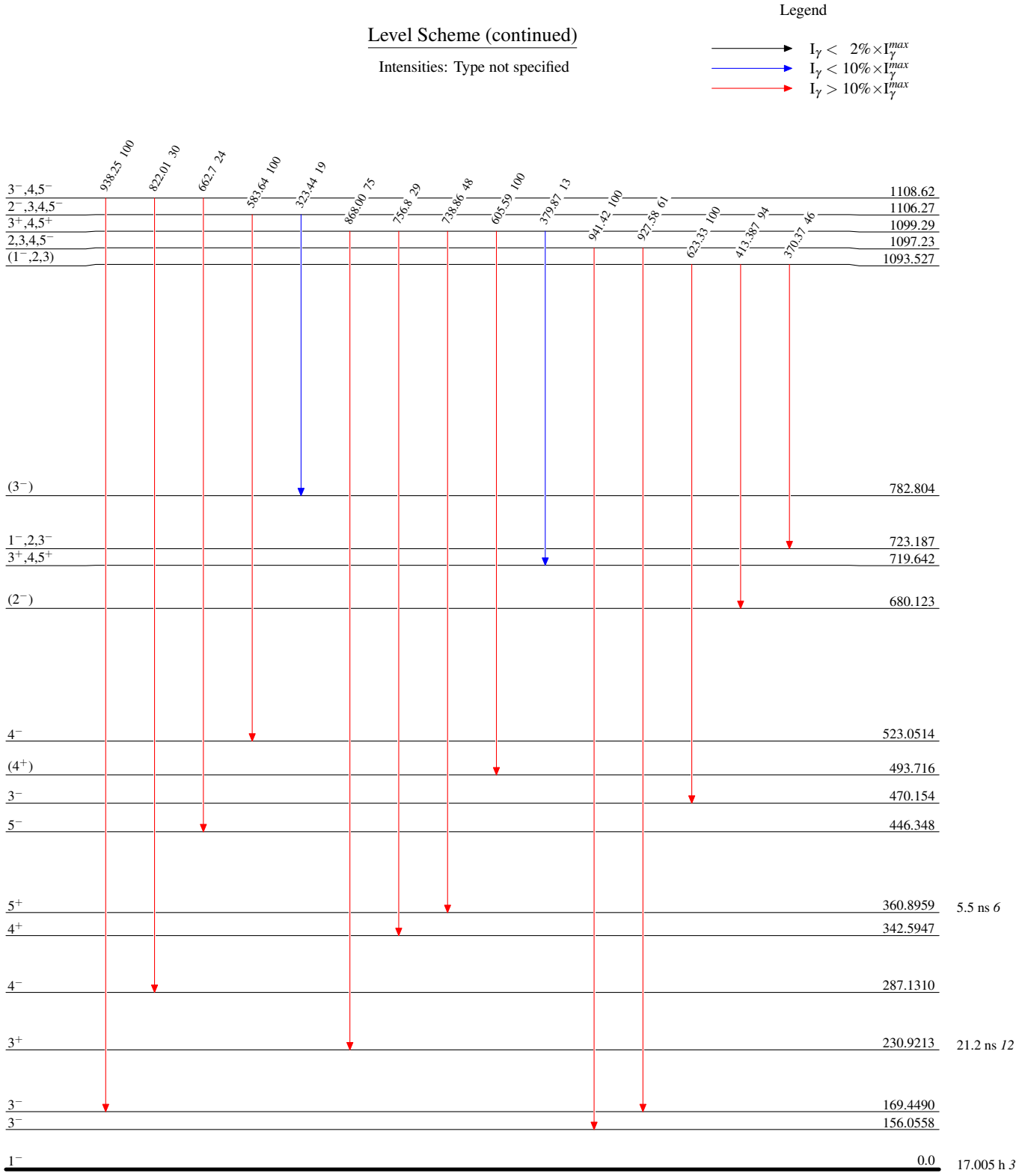


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

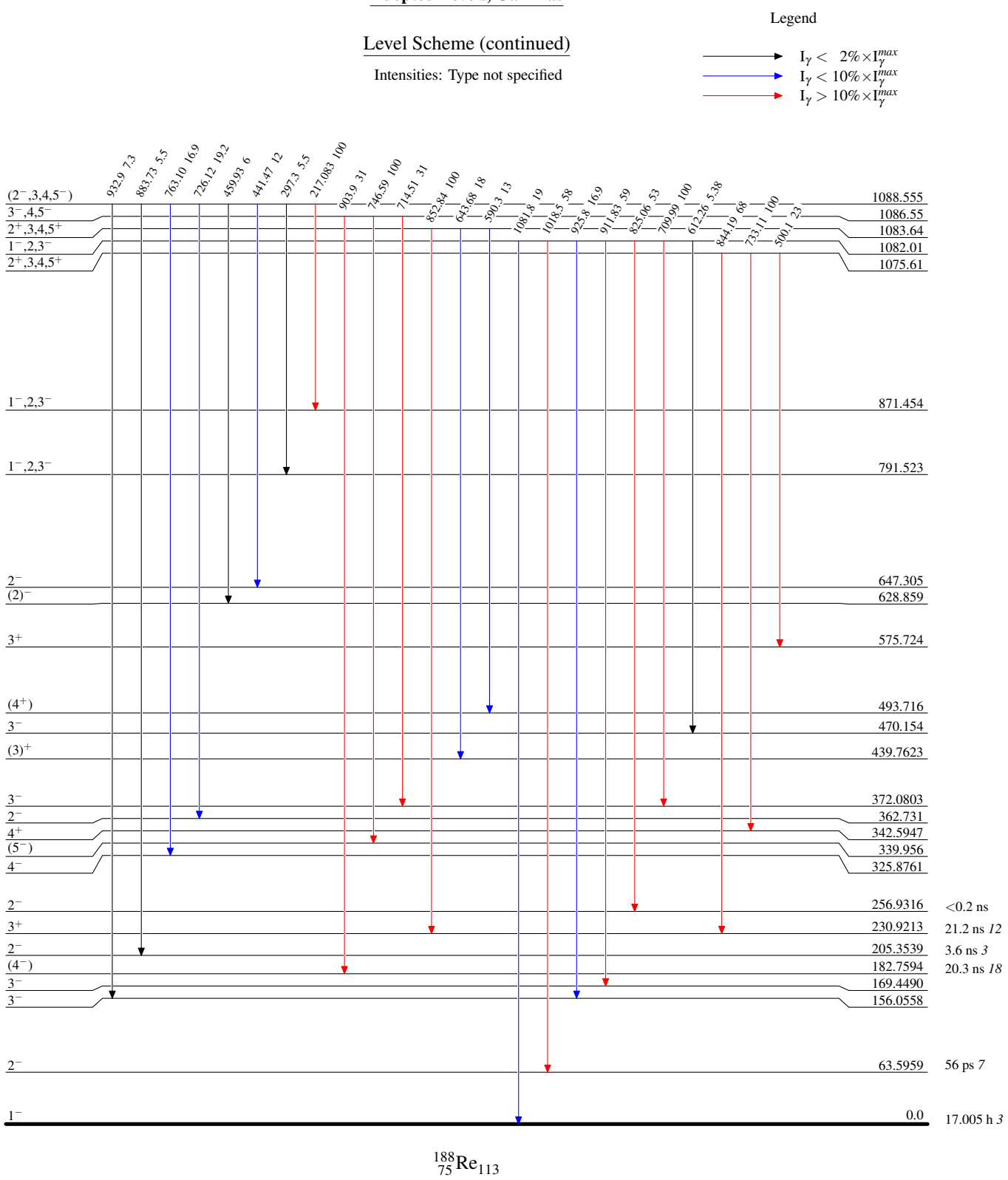


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

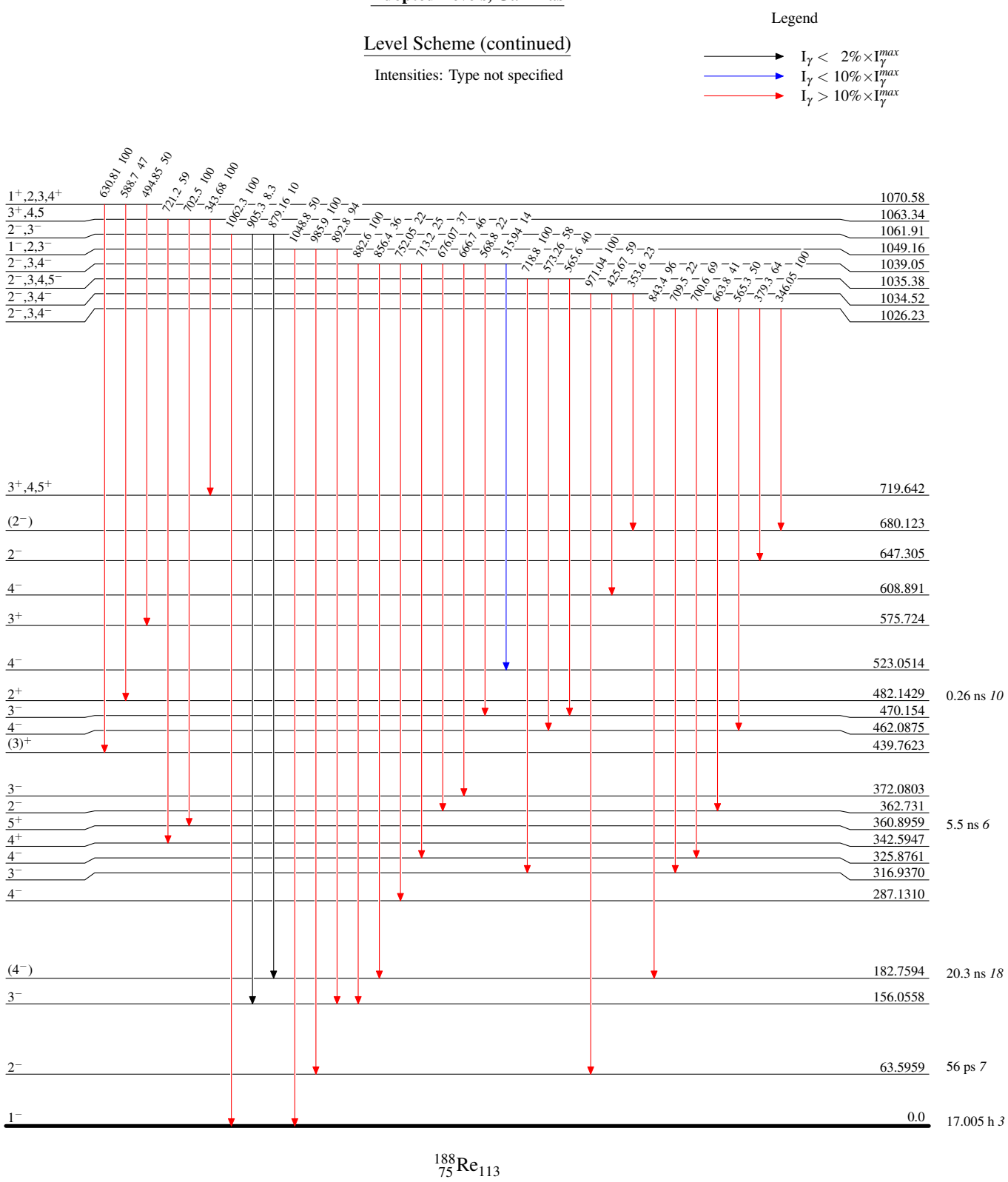


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

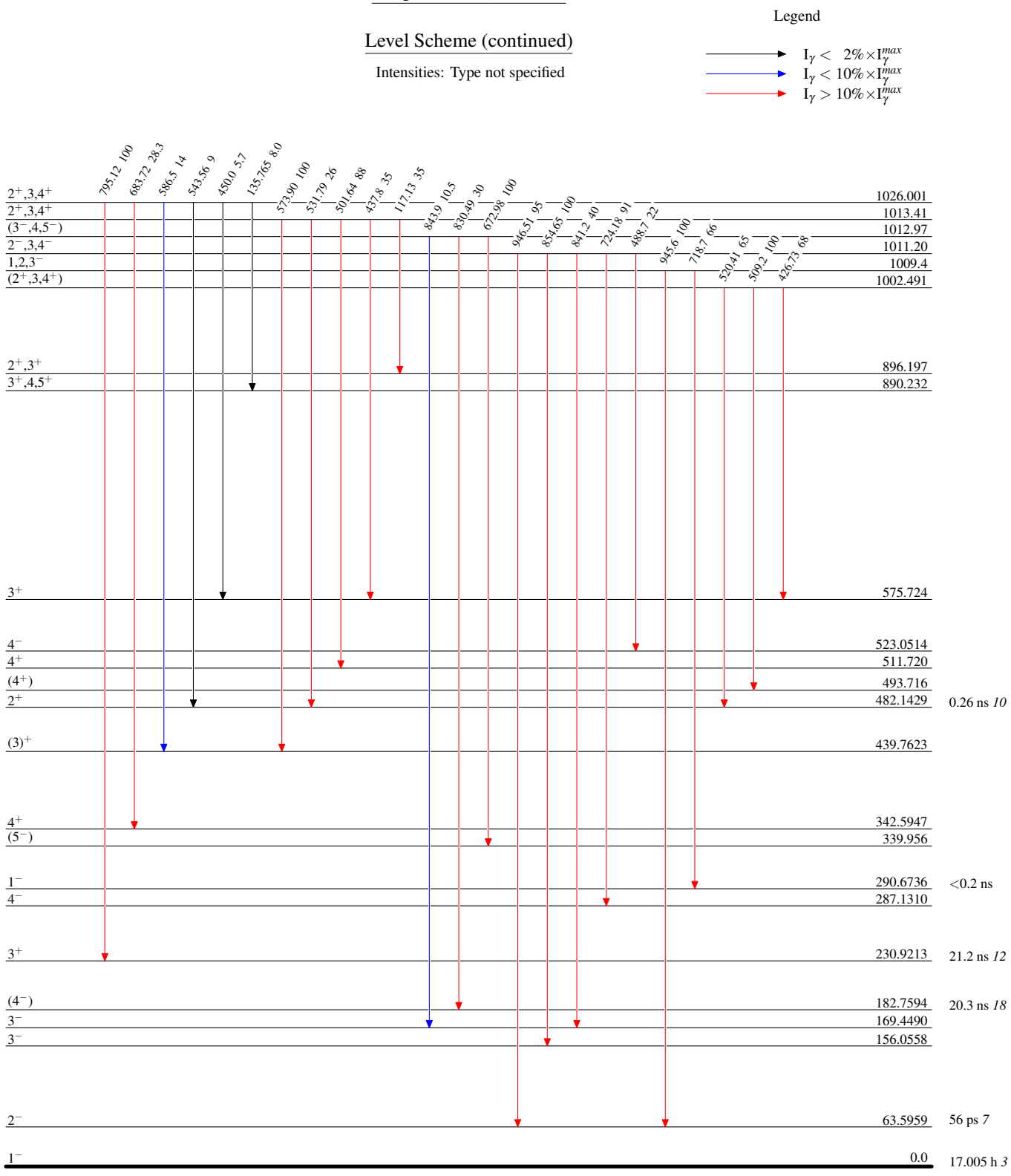


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

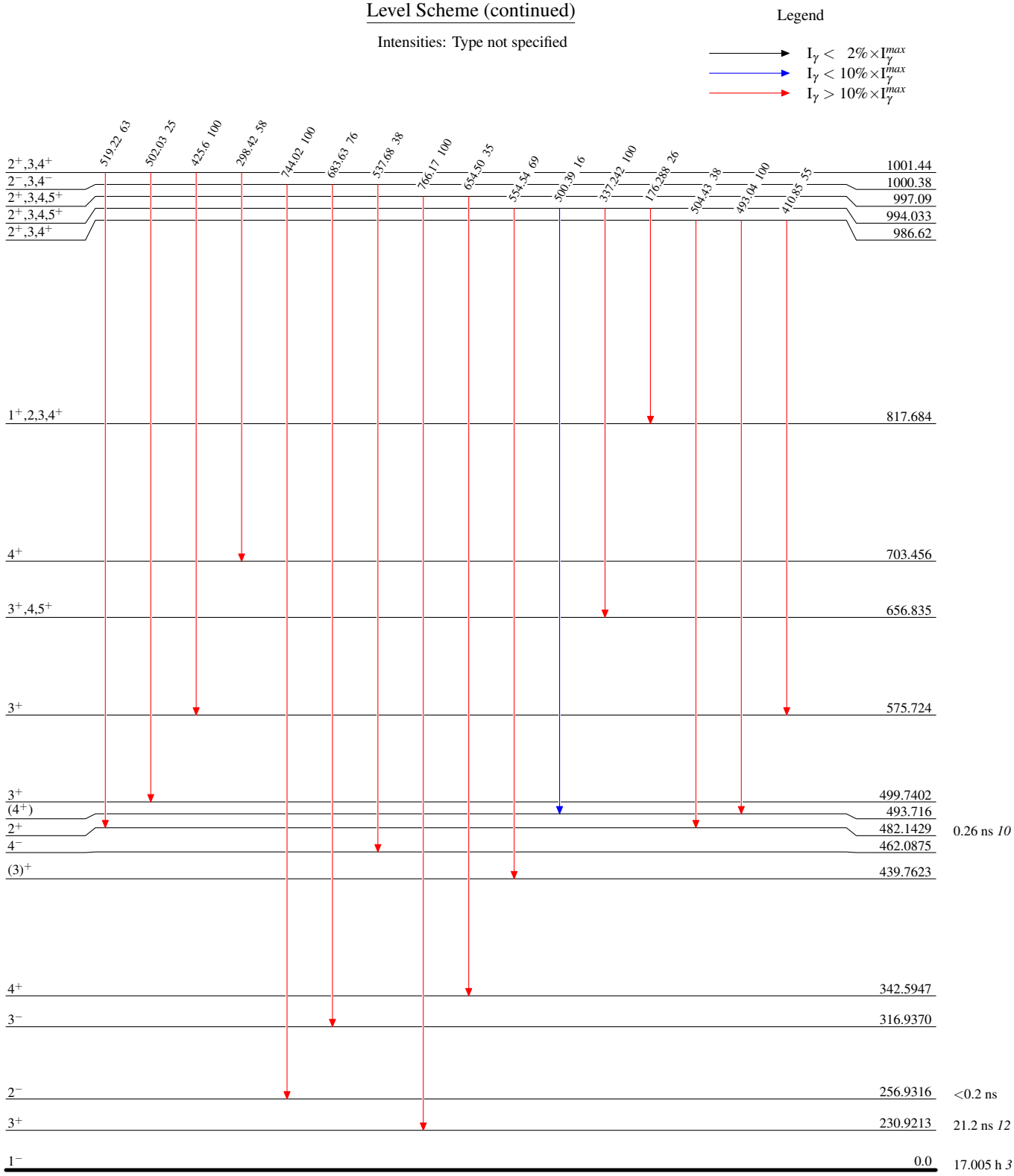


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

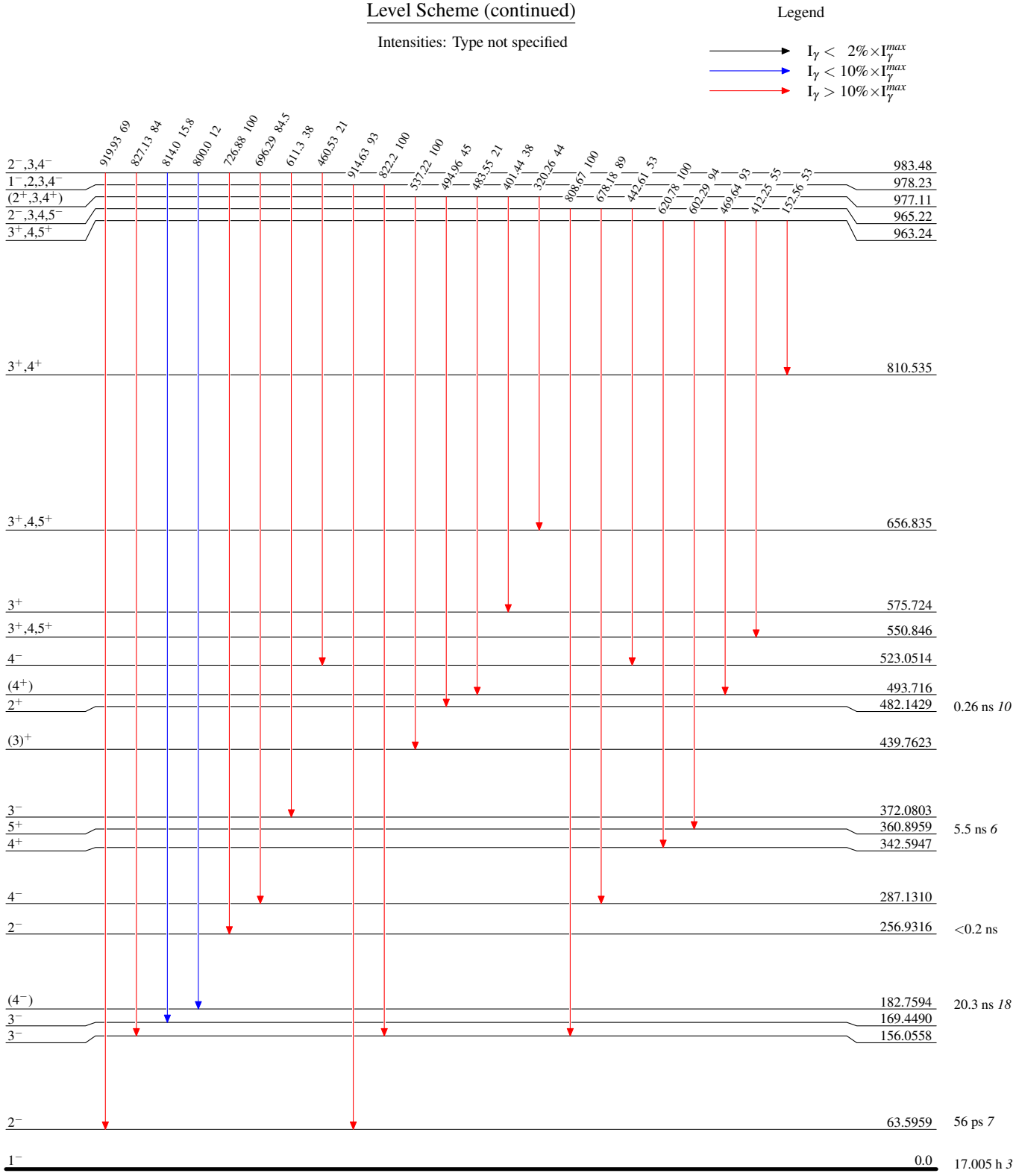


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

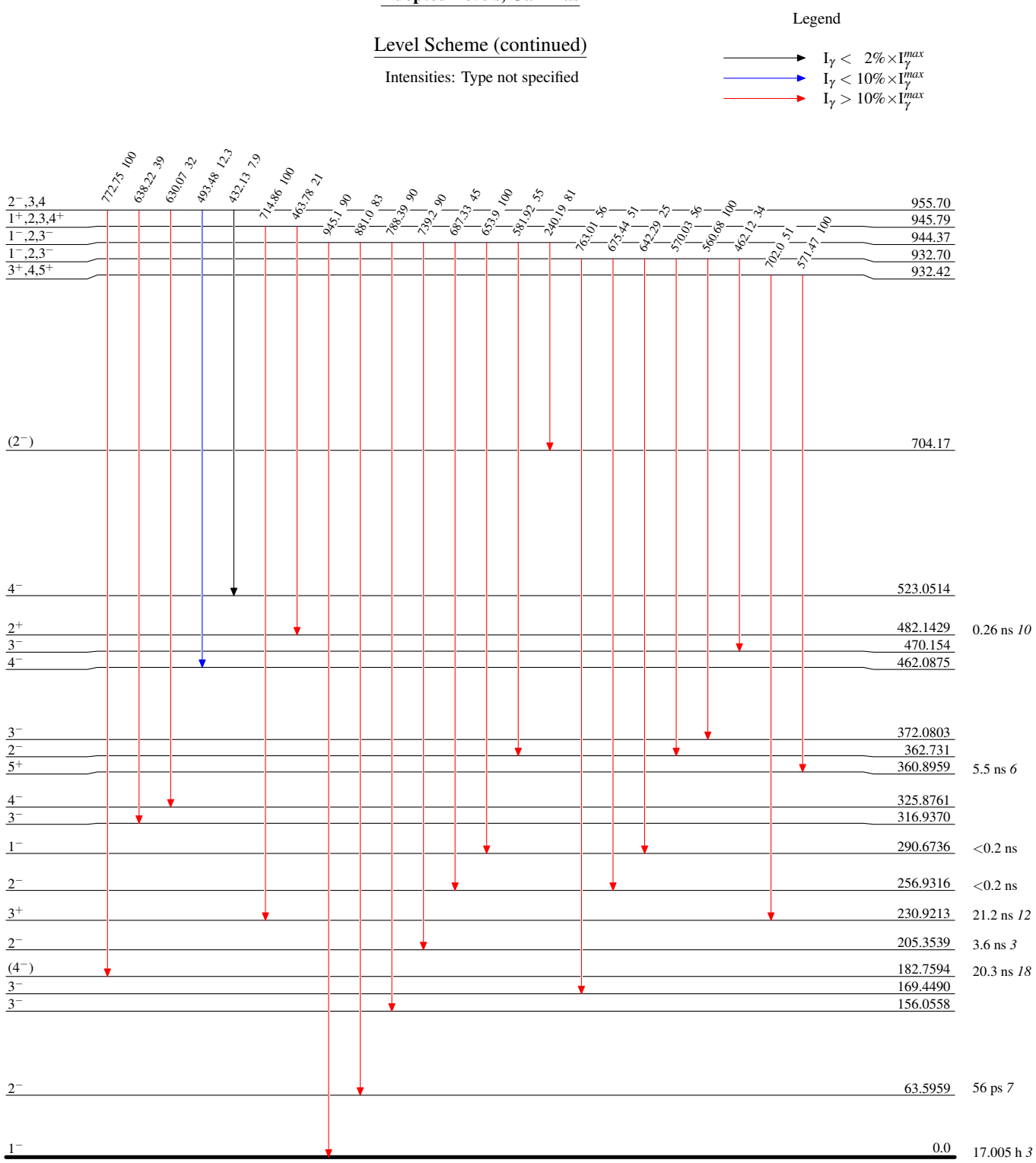


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

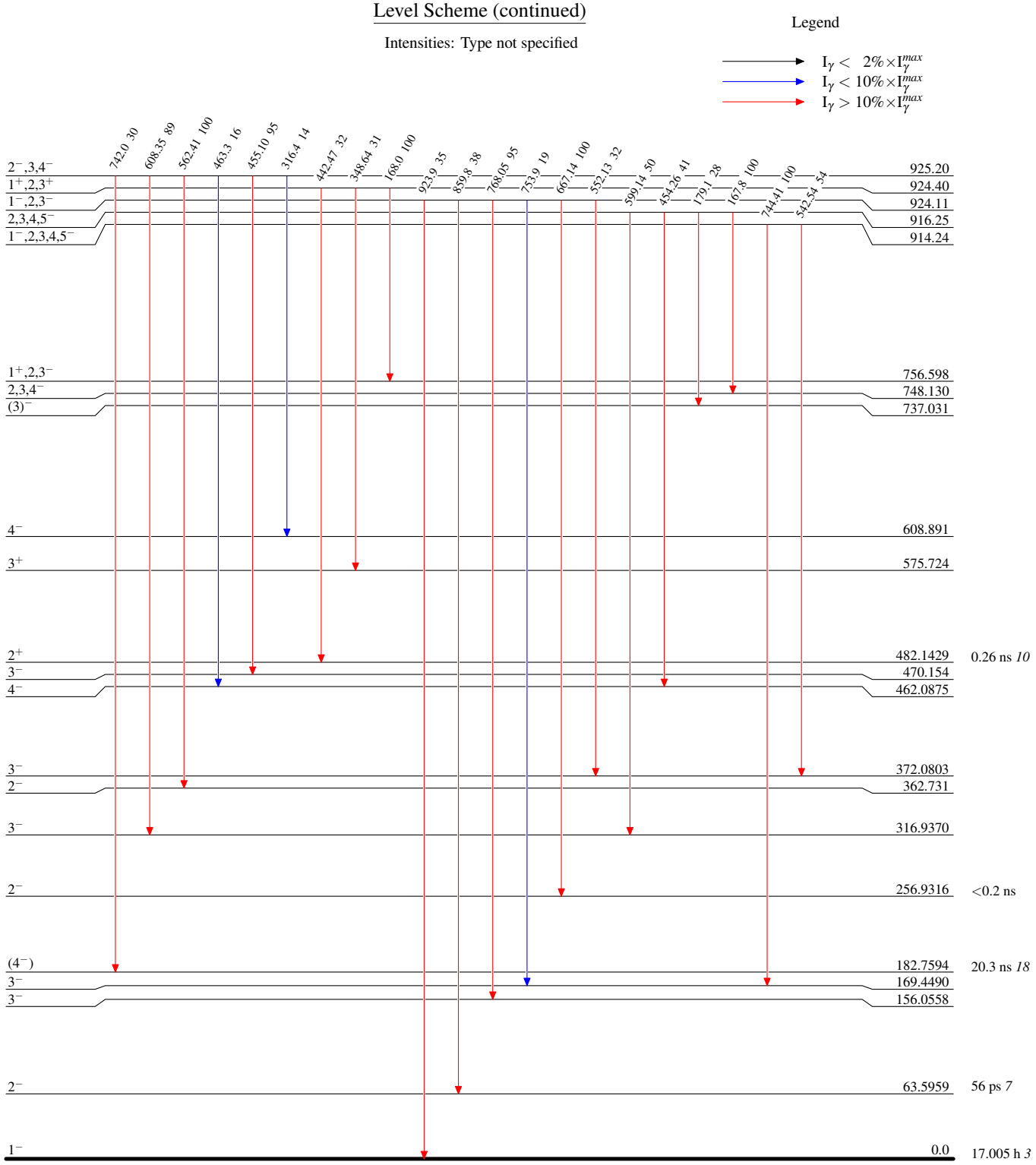


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

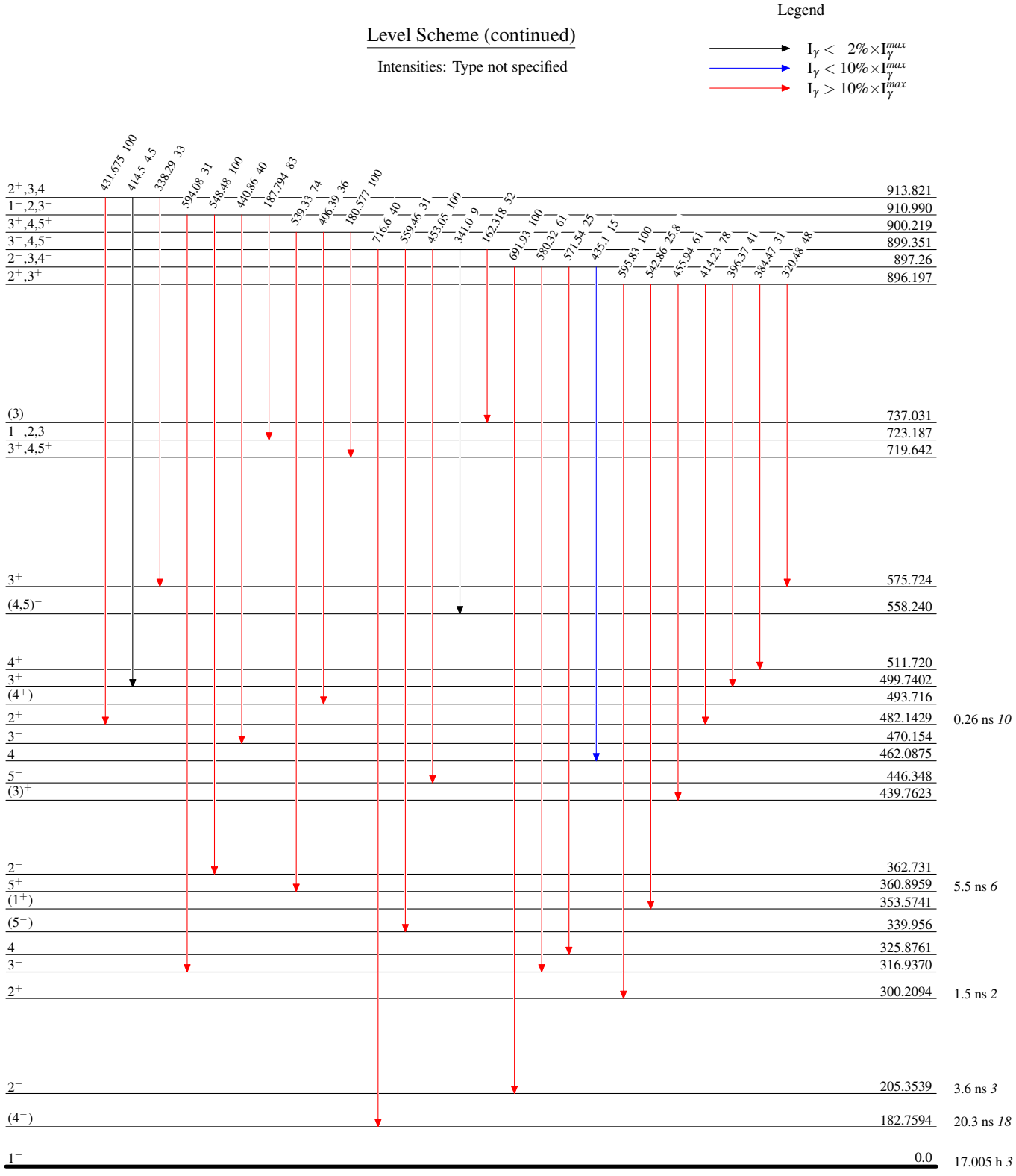


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

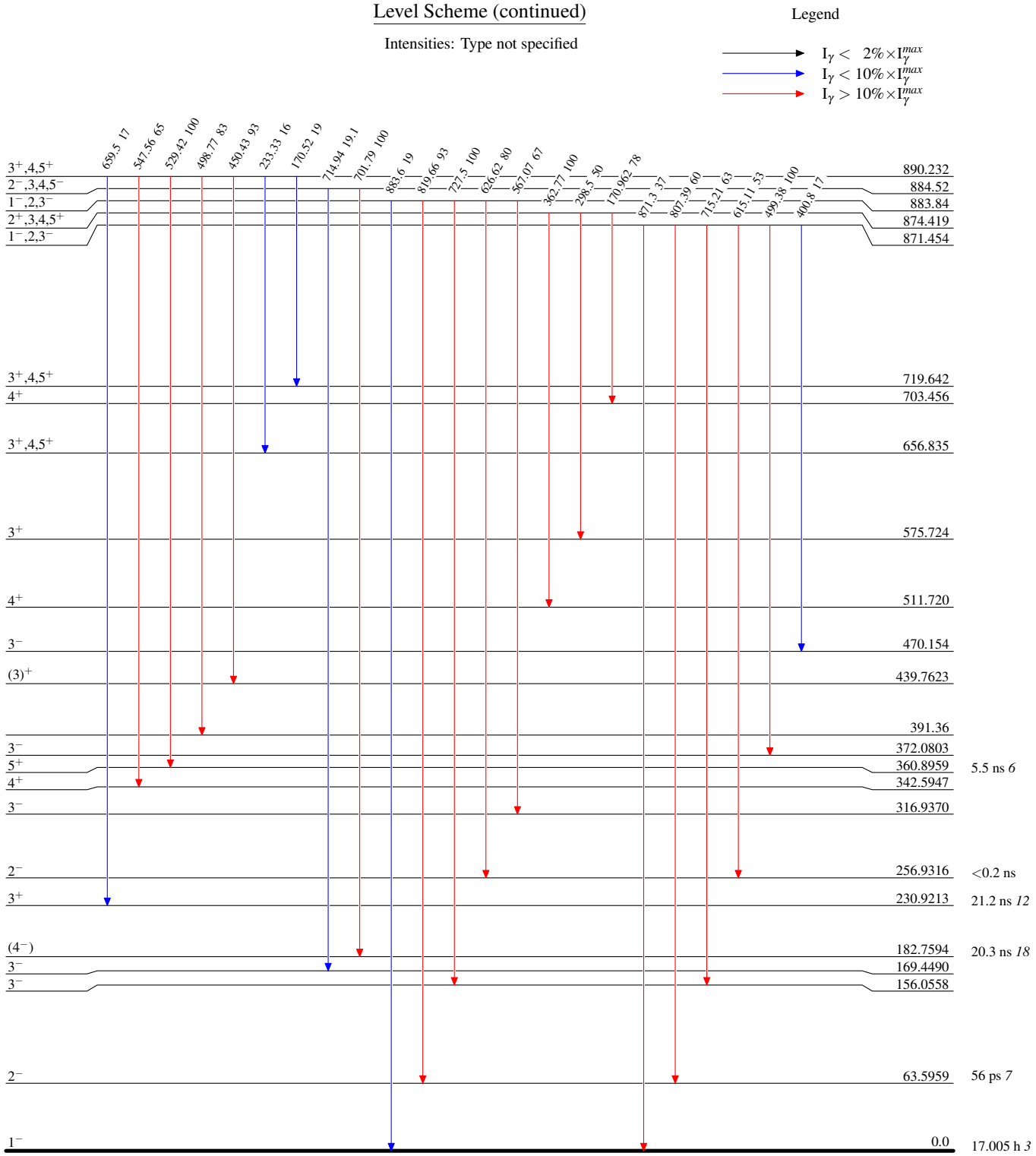


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

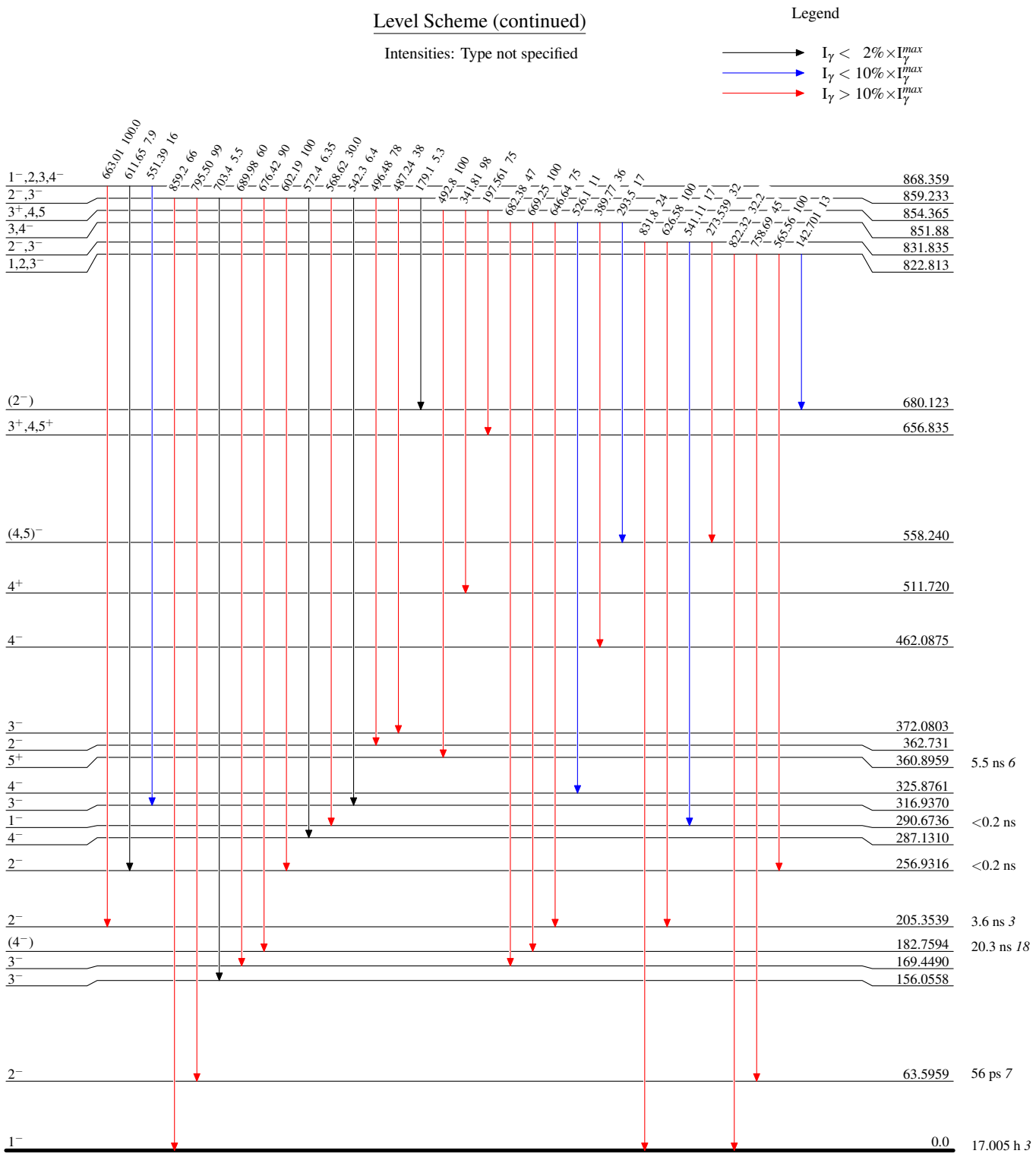


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

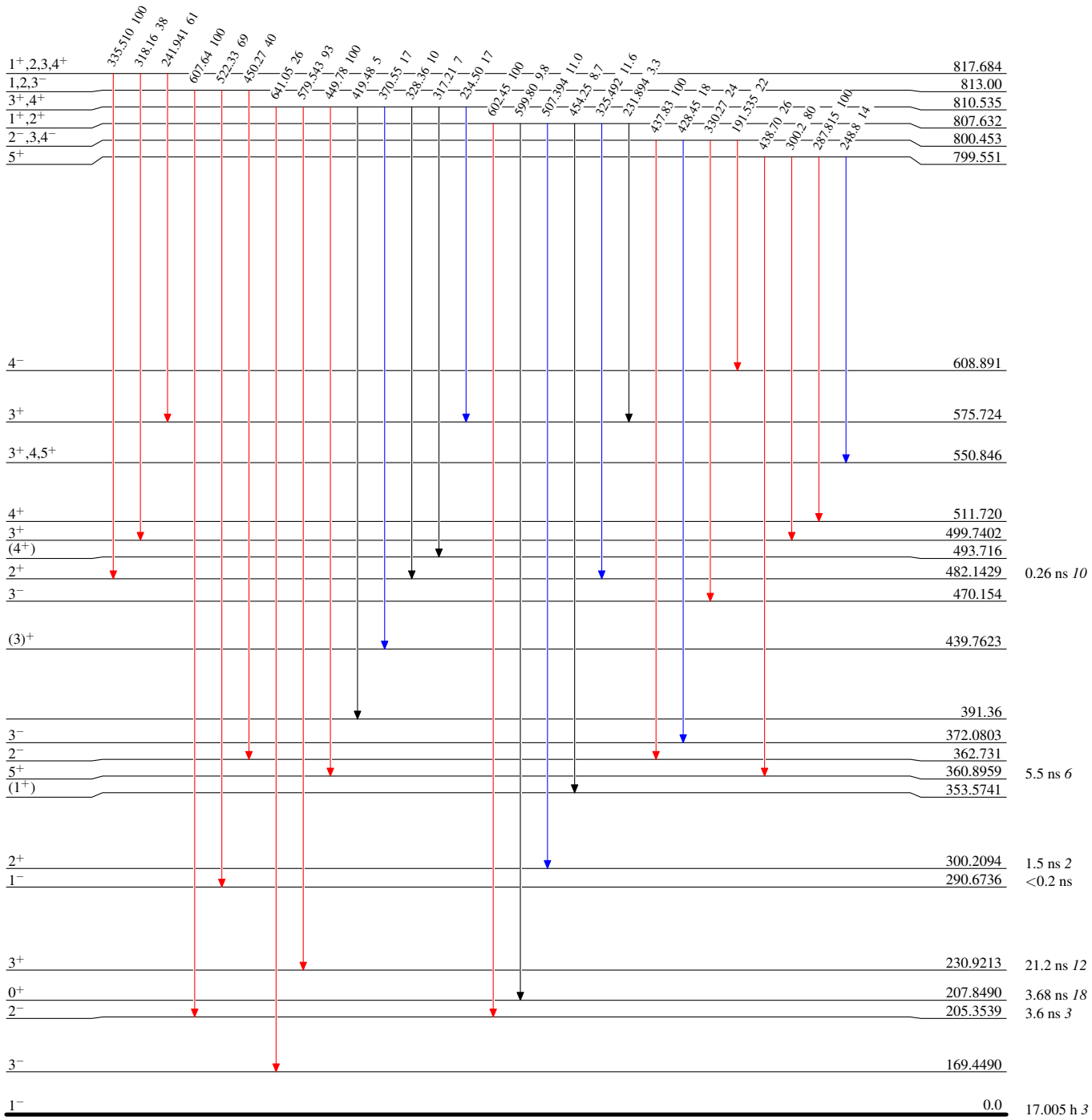
Intensities: Type not specified

Legend

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

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

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

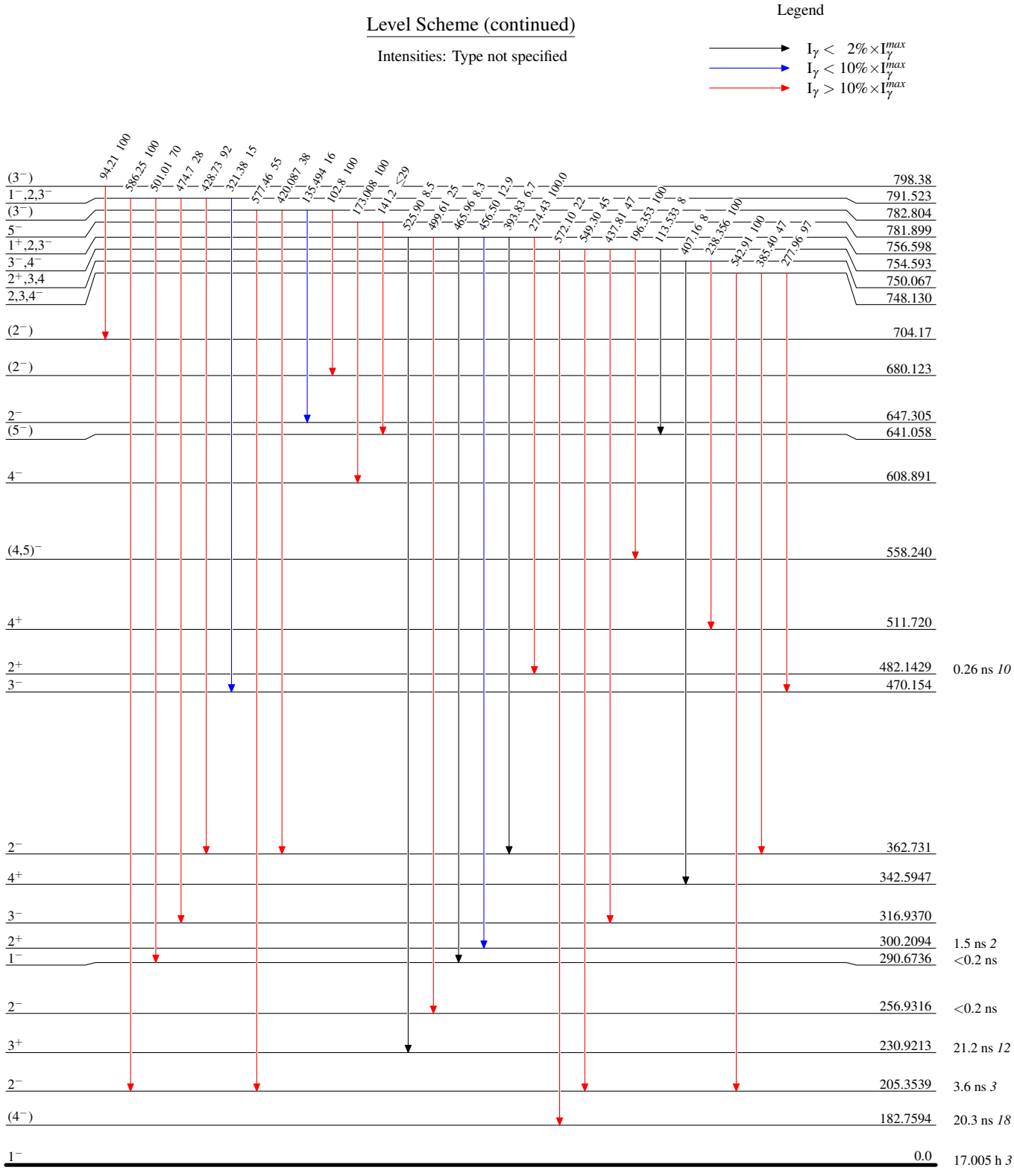


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

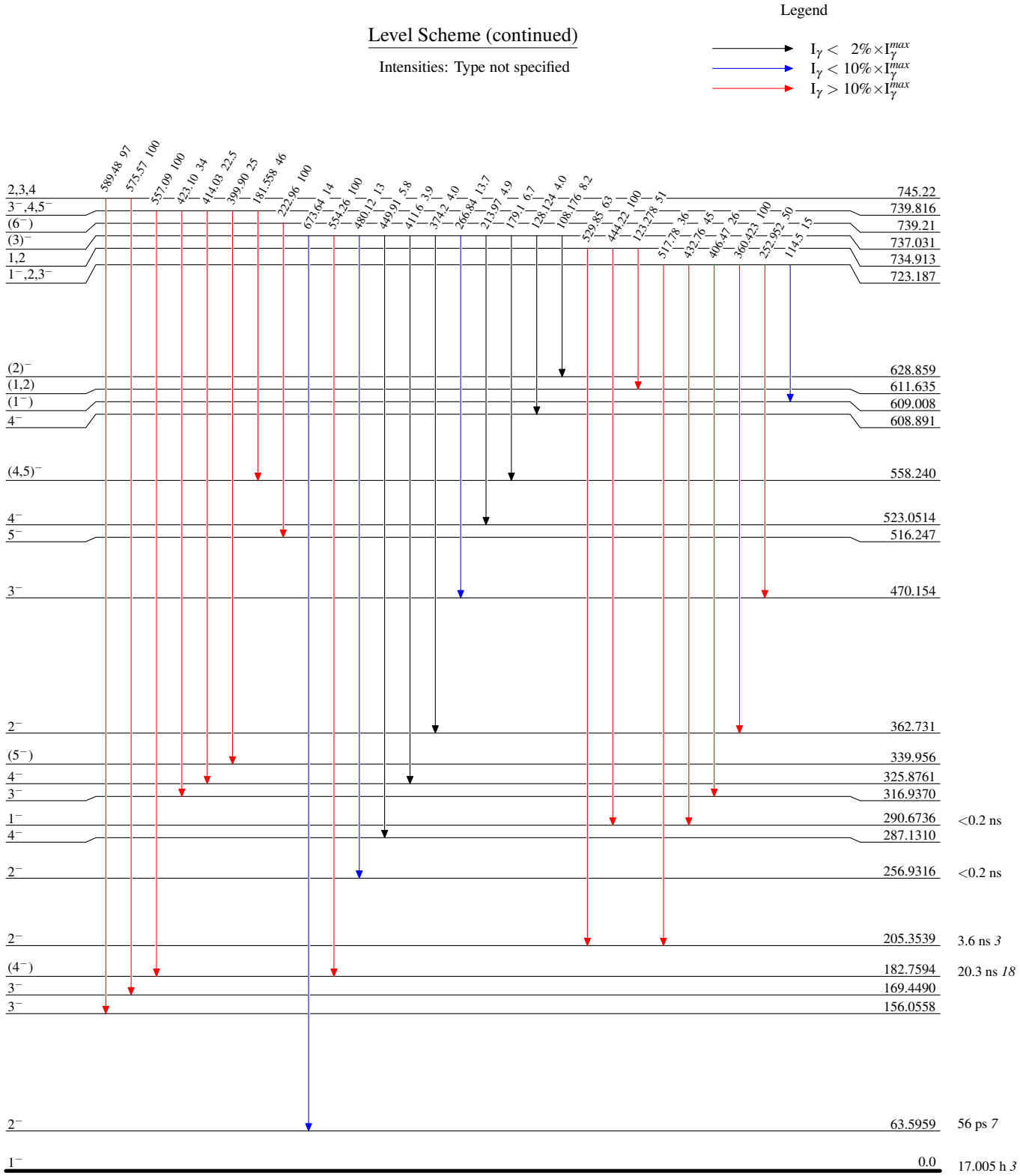


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

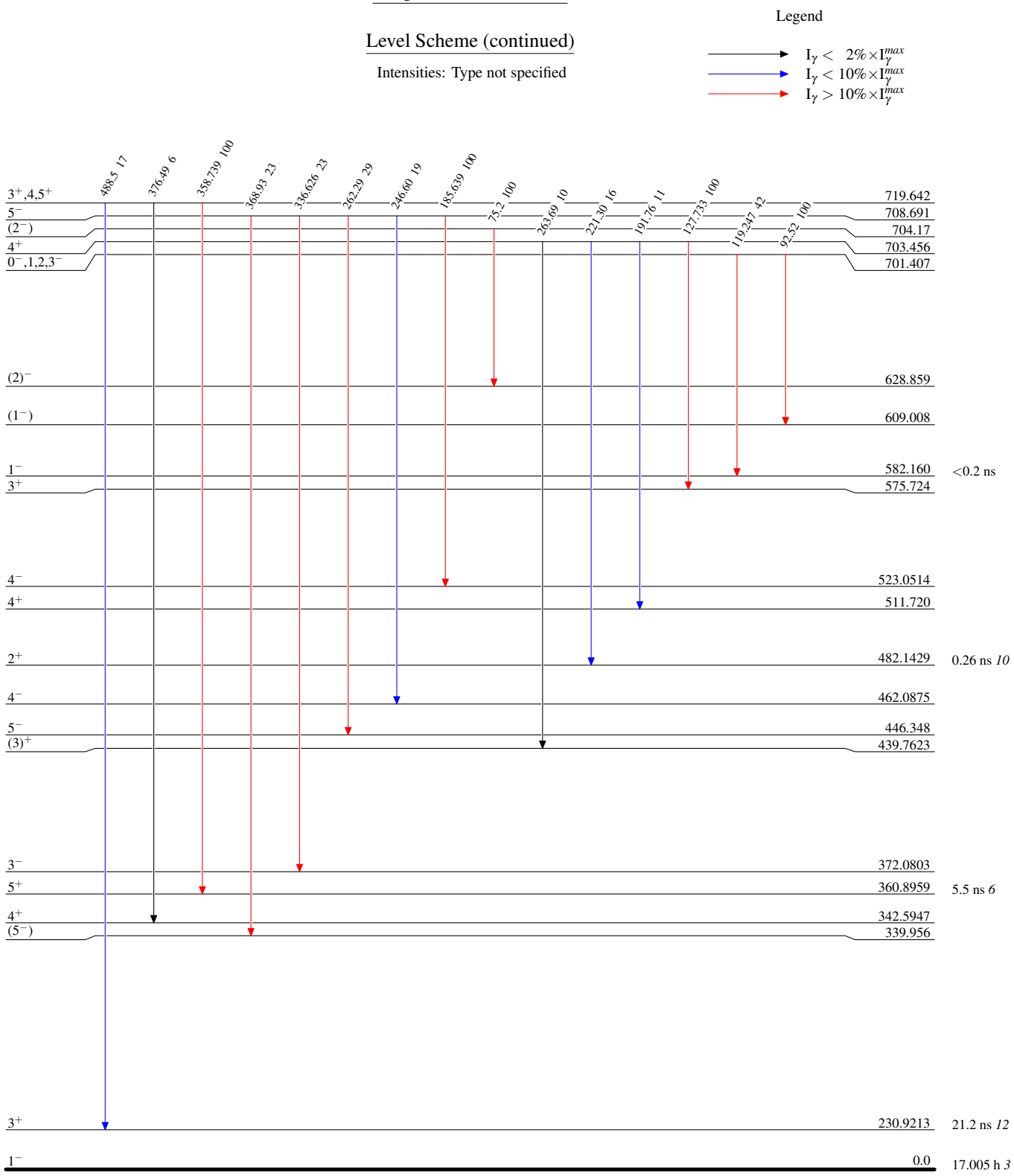


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

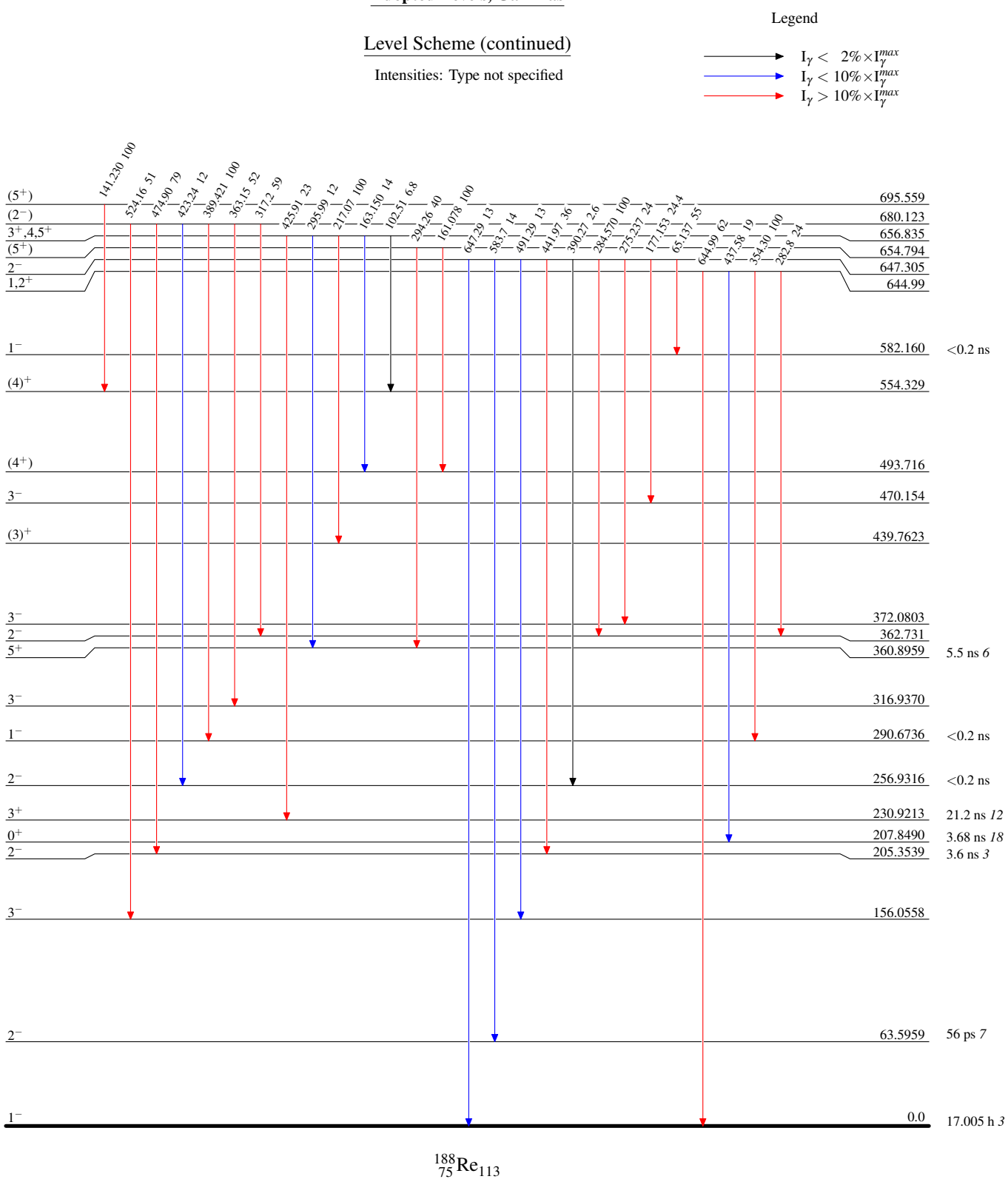


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

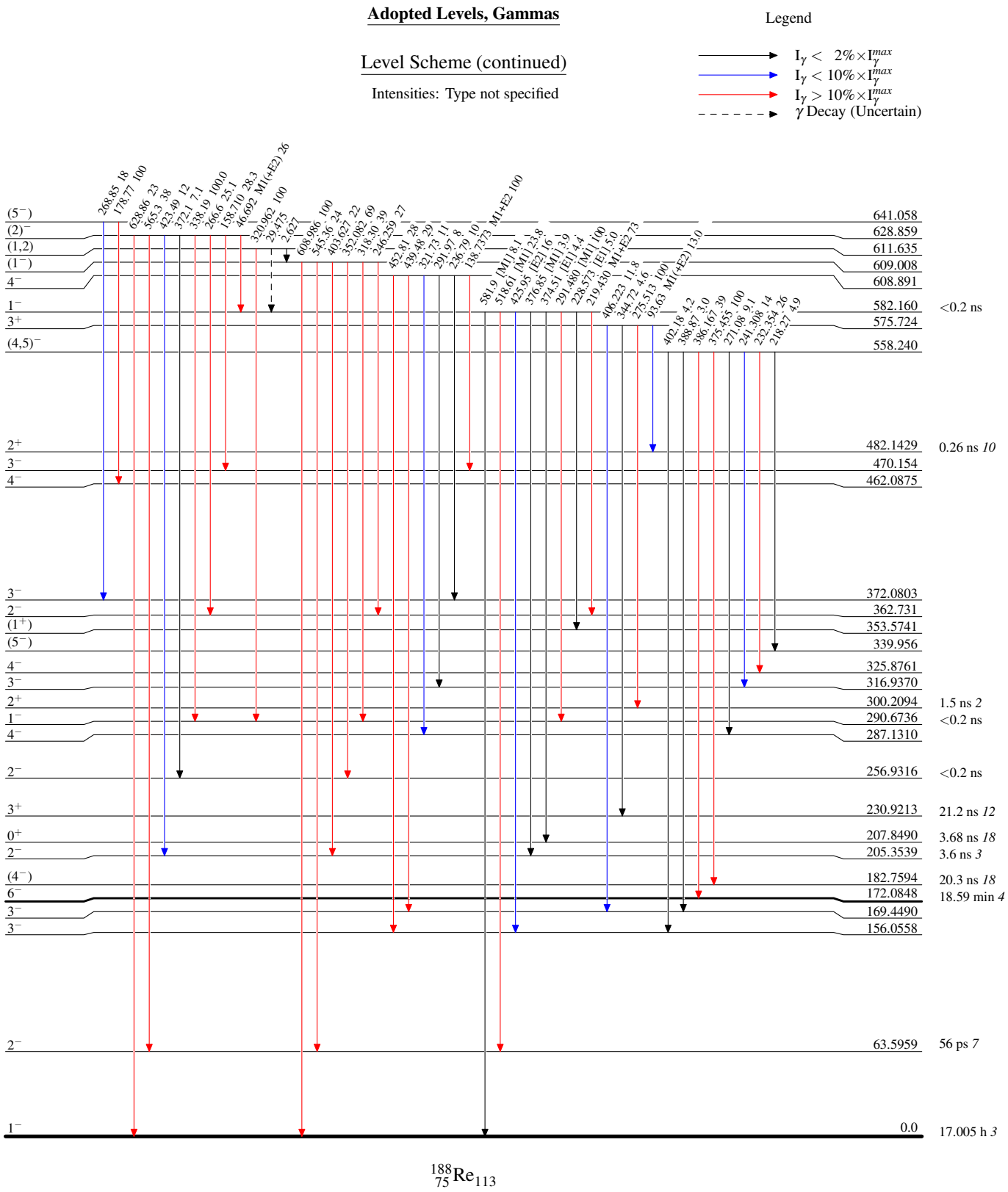


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

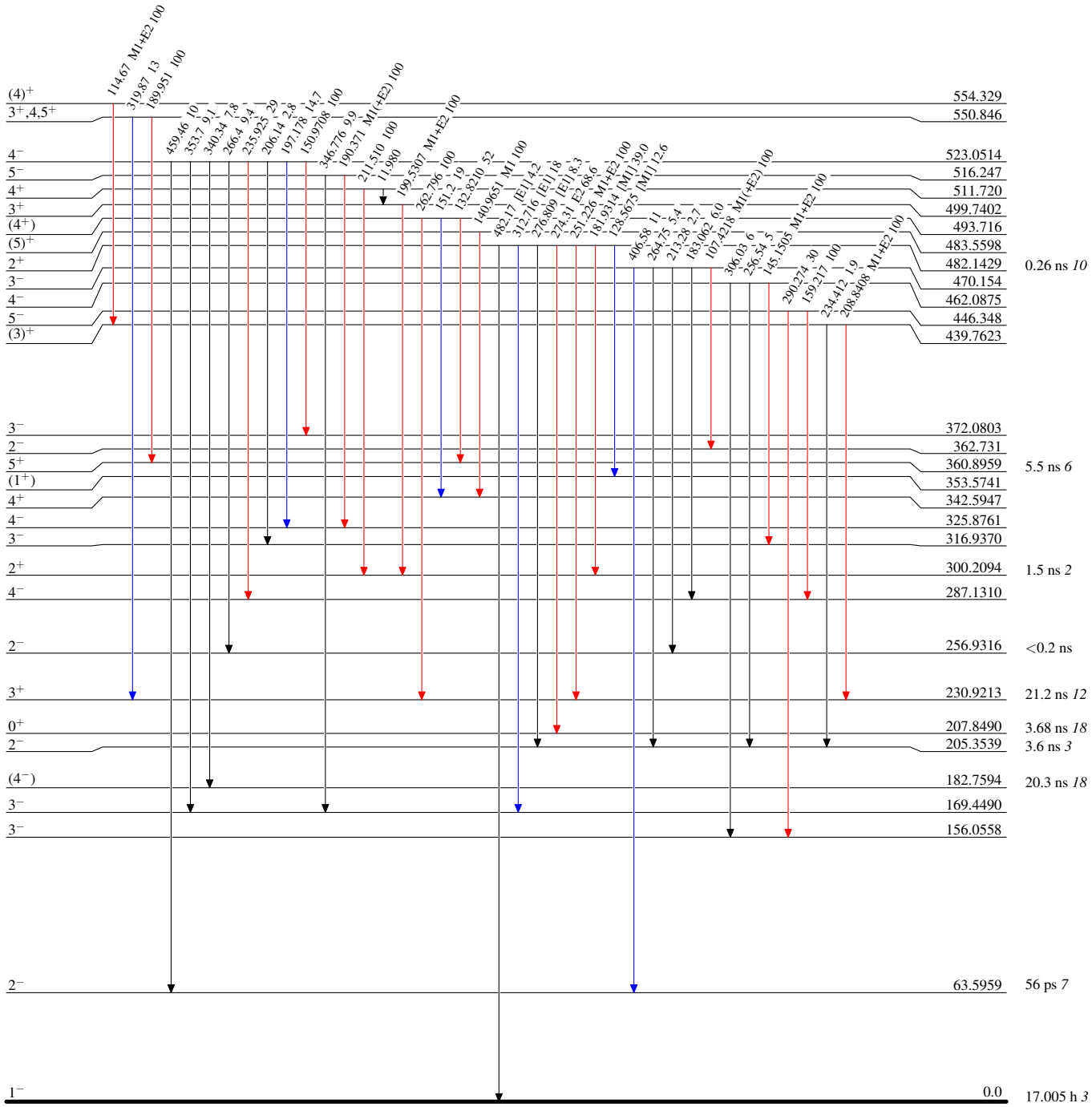
Legend

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

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

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

γ Decay (Uncertain)

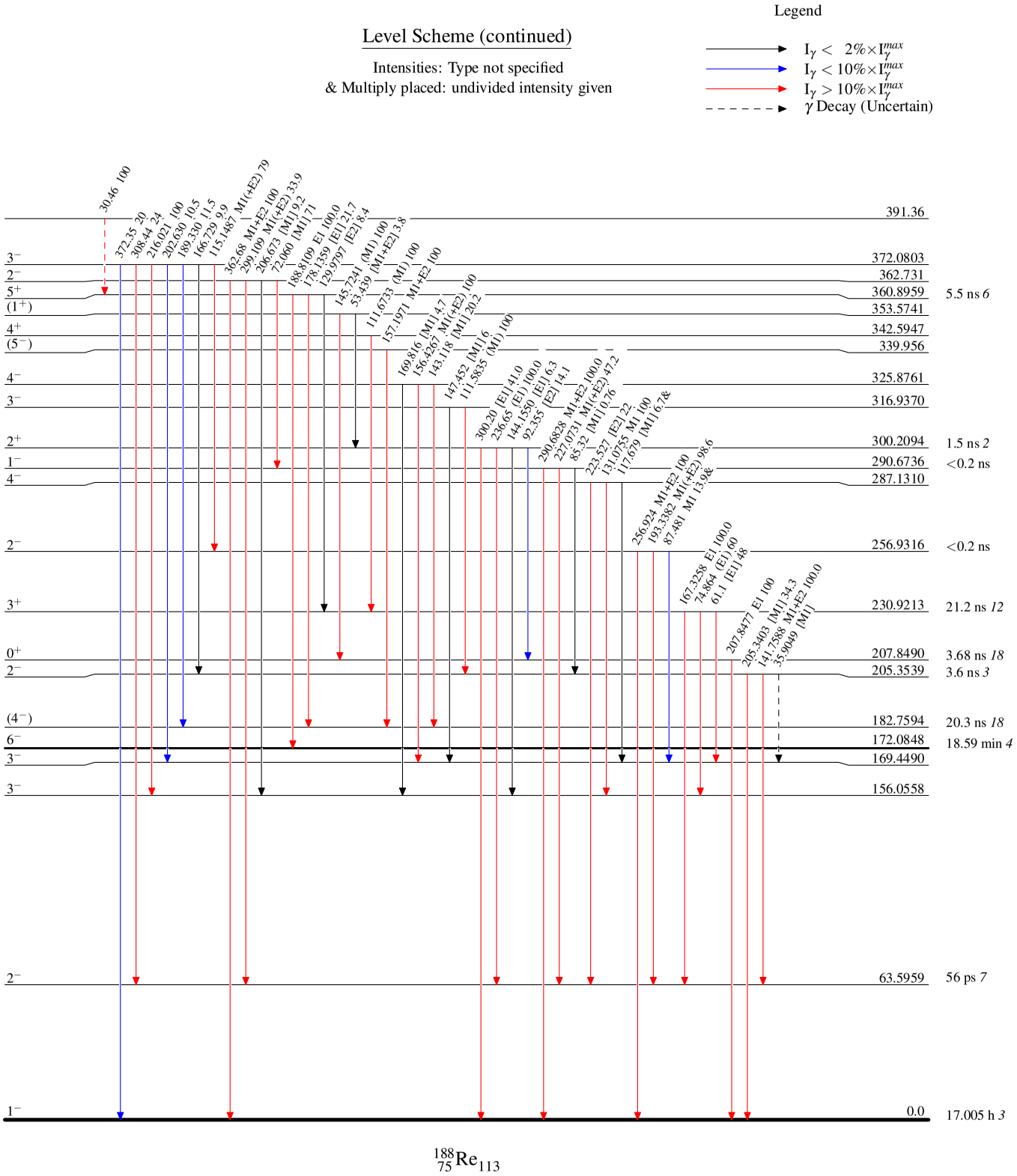


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

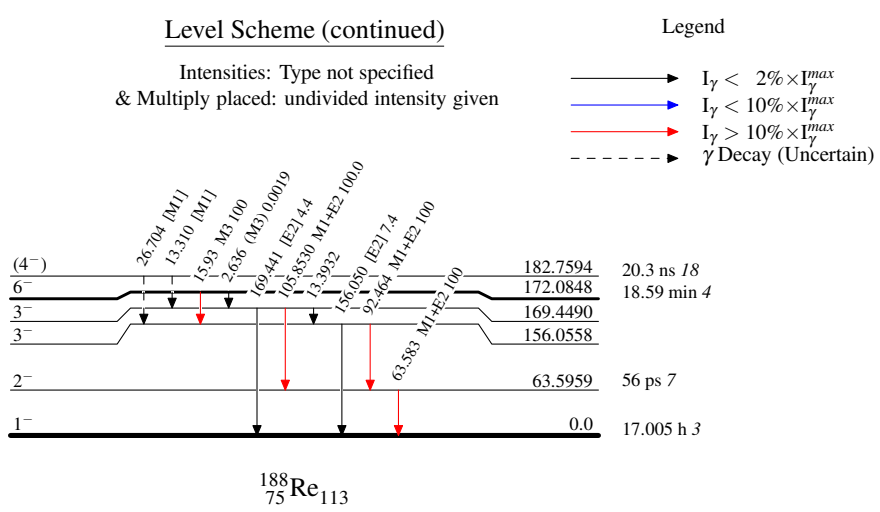


$^{188}_{75}Re_{113}$

Adopted Levels, Gammas

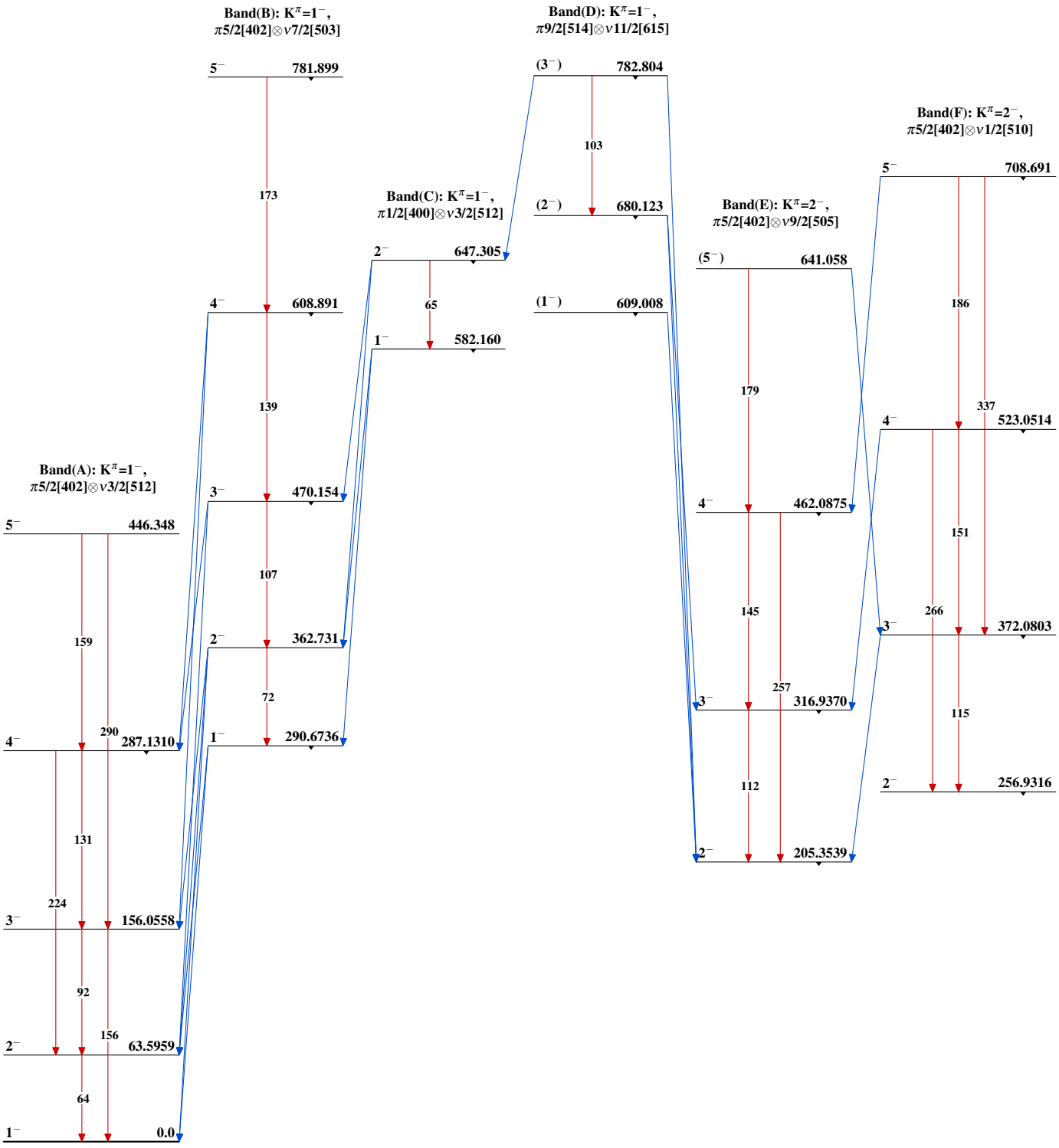
Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given



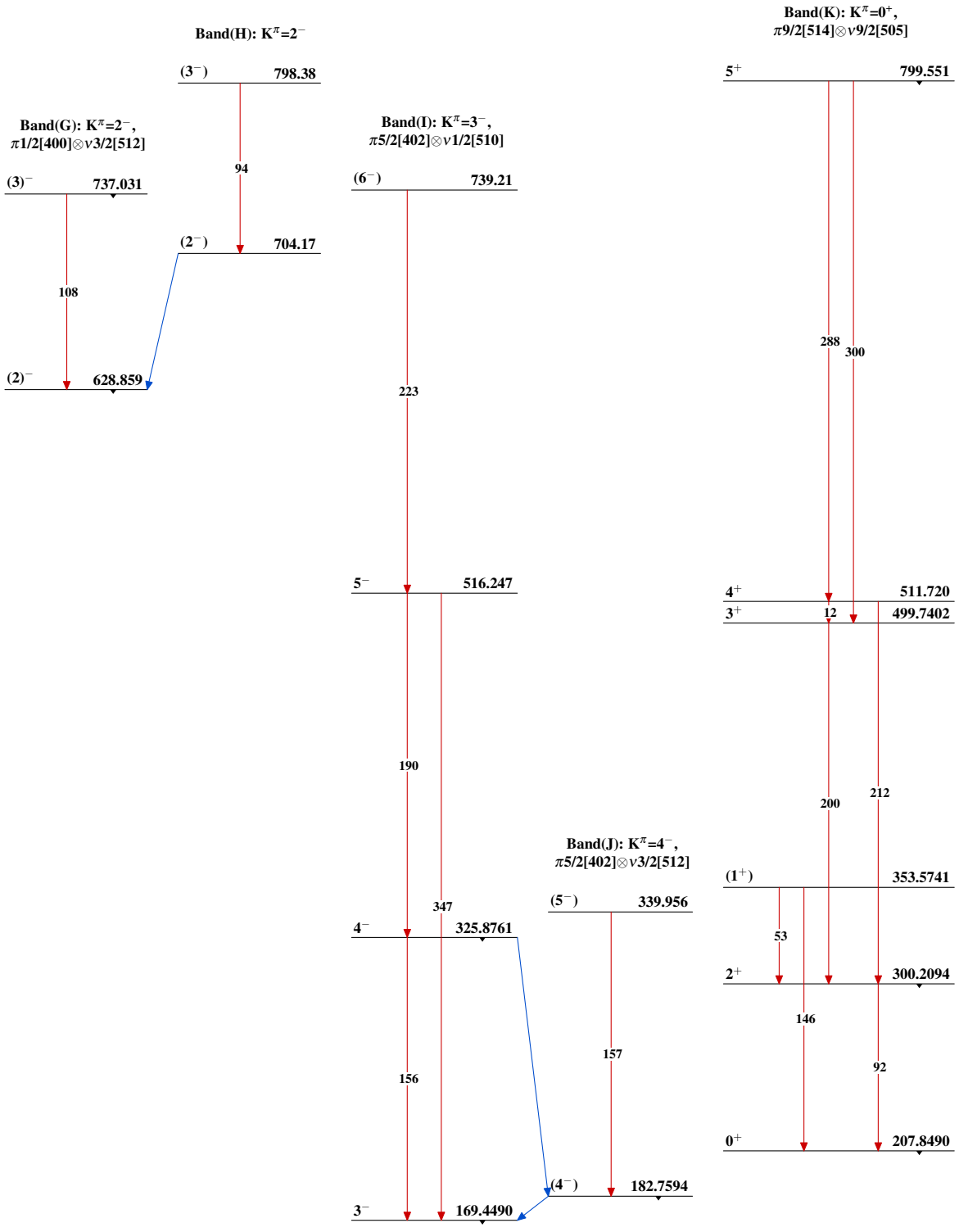
$^{188}_{75}Re_{113}$

Adopted Levels, Gammas



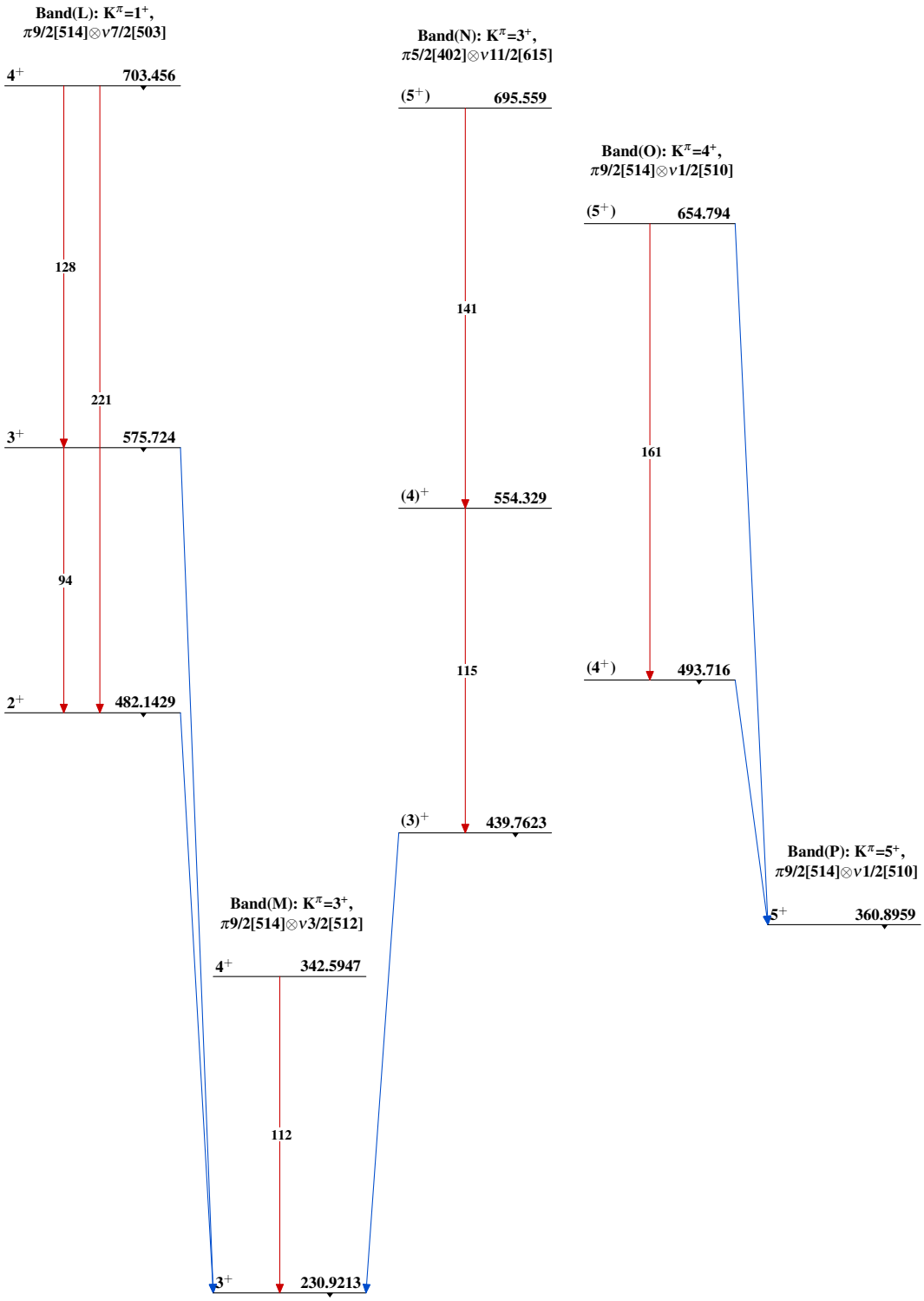
$^{188}_{75}Re_{113}$

Adopted Levels, Gammas (continued)



$^{188}_{75}Re_{113}$

Adopted Levels, Gammas (continued)



$^{188}_{75}Re_{113}$