^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. C. Batchelder and A. M. Hurst, M. S. Basunia	NDS 183, 1 (2022)	1-Mar-2022

Other references: 1973Gl06, 1978Sc10.

2016Ma35: *Near-thermal* supermirror-guided neutron beam from the 10-MW Budapest Research Reactor. Capture-γ measurement using Compton- suppressed High-Purity Germanium (HPGe) detector at the Prompt Gamma Activation Analysis (PGAA) target station located ≈33.5 m from the reactor wall to record singles γ-ray data. 96.74% isotopically- enriched ^{185}Re metal powder (sample mass=150.76 mg) irradiated with 1.5×10^{7} n/cm^{2}/s. Statistical-model analysis using Monte Carlo program DICEBOX to augment experimental data. Measured E$_{\gamma}$, deduced levels, J$^{\pi}$ assignments, branching ratios, mixing ratios, absolute partial γ-ray production cross sections (σ_{γ}) and measured total radiative thermal neutron-capture cross section, σ_0=111 b *6*. Comparison with γ-ray data in previous studies from 1969La11, 1973Gl06. From primary-γ analysis, deduced S$_n$=6179.59 keV *5* from least-squares fit to the γ-ray energies (S$_n$=6179.591 keV *5* in AME 2021Wa16).

1969La11: High-energy (3.6-6.2 MeV) neutron-capture γ-ray spectrum measured using Ge(Li) detector at the Los Alamos National Laboratory using 150 mg rhenium metal target, enriched to 96.6% in ^{185}Re. Deduced S$_n$=6179.5 keV *30* from primary γ spectrum (S$_n$=6179.591 keV *5* in AME 2021Wa16). Prompt low-energy (50-1000 keV) spectrum also measured using same ^{185}Re target and Ge(Li) detector surrounded by NaI annulus operated in anticoincidence mode to reduced Compton background. γ intensities deduced relative to the 214.6-keV γ line.

Measurement of secondary (n,γ) radiation (Eγ and Iγ) between 28.5 to 1360 keV with a bent-crystal spectrometer at Riso, Denmark, using a target sample comprising 79.2% ^{185}Re and 20.8% ^{187}Re. Additional Iγ error of up to 50% for low-energy γ rays (≤ 100 keV) due to γ-ray self-absorption of the sample.

Conversion-electron Ice measurements carried out over the energy range 0-720 keV with a magnetic β spectrometer following the ^{185}Re(n,e$^-$) reaction using thermal neutrons at the Munich Research Reactor, Germany. A 0.4-mg/cm^2 metal-powder target with an area of 12×80 mm^2 enriched to 96.66% in ^{185}Re was used. The target was backed on an aluminum substrate of thickness 0.2 mg/cm^2. Electronic-subshell energies and absolute intensities measured. Multipolarities deduced by comparison to theoretical internal conversion coefficients from 1965Sl05.

1973Gl06: 99.7% ^{185}Re target, Ge(Li) and NaI detectors; measured prompt and delayed $\gamma\gamma$ coin, γ(t); deduced extensive band structure.

The level scheme is essentially that given by 1973Gl06; 1973Gl06 extended the scheme of 1969La11, employing Eγ from 1969La11 and $\gamma\gamma$ coin from 1973Gl06.

2020Kr05: Thermal ^{185}Re(n,γ) measurement performed at the ILL high-flux reactor using 50 mg ^{185}Re metallic powder enriched to 97% exposed to a flux of 5.5×10^{14} n/cm^2/s. Singles γ-ray energies and intensities in range 120 keV to 2 MeV measured with high-resolution crystal-diffraction Bragg spectrometer GAMS5. Secondary γ-ray spectra registered up to third-reflection order, although results are only presented for first- and second-reflection order spectra up to approx. 1 MeV because of relatively low statistics and peak complexity. *J$^{\pi}$* values established from measured depopulation data together with multipolarities from 1969La11. Low-lying level structure analyzed in terms of two-quasiparticle plus rotor-coupling model; deduced configuration assignments of rotational bands. This work supersedes earlier results presented in conference proceedings 2015BeZX by the same authors.

^{186}Re Levels

E(level)[†]	J$^{\pi}$[@]	T$_{1/2}$[c]	Comments
0.0[d]	1$^-$[&]		
59.010[d] *3*	2$^-$		
99.361[e] *3*	3$^-$	25.5 ns *25*	T$_{1/2}$: Other value: 27 ns *7* from Fig. 4 of 1973Gl06.
146.275[d] *4*	3$^-$		
148.2[f] *5*	(8$^+$)	2.0×10^5 y	Additional information 1.

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^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05 (continued)

^{186}Re Levels (continued)

E(level)[†]	Jπ[@]	$T_{1/2}$[c]	Comments
			E(level),Jπ,$T_{1/2}$: From Adopted Levels.
173.929[g] *4*	4−		
180.277[h] *8*	6−		E(level): May deexcite to 99, 148 (8+), 146 and/or 174 levels; however, no deexciting transitions were identified in 1969La11, 1973Gl06. Transitions proposed to 148- (2016Ma35) and 174-keV (2016Ma35, 2020Kr05) levels; intensity estimated based on statistical-model analysis (2016Ma35).
210.699[i] *5*	2−	<0.2 ns	
268.800[d] *6*	4−		
273.627[e] *5*	4−		
314.009[j] *5*	3+	24.1 ns *9*	$T_{1/2}$: Weighted average of 23.1 ns *9* from Fig. 4 of 1973Gl06 and 25.4 ns *10* from 1978Sc10.
316.459[k] *10*	1−	0.20 ns *10*	
317.846[g] *7*	5−		
322.378[i] *6*	3−		
324.429[l] *7*	5+	17.3 ns *7*	$T_{1/2}$: weighted average of 17.4 ns *7* (1973Gl06) and 17.0 ns *10* (1978Sc10).
351.202[m] *16*	4+	<0.2 ns	Jπ: Assignment based on statistical-model analysis in 2016Ma35 together with measured E1 252γ to 3− and [E1] 205γ to 3−. Earlier (3)+ value (1969La11) based on measured E1 252γ alone in 1969La11.
378.387[k] *10*	2−		
414.237[‡h] *22*	7−[b]		Jπ: (9+) in Adopted Levels.
417.794[d] *8*	5−		
420.560[j] *7*	4+		
425.823 *7*	4+		Jπ: (2+,3+,4+) in earlier evaluation (2003Ba44) based on (n,γ) E=2-110 eV (1983Be27,1980BeYB) and observed 112γ to 3+ 314; 3+ in 2020Kr05 from analysis of depopulation data and reported configuration. 4+ assignment from statistical-model analysis in 2016Ma35 adopted due to reproduction of experimental data up to critical energy of 746 keV. Other value 3+ from possible coupling π9/2[514]-ν3/2[512] (2020Kr05). configuration: K^{π}=3+, (π9/2[514])-(ν3/2[512]) proposed in 2020Kr05 implies alternative Jπ=3+ assignment.
462.969[e] *9*	5−		
465.686?[l] *8*	6+		Jπ: (4)+ in earlier evaluation (2003Ba44) based on (π 9/2[514])-(ν 1/2[510]) configuration (1973Gl06) and M1+E2 141γ to 5+ 324. Current assignment supports M1+E2 (2016Ma35) but implies different configuration.
469.794[i] *8*	4−		
470.509[k] *11*	3−		
497.294[g] *10*	6−		
500.722[m] *16*	5+		Jπ: (4)+ in earlier evaluation (2003Ba44) based on M1+E2 150γ to previously assigned (3)+ 351 (see level at 351 keV) 1969La11. New 4+ assignment for 351 is consistent with M1+E2 150γ (2016Ma35). 401γ to 3− 99 is consistent with [M2] assuming current Jπ assignments rather than [E1].
534.37[n] *4*	4−		
549.330 *9*	5+		Jπ: π=(+) in earlier evaluation (2003Ba44) based on M1+E2 124γ to previously tentative (2+,3+,4+) 426 (see 426 level) 1969La11; Current assignment adopted based on reproduction of experimental data up to critical energy of 746 keV from statistical model (2016Ma35). Other value 4+ if band member built on K^{π}=3+ configuration (2020Kr05). Both 4+ and 5+ assignments support M1+E2 to 4+ 426.
556.530?[o] *18*	6+		
559.977[j] *9*	5+		
577.720[p] *15*	2−		
588.705[k] *12*	4−		
595.059[‡d] *3*	6−[b]		

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^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05 (continued)

^{186}Re Levels (continued)

E(level)[†]	Jπ[@]	Comments
601.57[q] 3	1+	
623.89 6	1−	Jπ: (2,3)− from analysis of depopulation data with 2− favored assignment (2020Kr05).
646.346[i] 11	5−	
651.779[‡l] 6	7+[b]	
657.98[q] 3	2+	
660.722[‡r] 5	1−[b]	
665.188[m] 18	6+	Jπ: (5)+ in earlier evaluation (2003Ba44) based on M1+E2 164γ to previously assigned (4)+ 501 (see level at 501 keV) 1969La11. New assignment consistent with M1+E2 164γ to 5+ 501 (2016Ma35).
680.05 11	2−	Jπ: (2−,3−) in earlier evaluation (2003Ba44) from (n,γ) E=2-110 eV (1983Be27,1980BeYB) and observed gammas to 1− g.s. and 3− 322; (2,3)− from analysis of depopulation data with favored 2− assignment (2020Kr05).
686.055[p] 16	3−	
691.37[e] 9	6−	
705.048[‡] 5	(6+)[b]	Jπ: Assignment deduced by evaluator based on suggested band member above 549 level (2020Kr05). Other value 5+ if band member built on $K^{\pi}=3^{+}$ configuration (2020Kr05).
722.962[‡n] 3	5−[b]	
736.126?[k] 15	5−	
744.82[q] 5	3+	
753.267[‡] 4	(2)−[b]	
761.27 16	(1−,2−,3−)[b]	Jπ: 2− assignment favored (2020Kr05).
774.180[‡o] 6	7+[b]	
774.879[‡s] 18	7−[b]	
785.58 15	(1,2)−[b]	Jπ: 2− assignment favored (2020Kr05).
791.225[‡] 5	(2,3)−[b]	Jπ: 3− assignment favored (2020Kr05).
796.44 9	(1,2,3)−[b]	Jπ: 2− assignment favored (2020Kr05).
814.187[‡] 9	(1,2)−[b]	Jπ: 1− assignment favored (2020Kr05).
819.12 14	(2,3)−[b]	Jπ: 3− assignment favored (2020Kr05).
821.30[t] 6	0+[b]	
826.151[p] 16	4−[b]	
855.06?[q] 5	4+[b]	
856.225[‡] 7	(1,2)−[b]	Jπ: 2− favored assignment (2020Kr05).
860.386[‡i] 7	6−[b]	
864.17 15	(2,3)−[b]	Jπ: 3− assignment favored (2020Kr05).
872 4	(2−,3−,4−)[a]	Jπ: 3− assignment favored (2020Kr05).
879.183[‡] 8	(2,3,4)−[b]	Jπ: 3− assignment favored (2020Kr05).
888.777[‡] 3	(3,4)−[b]	Jπ: 3− assignment favored (2020Kr05).
889.676[‡] 4	(2,3)−[b]	Jπ: 3− assignment favored (2020Kr05).
895.283[‡] 9	(3,4)−[b]	Jπ: 4− assignment favored (2020Kr05).
902.336[‡] 8	(2,3)−[b]	Jπ: 2− assignment favored (2020Kr05).
910.478[‡t] 11	2+[b]	E(level),Jπ: Reported in Fig. 4 of 2020Kr05 as member of band built on $K^{\pi}=0^{+}$ configuration, but no transitions connecting this level to other band members were identified because only γ rays above 120 keV were measured. Level energy is lower than 1+ 965-keV band member due to Newby energy shift (2020Kr05).
912.378[‡k] 5	6−[b]	
913.58[‡] 3	(3,4)−[b]	Jπ: 3− assignment favored (2020Kr05).
923.629[‡] 3	(2,3)−[b]	Jπ: 2− assignment favored (2020Kr05).
935.31[#] 20	(2−,3−)[&]	

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^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05 (continued)

^{186}Re Levels (continued)

E(level)[†]	Jπ[@]	Comments
944.238[‡] *10*	(2,3)$^-$[b]	Jπ: 2$^-$ assignment favored (2020Kr05).
954.72 *23*	(2$^-$,3$^-$,4$^-$)[a]	Jπ: 3$^-$ assignment favored (2020Kr05).
965.427[‡t] *4*	1$^+$[b]	E(level),Jπ: Level energy is above 2$^+$ 910-keV band member due to Newby energy shift (2020Kr05).
973.861[‡] *8*	(2,3,4)$^-$[b]	Jπ: 3$^-$ assignment favored (2020Kr05).
982.27 *18*	(2$^-$,3$^-$,4$^-$)[a]	Jπ: 3$^-$ assignment favored (2020Kr05).
988.973[‡] *5*	(3,4)$^-$[b]	Jπ: 3$^-$ assignment favored (2020Kr05).
996.685[‡p] *4*	5$^-$[b]	
997.86[q] *7*	5$^+$[b]	
999.320[‡] *6*	(3,4)$^-$[b]	Jπ: 4$^-$ assignment favored (2020Kr05).
1002.678[‡] *9*	(3,4,5)$^-$[b]	Jπ: 4$^-$ assignment favored (2020Kr05).
1003.526[‡] *4*	(2,3)$^-$[b]	Jπ: 3$^-$ assignment favored (2020Kr05).
1004.156[‡] *6*	(2,3,4)$^-$[b]	Jπ: 3$^-$ assignment favored (2020Kr05).
1013.72[#] *25*	(2$^-$,3$^-$,4$^-$)[&]	
1017.60[#] *17*	(2$^-$,3$^-$,4$^-$)[&]	
1040.25[#] *19*	(2$^-$,3$^-$,4$^-$)[&]	
1053.8[#] *6*	(1$^-$,2$^-$,3$^-$)[&]	
1057.5[#] *5*	(2$^-$,3$^-$)[&]	
1068.56[#] *22*	(2$^-$,3$^-$)[&]	
1071.5[#] *6*	(2$^-$,3$^-$)[&]	
1097.01[#] *18*	(4$^-$)[&]	
1102.69[#] *18*	(2$^-$,3$^-$)[&]	
1122.50[#] *23*	(2$^-$,3$^-$)[&]	
1132.07[#] *20*	(2$^-$,3$^-$,4$^-$)[a]	
1140.9[#] *3*	(2$^-$,3$^-$)[&]	
1151.14[#] *18*	(4$^-$)[&]	
1157.80[#] *20*	(2$^-$,3$^-$,4$^-$)[&]	
1172.19[#] *18*	(2$^-$,3$^-$,4$^-$)[a]	
1184.99[#] *19*	(2$^-$,3$^-$)[&]	
1197.89[#] *18*	(2$^-$,3$^-$)[&]	
1212.0[#] *4*	(2$^+$,3$^+$,4$^+$)[a]	
1227.88[#] *21*	(2$^-$,3$^-$,4$^-$)[a]	
1231.3[#] *3*	(2$^-$,3$^-$)[&]	
1240.3[#] *3*	(2$^-$,3$^-$,4$^-$)[a]	
1242.64[#] *21*	(2$^-$,3$^-$)[&]	
1264[#] *4*	(1$^-$)[&]	
1285.8[#] *9*	(2$^-$,3$^-$)[&]	
1307[#] *5*	(2$^-$,3$^-$,4$^-$)[a]	
1317.32[#] *17*	(2$^-$,3$^-$,4$^-$)[&]	
1321.64[#] *20*	(2$^-$,3$^-$)[&]	
1342.3[#] *4*	(2$^+$,3$^+$,4$^+$)[a]	
1351.16[#] *19*	(4$^-$)[&]	
1355.4[#] *3*	(2$^-$,3$^-$)[&]	
1360.3[#] *4*	(2$^-$,3$^-$,4$^-$)[&]	
1375.7[#] *7*	(1$^-$,2$^-$,3$^-$)[&]	

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^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05 (continued)

^{186}Re Levels (continued)

E(level)[†]	J^π[@]	E(level)[†]	J^π[@]	E(level)[†]	J^π[@]
1393.0[#] 3	$(2^-,3^-)$[&]	1628.18[#] 22	$(2^-,3^-,4^-)$[&]	1964.77[#] 14	$(2^-,3^-,4^-)$[a]
1405.43[#] 16	$(2^-,3^-,4^-)$[&]	1637[#] 5		1985[#] 3	
1419.0[#] 3	$(2^-,3^-)$[&]	1646.87[#] 23	$(2^-,3^-,4^-)$[&]	2004[#] 3	
1437.71[#] 24	$(2^-,3^-,4^-)$[a]	1659.12[#] 15	$(2^-,3^-,4^-)$[a]	2055[#] 4	
1449.8[#] 4	$(1^-,2^-,3^-)$[&]	1665[#] 5	$(2^-,3^-,4^-)$[&]	2063[#] 4	
1457.45[#] 21	$(2^-,3^-)$[&]	1672.3[#] 3	$(1^-,2^-,3^-)$[&]	2083[#] 3	
1462.4[#] 5	$(2^-,3^-)$[&]	1694.7[#] 4	$(2^-,3^-)$[&]	2106[#] 3	
1475.9[#] 3	$(2^-,3^-,4^-)$[a]	1718.91[#] 24	$(2^-,3^-,4^-)$[&]	2141.2[#] 10	
1486.66[#] 17	$(2^-,3^-,4^-)$[a]	1743.16[#] 22	$(2^-,3^-,4^-)$[a]	2203.4[#] 3	$(2^-,3^-,4^-)$[a]
1525.24[#] 20	(4^-)[&]	1758.0[#] 4	$(2^-,3^-)$[&]	2219.19[#] 22	$(2^-,3^-,4^-)$[a]
1544.95[#] 17	$(2^-,3^-,4^-)$[a]	1767[#] 5		2244.81[#] 15	$(2^-,3^-,4^-)$[a]
1550.65[#] 20	$(1^-,2^-,3^-)$[&]	1791[#] 4	$(2^-,3^-,4^-)$[a]	2261[#] 3	$(2^-,3^-,4^-)$[a]
1566.35[#] 18	$(2^-,3^-,4^-)$[&]	1827.54[#] 17	$(2^-,3^-,4^-)$[&]	2319.76[#] 23	$(2^-,3^-,4^-)$[a]
1571.98[#] 20	$(1^-,2^-,3^-)$[&]	1838.7[#] 3	$(1^-,2^-,3^-)$[&]	2359.0[#] 5	$(2^+,3^+,4^+)$[a]
1587.05[#] 16	$(2^-,3^-)$[&]	1846.41[#] 22	$(2^-,3^-)$[&]	6179.53 5	$2^+,3^+$
1601.7[#] 3	$(2^-,3^-,4^-)$[a]	1881.34[#] 22	$(2^-,3^-,4^-)$[a]		
1607.10[#] 22	$(2^-,3^-,4^-)$[a]	1905.8[#] 4	$(2^-,3^-,4^-)$[a]		

[†] From a least-squares fit to Eγ data without using the Eγ of 2020Kr05, yielding normalized χ^2=0.96. Level at 148.2 held fixed during minimization. 2020Kr05 report high precision Eγ; almost all fit poorly. Out of the 241 gammas reported in 2020Kr05, 214 gammas deviate by more than 3σ compared to the calculated values. In the combined dataset, 145 out of 340 gammas deviate by more than 3σ, χ^2=5097 cf. χ^2_{crit}=1.3. Quoted level energies from 2020Kr05 are marked with a footnote.

[‡] From 2020Kr05.

[#] Level fed by primary γ and no deexcitation reported.

[@] Assignment based on comparison of experimental cross sections with simulated level feedings from statistical-model analysis using the DICEBOX computer code (2016Ma35), except where noted. Previously tentative assignments (1969La11,1973Gl06), see earlier evaluation 2003Ba44.

[&] From ^{186}Re Adopted Levels.

[a] Spin window deduced from primary γ rays deexciting the capture state (+^{185}Re target g.s. J^π=5/2$^+$). This assumes the most likely E1 γ via the dominant 3^+ component (98.8% 2016Ma35). The spin window extends to J=1,2,3,4 taking into account the 2^+ component. Lower-probability M1 primary γ rays also allow for π=+ states.

[b] From analysis of depopulation data in 2020Kr05.

[c] From γγ delayed coin (1978Sc10), except as noted. Uncertainty from lowest-input value whenever a weighted mean was taken.

[d] Band(A): $K^\pi=1^-$, (π5/2[402])-(ν3/2[512]) band.

[e] Band(B): $K^\pi=3^-$, (π5/2[402])+(ν1/2[510]) band.

[f] Band(C): $K^\pi=8^+$, (π5/2[402])+(ν11/2[615]) band.

[g] Band(D): $K^\pi=4^-$, (π5/2[402])+(ν3/2[512]) band.

[h] Band(E): $K^\pi=6^-$, (π5/2[402])+(ν7/2[503]) band.

[i] Band(F): $K^\pi=2^-$, (π5/2[402])-(ν1/2[510]) band.

[j] Band(G): $K^\pi=3^+$, (π5/2[402])-(ν11/2[615]) band.

[k] Band(H): $K^\pi=1^-$, (π5/2[402])-(ν7/2[503]) band.

[l] Band(I): $K^\pi=5^+$, (π9/2[514])+(ν1/2[510]) band.

[m] Band(J): $K^\pi=4^+$, (π9/2[514])-(ν1/2[510]) band.

[n] Band(K): $K^\pi=4^-$, (π1/2[411])+(ν7/2[503]) band; tentative configuration.

[o] Band(L): $K^\pi=6^+$, (π9/2[514])+(ν3/2[512]) band.

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^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05 (continued)

^{186}Re Levels (continued)

[p] Band(M): $K^{\pi}=2^{-}$, (π5/2[402])-(ν9/2[505]) band.
[q] Band(N): $K^{\pi}=1^{+}$, (π9/2[514])-(ν7/2[503]) band.
[r] Band(O): $K^{\pi}=1^{-}$, (π9/2[514])-(ν11/2[615]) band; tentative configuration.
[s] Band(P): $K^{\pi}=7^{-}$, (π5/2[402])+(ν9/2[505]) band; tentative configuration.
[t] Band(Q): $K^{\pi}=0^{+}$, (π9/2[514])-(ν9/2[505]) band.

γ(^{186}Re)

Iγ normalization: From 100/σ_0 (b) (radiative capture), measured value σ_0 = 111 b *6* (2016Ma35).

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
(12[‡] *3*)	6.307×10^{-5} *CA*	180.277	6$^-$	173.929	4$^-$	[E2][f]		7×10^4 *4*	≤7×10^{-5}	α(M)=2×10^4 *6* α(N)=5×10^3 *15*; α(O)=7×10^2 *21*; α(P)=0.5 *13* I$_\gamma$: Deduced from statistical-model calculations in 2016Ma35. E$_\gamma$: Reported as an expected transition deduced from energy-level differences in 2016Ma35; 3-keV uncertainty assumed by evaluators.
(38[‡] *3*)	4.505×10^{-3} *CA*	180.277	6$^-$	148.2	(8$^+$)	[M2][f]		1.0×10^3 *5*	≤5×10^{-3}	α(L)=7.5×10^2 *34*; α(M)=2.0×10^2 *9* α(N)=48 *22*; α(O)=8 *4*; α(P)=0.43 *19* I$_\gamma$: Deduced from statistical-model calculations in 2016Ma35. E$_\gamma$: Reported as an expected transition deduced from energy-level differences in 2016Ma35; 3-keV uncertainty assumed by evaluators.
40.350 *3*	1.98 *45*	99.361	3$^-$	59.010	2$^-$	M1+E2	0.124 *+33−45*	16.4 *22*	2.2 *5*	α(L1)exp=13.9 *41*; α(L2)exp=2.8 *11*; α(L3)exp=1.5 *5*; α(M)exp=3.7 *12* α(N)exp=0.7 *5* (1969La11) α(L)=12.6 *17*; α(M)=3.0 *4* α(N)=0.71 *10*; α(O)=0.115 *14*; α(P)=0.00656 *10* I$_\gamma$: Other: 1.44 *22* (1969La11). Mult.: Ice(L1):Ice(L2):Ice(L3):Ice(M): Ice(N)=20 *5*:4.0 *14*:2.1 *6*: 5.3 *16*:1.0 *7* (1969La11). δ: consistent with δ=0.146 *6* from intensity balance through 59-keV level (1972Se06) using Ice(M) from 1969La11 even though Ice(K) (109.5 transition) is superimposed onto the region. δ reported as M1+(1+1.6, 1-0.6)%E2 in 1969La11.

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
56.408 *3*	0.090[a] *27*	657.98	2^+	601.57	1^+	M1+E2	0.85 *25*	24 *7*	0.10 *3*	α(L1)exp=2.6 *8* (1969La11) α(L)=18 *5*; α(M)=4.5 *14* α(N)=1.08 *32*; α(O)=0.16 *4*; α(P)=0.00159 *33* I_γ: Other: 0.250 *38* (1969La11). Mult.: Ice(L1)=0.66 *17* (1969La11); reported as M1+(E2) in 1969La11. δ: Average of deduced upper and lower limits.
59.009 *4*	15.77 *99*	59.010	2^-	0.0	1^-	M1+E2	0.042 *10*	4.21 *7*	17.5 *11*	α(L1)exp=2.96 *54*; α(L2)exp=0.346 *77*; α(L3)exp=0.046 *15*; α(N)exp=0.323 *46* (1969La11) α(L)=3.25 *5*; α(M)=0.744 *12* α(N)=0.1804 *30*; α(O)=0.0302 *5*; α(P)=0.002171 *30* I_γ: Other: 13.0 *13* (1969La11). Mult.: Ice(L1):Ice(L2):Ice(L3):Ice(N)=38.5 *58*:4.5 *9*:0.60 *18*:4.20 *42* (1969La11); reported as pure M1 in 2015BeZX. Ice(M) obscured by Ice(K) (127.4 transition). δ: Average of the deduced upper and lower limits and corresponds to an an E2 admixture of 0.2%, consistent with M1+<0.8%E2 reported in Table 3. of 1969La11.
61.928 *4*	1.00[a] *15*	378.387	2^-	316.459	1^-	M1+E2	0.54 *8*	10.0 *15*	1.11 *17*	α(L1)exp=2.1 *7*; α(M)exp=1.9 *3* (1969La11) α(L)=7.6 *11*; α(M)=1.88 *29* α(N)=0.45 *7*; α(O)=0.067 *9*; α(P)=0.00152 *9* I_γ: Other: 1.20 *12* (1969La11). Mult.: Ice(L1):Ice(M)=2.50 *75*:2.30 *35* (1969La11). Mult.,δ: ce(L1) peak is complex and assigned M1 in 1969La11. Statistical-model calculations also suggest pure M1 (δ=0) transition based on level intensity balance in 2016Ma35.
64.42 *4*	0.0460 *81*	210.699	2^-	146.275	3^-	[M1,E2][f]		15 *12*	0.051 *9*	α(L)=11 *9*; α(M)=2.8 *23* α(N)=0.7 *5*; α(O)=0.10 *7*; α(P)=1.0×10^{-3} *7* I_γ: Other: 0.056 *8* (1969La11).
74.568 *3*	0.856 *63*	173.929	4^-	99.361	3^-	M1+E2	0.12 *+5−8*	11.97 *17*	0.95 *7*	α(L1)exp=0.93 *13*; α(L2)exp=0.17 *5*; α(L3)exp=0.13 *5*; α(M)exp=0.30 *7* (1969La11) α(K)=9.72 *18*; α(L)=1.73 *12*; α(M)=0.400 *30* α(N)=0.097 *7*; α(O)=0.0160 *10*; α(P)=0.001084 *20* I_γ: Other: 1.50 *15* (1969La11). Mult.: Ice(L1):Ice(L2):Ice(L3):Ice(M)=1.40 *10*:0.26 *8*:0.20 *7*:0.45 *9* (1969La11).
86.84 *4*	0.173[c] *13*	744.82	3^+	657.98	2^+	M1		7.75 *11*	0.192 *14*	α(K)exp=15 *6* (1969La11) α(K)=6.41 *9*; α(L)=1.037 *15*; α(M)=0.2371 *33* α(N)=0.0575 *8*; α(O)=0.00966 *14*; α(P)=0.000705 *10* I_γ: Other: 0.24 *5* (1969La11). Mult.: Ice(K)=3.6 *13* (1969La11).

$^{186}_{75}$Re$_{111}$-8

γ(^{186}Re) (continued)

E$_\gamma$[†]	I$_\gamma$[&]	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[e]	δ[e]	α[p]	σ$_\gamma$ (b)[@]	Comments
87.266 *4*	2.14 *13*	146.275	3$^-$	59.010	2$^-$	M1(+E2)	≤0.14	7.64 *11*	2.38 *14*	α(K)exp=4.9 *18*; α(L1)exp=0.90 *13*; α(L3)exp<0.1; α(M)exp=0.175 *25* (1969La11) α(K)=6.27 *10*; α(L)=1.06 *4*; α(M)=0.243 *10* α(N)=0.0589 *23*; α(O)=0.00982 *33*; α(P)=0.000689 *11* I$_\gamma$: Other: 2.0 *2* (1969La11). δ: Consistent with δ=0; deduced upper limit corresponds to an E2 admixture of 1.9% consistent with M1(+<4%E2) reported in Table 3 of 1969La11. Mult.: Ice(K):Ice(L1):Ice(L3):Ice(M)=9.7 *34*:1.80 *18*:<0.20:0.350 *35* (1969La11); pure M1 in (2015BeZX).
92.122 *4*	0.53[a] *12*	470.509	3$^-$	378.387	2$^-$	M1+E2	0.80 *+44−34*	6.24 *19*	0.59 *13*	α(K)exp=3.1 *11*; α(L1)exp=0.8 *3* (1969La11) α(K)=3.7 *10*; α(L)=2.0 *6*; α(M)=0.48 *16* α(N)=0.12 *4*; α(O)=0.017 *5*; α(P)=4.0×10^{-4} *11* I$_\gamma$: Other: 0.590 *59* (1969La11); 0.59 *13* (2020Kr05). Mult.: Ice(K):Ice(L1)=1.80 *63*:0.48 *17* (1969La11); reported as M1 in 1969La11.
99.362 *4*	0.423 *81*	99.361	3$^-$	0.0	1$^-$	E2		4.23 *6*	0.47 *9*	α(L1)exp=0.31 *20*; α(L2)exp=1.33 *24*; α(L3)exp=1.00 *22* (1969La11) α(K)=0.848 *12*; α(L)=2.55 *4*; α(M)=0.650 *9* α(N)=0.1543 *22*; α(O)=0.02198 *31*; α(P)=7.86×10^{-5} *11* I$_\gamma$: Other: 0.51 *8* (1969La11). Mult.: Ice(L1):Ice(L2):Ice(L3)=0.16 *10*:0.68 *7*:0.51 *8* (1969La11). Ice(K) is obscured by Ice(L1) (40.4 transition); corrected Ice(K) intensity is significantly smaller than statistical uncertainty (1969La11).
99.696 *4*	0.270[a] *63*	273.627	4$^-$	173.929	4$^-$	[M1,E2][f]		4.7 *5*	0.30 *7*	α(K)=2.6 *17*; α(L)=1.6 *9*; α(M)=0.40 *24* α(N)=0.10 *6*; α(O)=0.014 *8*; α(P)=2.8×10^{-4} *20* I$_\gamma$: Other: 0.27 *5* (1969La11).
^{x}100.59[m] *4*										I$_\gamma$: 0.06 *2*.
^{x}100.91[m] *3*										I$_\gamma$: 0.06 *2*.
^{x}102.62[m] *2*										I$_\gamma$: 0.06 *2*.
103.310[g] *6*	1.207 *72*	314.009	3$^+$	210.699	2$^-$	[E1][f]		0.352 *5*	1.34 *8*	α(K)=0.287 *4*; α(L)=0.0507 *7*; α(M)=0.01162 *16* α(N)=0.00276 *4*; α(O)=0.000433 *6*; α(P)=2.206×10^{-5} *31* I$_\gamma$: Other: 1.22 *18* (1969La11); 0.99 *16* (2020Kr05).
^{x}103.59[m] *4*										I$_\gamma$: 0.080 *16*.
106.550 *4*	0.820[c] *99*	420.560	4$^+$	314.009	3$^+$	M1+E2	1.5 *+16−5*	3.54 *24*	0.91 *11*	α(K)exp=2.2 *15*; α(L1)exp=0.2 *1* (1969La11)

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
										α(K)=1.6 *6*; α(L)=1.46 *27*; α(M)=0.37 *7* α(N)=0.087 *17*; α(O)=0.0127 *23*; α(P)=1.7×10^{-4} *7* I_γ: Other: 0.640 *64* (1969La11). Mult.: Ice(K):Ice(L1)=1.40 *98*:0.130 *65* (1969La11).
x108.16[m] *4*										I_γ: 0.070 *21*.
108.336 *5*	0.162[a] *36*	686.055	3^-	577.720	2^-	[M1,E2][f]		3.6 *6*	0.18 *4*	α(K)=2.1 *13*; α(L)=1.1 *6*; α(M)=0.28 *15* α(N)=0.07 *4*; α(O)=0.010 *5*; α(P)=2.2×10^{-4} *15* I_γ: Other: 0.20 *4* (1969La11).
x108.58[hm] *4*										I_γ: 0.02.
x109.51[m] *4*										α(L1)exp=4.4 *16* (1969La11) I_γ: 0.05 *1*. Mult.: M2 or E0+M1+E2 based on α(L1)exp; Ice(L1)=0.220 *66*; Ice(K) obscured by Ice(M) (40.4 transition); reported as (M2,E0+E2) in 1969La11. δ: δ≤1.9 assuming E0+M1+E2.
110.240 *4*	0.141 *16*	855.06?	4^+	744.82	3^+				0.157 *18*	I_γ: Other: 0.21 *3* (1969La11).
111.337 *8*	1.15 *16*	210.699	2^-	99.361	3^-	M1(+E2)	≤0.27	3.76 *6*	1.28 *18*	α(K)exp=2.4 *11*; α(L1)exp=0.59 *8* (1969La11) α(K)=3.06 *9*; α(L)=0.540 *35*; α(M)=0.125 *9* α(N)=0.0302 *22*; α(O)=0.00499 *29*; α(P)=0.000334 *11* I_γ: Other: 1.37 *14* (1969La11). Mult.: Ice(K):Ice(L1)=3.3 *15*:0.81 *8* (1969La11); Ice from higher-order subshells indistinguishable due to interference from several overlapping lines. δ: Consistent with δ=0.
111.674 *6*	1.26[a] *27*	322.378	3^-	210.699	2^-	M1+E2	1.29 *+51−32*	3.08 *16*	1.4 *3*	α(K)exp=1.54 *45*; α(L1)exp=0.23 *8* (1969La11) α(K)=1.60 *34*; α(L)=1.12 *14*; α(M)=0.28 *4* α(N)=0.067 *9*; α(O)=0.0098 *11*; α(P)=0.00017 *4* I_γ: Other: 1.60 *24* (1969La11). Mult.: Ice(K):Ice(L1)=2.46 *62*:0.37 *11* (1969La11). Reported as complex line in 1969La11; Ice data deduced by evaluator according to Iγ(111.7γ) fraction of the Iγ(111.7γ+111.8γ)=2.47 doublet.
111.814 *4*	0.99 *36*	425.823	4^+	314.009	3^+	M1+E2	1.29 *+50−32*	3.06 *16*	1.1 *4*	α(K)exp=1.54 *44*; α(L1)exp=0.23 *8* (1969La11) α(K)=1.60 *34*; α(L)=1.11 *14*; α(M)=0.28 *4* α(N)=0.066 *9*; α(O)=0.0097 *11*; α(P)=0.00016 *4* I_γ: Other: 0.87 *13* (1969La11). Mult.: Ice(K):Ice(L1)=1.34 *33*:0.20 *6* (1969La11). Reported as complex line in 1969La11; Ice data deduced by evaluator according to Iγ(111.8γ) fraction of the Iγ(111.7γ+111.8γ)=2.47 doublet.

$^{186}_{75}Re_{111}$-10

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
[x]112.12[hm] *5*										I_γ: 0.03.
118.196 *4*	0.441 *27*	588.705	4$^-$	470.509	3$^-$	[M1,E2][f]		2.7 *5*	0.49 *3*	α(K)=1.6 *10*; α(L)=0.8 *4*; α(M)=0.19 *10* α(N)=0.046 *23*; α(O)=0.0069 *30*; α(P)=1.7×10^{-4} *12* I_γ: Other: 0.25 *4* (1969La11).
122.525 *5*	1.64 *12*	268.800	4$^-$	146.275	3$^-$	[M1,E2][f]		2.4 *5*	1.82 *13*	α(K)=1.5 *9*; α(L)=0.68 *29*; α(M)=0.17 *8* α(N)=0.040 *19*; α(O)=0.0060 *24*; α(P)=1.5×10^{-4} *11* I_γ: Other: 1.5 *3* (1969La11); 1.64 17 (2020Kr05).
123.507 *6*	0.342[c] *45*	549.330	5$^+$	425.823	4$^+$	M1+E2	0.75 *35*	2.46 *23*	0.38 *5*	α(K)exp=2.1 *7* (1969La11) α(K)=1.7 *4*; α(L)=0.58 *13*; α(M)=0.141 *34* α(N)=0.034 *8*; α(O)=0.0052 *10*; α(P)=1.8×10^{-4} *5* I_γ: Other: 0.380 *57* (1969La11); 0.26 *7* (2020Kr05). Mult.: Ice(K)=0.80 *24* (1969La11); Ice(L1) obscured by Ice(N) from 111.7 and 111.8 transitions. Typographical error: Ice(N) (111.3 transition) contamination listed in column 20 of Table 3 in 1969La11 does not have a corresponding transition listed in columns 10 and 11. Reported as M1 in 1969La11. δ: Average of deduced upper and lower limits.
[x]125.35[m] *5*										I_γ: 0.040 *12*.
127.352 *4*	0.68[a] *15*	273.627	4$^-$	146.275	3$^-$	M1+E2	1.7 *+70−7*	1.86 *24*	0.76 *17*	α(L1)exp=0.12 *6* (1969La11) α(K)=0.9 *4*; α(L)=0.70 *12*; α(M)=0.174 *31* α(N)=0.041 *7*; α(O)=0.0061 *9*; α(P)=9.E−5 *5* I_γ: Other: 0.69 *10* (1969La11); 0.74 *12* (2020Kr05). Mult.: Ice(L1)=0.085 *43* (1969La11); Ice(K) obscured by Ice(M) (59.0 transition).
[x]128.66[m] *3*										I_γ: 0.18 *7*.
128.7442[n] *5*	0.04[n] *3*	549.330	5$^+$	420.560	4$^+$	[M1,E2][f]		2.0 *5*		α(K)=1.3 *8*; α(L)=0.56 *22*; α(M)=0.14 *6* α(N)=0.033 *14*; α(O)=0.0049 *18*; α(P)=1.3×10^{-4} *9*
134.158 *16*	0.0604 *72*	559.977	5$^+$	425.823	4$^+$	[M1,E2][f]		1.8 *5*	0.067 *8*	α(K)=1.2 *7*; α(L)=0.47 *17*; α(M)=0.12 *5* α(N)=0.028 *11*; α(O)=0.0042 *14*; α(P)=1.2×10^{-4} *8* I_γ: Other: 0.13 *2* (1969La11); 0.09 *4* (2020Kr05).
[x]135.25[hm] *8*										I_γ: 0.04.
[x]138.22[m] *4*										I_γ: 0.070 *14*.
139.416 *7*	0.333 *54*	559.977	5$^+$	420.560	4$^+$	M1+E2	1.8 *+41−7*	1.35 *19*	0.37 *6*	α(K)exp=0.72 *26* (1969La11) α(K)=0.72 *27*; α(L)=0.48 *6*; α(M)=0.119 *17* α(N)=0.028 *4*; α(O)=0.0042 *5*; α(P)=7.0×10^{-5} *32* I_γ: Other: 0.320 *32* (1969La11); 0.25 *7* (2020Kr05). Mult.: Ice(K)=0.230 *81* (1969La11); reported as E2+M1 in 1969La11.
140.095 *5*	0.469 *54*	826.151	4$^-$	686.055	3$^-$	M1+E2	2.5 *5*	1.24 *6*	0.52 *6*	α(K)exp=0.50 *13*; α(L1)exp=0.20 *9* (1969La11) α(K)=0.59 *8*; α(L)=0.495 *18*; α(M)=0.124 *5*

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
										α(N)=0.0296 *12*; α(O)=0.00431 *15*; α(P)=5.5×10^{-5} *9* E_γ: Other: 140.09188 *11* (2020Kr05). I_γ: Other: 0.640 *96* (1969La11); 0.57 *10* (2020Kr05). Mult.: Ice(K):Ice(L1)=0.320 *64*:0.130 *52* (1969La11).
^{x}140.924[m] *10*										I_γ: 0.090 *14*.
141.257 *5*	0.257 *21*	465.686?	6$^+$	324.429	5$^+$	M1+E2	0.7 *+7−6*	1.65 *28*	0.285 *23*	α(K)exp=1.1 *4*; α(L1)exp+α(L2)exp=0.21 *8* (1969La11) α(K)=1.2 *4*; α(L)=0.34 *9*; α(M)=0.082 *24* α(N)=0.020 *6*; α(O)=0.0031 *7*; α(P)=1.3×10^{-4} *5* E_γ,I_γ: Reported as newly placed transition in 2020Kr05, however, γ is also reported in previous (n,γ) measurements. I_γ: Other: 0.450 *45* (1969La11); 0.42 *9* (2020Kr05). Mult.: Ice(K):Ice(L12)=0.48 *17*:0.094 *33* (1969La11); reported as M1 in 1969La11.
142.80 *4*	0.12 *5*	997.86	5$^+$	855.06?	4$^+$					I_γ: From 2020Kr05.
143.919 *5*	1.44 *18*	317.846	5$^-$	173.929	4$^-$	M1+E2	1.5 *+9−5*	1.27 *16*	1.6 *2*	I_γ: Other: 0.140 *28* (1969La11). α(K)exp=0.72 *20*; α(L1)exp=0.10 *5* (1969La11) α(K)=0.74 *22*; α(L)=0.40 *4*; α(M)=0.100 *12* α(N)=0.0238 *29*; α(O)=0.0035 *4*; α(P)=7.3×10^{-5} *25* I_γ: Other: 1.30 *13* (1969La11); 1.41 *11* (2020Kr05). Mult.: Ice(K):Ice(L1)=0.94 *24*:0.130 *65* (1969La11).
144.0450[n] *3*	0.064[n] *27*	965.427	1$^+$	821.30	0$^+$	[M1,E2][f]		1.4 *4*		α(K)=1.0 *6*; α(L)=0.36 *11*; α(M)=0.087 *32* α(N)=0.021 *7*; α(O)=0.0032 *9*; α(P)=1.0×10^{-4} *7*
144.152[r] *5*	2.34[rib] *27*	324.429	5$^+$	180.277	6$^-$	E1		0.1491 *21*	2.6 *3*	α(K)exp=0.11 *5*; α(L1)exp=0.014 *10* (1969La11) α(K)=0.1226 *17*; α(L)=0.02053 *29*; α(M)=0.00469 *7* α(N)=0.001121 *16*; α(O)=0.0001785 *25*; α(P)=9.89×10^{-6} *14* I_γ: Other: 4.30 *43* undivided Iγ (1969La11); 4.10 *22* estimated Iγ (2020Kr05). Mult.: Ice(K):Ice(L1)=0.49 *20*:0.060 *42* (1969La11).
144.152[rs] *5*	0.0676[rib] *36*	417.794	5$^-$	273.627	4$^-$	[M1,E2][f]		1.4 *4*	0.075 *4*	α(K)=0.9 *6*; α(L)=0.36 *11*; α(M)=0.087 *32* α(N)=0.021 *7*; α(O)=0.0032 *9*; α(P)=1.0×10^{-4} *7* E_γ: Tentative transition in 1969La11. I_γ: Other: 4.30 *43* undivided Iγ (1969La11); 0.455 *24* estimated Iγ (2020Kr05).

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
[x]144.37[m] 6										I_γ: 0.080 24.
145.131 8	0.061[a] 19	462.969	5⁻	317.846	5⁻	[M1,E2][f]		1.4 4	0.068 21	α(K)=0.9 5; α(L)=0.35 11; α(M)=0.085 30 α(N)=0.020 7; α(O)=0.0031 9; α(P)=1.0×10^{-4} 6 I_γ: Other: 0.110 22 (1969La11); 0.14 5 estimated Iγ after background subtraction for ^{188}Re line intensity (2020Kr05).
146.273 12	0.180 36	146.275	3⁻	0.0	1⁻	[E2][f]		0.959 13	0.20 4	α(K)=0.378 5; α(L)=0.439 6; α(M)=0.1110 16 α(N)=0.0264 4; α(O)=0.00381 5; α(P)=3.14×10^{-5} 4 I_γ: Other: 0.17 3 (1969La11); 0.12 5 (2020Kr05).
147.417[r] 6	0.928[rjb] 27	469.794	4⁻	322.378	3⁻	M1+E2[j]	0.95 +27−22	1.34 10	1.03 3	α(K)exp=0.92 13 (1969La11) α(K)=0.92 13; α(L)=0.320 25; α(M)=0.078 7 α(N)=0.0187 17; α(O)=0.00285 20; α(P)=9.6×10^{-5} 16 I_γ: Other: 1.18 12 (1969La11); divided Iγ according to Iγ(147.4γ; 469.8) fraction of the Iγ(147.4γ; 469.8+147.4; 736.1)=1.11 doublet deduced by evaluator using the Iγ data from 2016Ma35 and applying the fraction to the undivided Iγ=1.40 14 reported in 1969La11. I_γ: Other: 1.44 16 estimated Iγ (2020Kr05). Mult.: Ice(K)=1.09 11 (1969La11); deduced by evaluator assuming 0.84 2 fraction of total Ice(K)=1.30 13 (1969La11); Ice(L1) obscured by Ice(M) (137.2 transition).
147.417[rs] 6	0.180[rjb] 20	736.126?	5⁻	588.705	4⁻	(M1+E2)[j]	0.95 +27−22	1.34 10	0.200 22	α(K)exp=0.95 22 (1969La11) α(K)=0.92 13; α(L)=0.320 25; α(M)=0.078 7 α(N)=0.0187 17; α(O)=0.00285 20; α(P)=9.6×10^{-5} 16 I_γ: Other: 0.22 4 (1969La11); divided Iγ according to Iγ(147.4γ; 736.1) fraction of the Iγ(147.4γ; 469.8+147.4; 736.1)=1.11 doublet deduced by evaluator using the Iγ

γ(^{186}Re) (continued)

E_γ [†]	I_γ [&]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [e]	δ [e]	α [p]	σ_γ (b) [@]	Comments
										data from 2016Ma35 and applying the fraction to the undivided Iγ=1.40 *14* reported in 1969La11. I_γ: Other: 0.125 *14* estimated Iγ (2020Kr05). Mult.: Ice(K)=0.21 *3* (1969La11); deduced by evaluator assuming 0.16 *2* fraction of total Ice(K)=1.30 *13* (1969La11); Ice(L1) obscured by Ice(M) (137.2 transition). Placement of γ from 736 level is uncertain (1969La11).
148.09 *6*	0.036[a] *11*	470.509	3$^-$	322.378	3$^-$	[M1,E2][f]		1.3 *4*	0.040 *12*	α(K)=0.9 *5*; α(L)=0.32 *10*; α(M)=0.078 *27* α(N)=0.019 *6*; α(O)=0.0028 *8*; α(P)=9.E−5 *6* I_γ: Other: 0.040 *8* (1969La11); 0.07 *4* (2020Kr05).
148.37 *6*	0.074[a] *18*	322.378	3$^-$	173.929	4$^-$	[M1,E2][f]		1.3 *4*	0.082 *20*	α(K)=0.9 *5*; α(L)=0.32 *10*; α(M)=0.078 *27* α(N)=0.019 *6*; α(O)=0.0028 *8*; α(P)=9.E−5 *6* I_γ: Other: 0.090 *18* (1969La11); 0.09 *4* (2020Kr05).
148.994 *5*	0.514 *90*	417.794	5$^-$	268.800	4$^-$	M1+E2	1.1 *+8−4*	1.24 *18*	0.57 *10*	α(K)exp=0.81 *23* (1969La11) α(K)=0.82 *24*; α(L)=0.32 *4*; α(M)=0.079 *12* α(N)=0.0188 *29*; α(O)=0.00285 *35*; α(P)=8.4×10^{-5} *28* I_γ: Other: 0.68 *14* (1969La11); 0.65 *12* (2020Kr05). Mult.: Ice(K)=0.55 *11* (1969La11).
149.520 *5*	0.72[a] *36*	500.722	5$^+$	351.202	4$^+$	M1+E2	1.8 *+14−5*	1.06 *11*	0.8 *4*	α(K)exp=0.60 *15* (1969La11) α(K)=0.59 *15*; α(L)=0.356 *27*; α(M)=0.089 *8* α(N)=0.0212 *18*; α(O)=0.00312 *21*; α(P)=5.8×10^{-5} *17* I_γ: Other: 0.81 *12* (1969La11); 0.77 *11* (2020Kr05). Mult.: Ice(K)=0.490 *98* (1969La11).
150.5044[n] *11*	0.53[n] *10*	324.429	5$^+$	173.929	4$^-$	E1+M2	0.17 *5*	0.42 *18*		α(K)exp<0.21 (1969La11) α(K)=0.32 *13*; α(L)=0.08 *4*; α(M)=0.018 *9* α(N)=0.0045 *22*; α(O)=7.E−4 *4*; α(P)=4.5×10^{-5} *24* E_γ: Not observed in 2016Ma35. I_γ: Other: 0.57 *9* (1969La11). Mult.: Ice(K)<0.12 (1969La11); reported as E1 in 1969La11.
151.686 *5*	2.21 *13*	210.699	2$^-$	59.010	2$^-$	M1+E2	1.7 *+11−5*	1.03 *11*	2.45 *14*	α(K)exp=0.58 *14*; α(L1)exp≤0.12 (1969La11) α(K)=0.59 *15*; α(L)=0.332 *26*; α(M)=0.082 *7* α(N)=0.0197 *17*; α(O)=0.00291 *20*; α(P)=5.8×10^{-5} *17* I_γ: Other: 2.80 *28* (1969La11); 2.73 *22* (2020Kr05). α(K)exp: from Ice(K)=1.62 *36* of 1969La11 after correction by evaluators for contamination by Ice(L1)(92.1 transition)=0.48 *17*.Typographical error: listed as "L2" in column 20 of Table 3 in 1969La11. α(L1)exp: from Ice(L1) ≤ 0.33 of 1969La11 after

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
										correction by evaluators for contamination by Ice(K)(210.7 transition)=1.60 *16*. Ice(M) obscured by Ice(K)(219.8 transition) and Ice(K)(220.5 transition).
155.6944[n] *4*	0.017[n] *13*	705.048	(6$^+$)	549.330	5$^+$	[M1,E2][f]		1.11 *35*		α(K)=0.8 *4*; α(L)=0.26 *7*; α(M)=0.064 *20* α(N)=0.015 *5*; α(O)=0.0024 *5*; α(P)=8.E−5 *5*
^{x}157.02[m] *3*										I_γ: 0.090 *18*.
^{x}158.68[m] *4*										I_γ: 0.070 *14*.
^{x}158.93[m] *4*										I_γ: 0.040 *16*.
^{x}160.07[m] *6*										I_γ: 0.14 *3*.
^{x}161.68[m] *6*										I_γ: 0.05 *1*.
163.31 *6*	0.117[a] *45*	821.30	0$^+$	657.98	2$^+$				0.13 *5*	E_γ: Other: 163.3688 *3* (2020Kr05). I_γ: Other: 0.11 *3* (1969La11); 0.12 *5* (2020Kr05).
164.466 *8*	0.117[c] *27*	665.188	6$^+$	500.722	5$^+$	M1+E2	1.1 *+9−4*	0.91 *16*	0.13 *3*	α(K)exp=0.61 *18* (1969La11) α(K)=0.62 *19*; α(L)=0.219 *25*; α(M)=0.053 *7* α(N)=0.0128 *17*; α(O)=0.00195 *19*; α(P)=6.4×10^{-5} *23* I_γ: Other: 0.38 *6* (1969La11); 0.43 *10* (2020Kr05). Mult.: Ice(K)=0.23 *6* (1969La11).
^{x}166.49[m] *8*										I_γ: 0.040 *8*.
167.737 *8*	0.514 *27*	314.009	3$^+$	146.275	3$^-$	E1+M2	0.26 *6*	0.53 *20*	0.57 *3*	α(K)exp<0.27 (1969La11) α(K)=0.40 *15*; α(L)=0.10 *4*; α(M)=0.024 *10* α(N)=0.0058 *24*; α(O)=1.0×10^{-3} *4*; α(P)=6.1×10^{-5} *25* I_γ: Other: 0.48 *7* (1969La11); 0.64 *12* (2020Kr05). Mult.: Ice(K)<0.13 (1969La11); reported as E1,E2 in 1969La11. δ: Average of deduced upper and lower limits.
169.431 *8*	0.324[a] *81*	268.800	4$^-$	99.361	3$^-$	M1+E2	1.75 *55*	0.71 *10*	0.36 *9*	α(K)exp=0.37 *16* (1969La11) α(K)=0.43 *11*; α(L)=0.212 *13*; α(M)=0.052 *4* α(N)=0.0125 *9*; α(O)=0.00186 *10*; α(P)=4.2×10^{-5} *13* I_γ: Other: 0.30 *5* (1969La11); 0.32 *16* (2020Kr05). Mult.: Ice(K)=0.11 *4* (1969La11); reported as E2 in 1969La11. δ: Average of the deduced upper and lower limits.
^{x}170.47[gm] *8*										I_γ: 0.070 *18*.
170.5111[n] *4*	0.07[n] *4*	996.685	5$^-$	826.151	4$^-$	[M1,E2][f]		0.84 *29*		α(K)=0.60 *34*; α(L)=0.19 *4*; α(M)=0.045 *11* α(N)=0.0109 *26*; α(O)=0.00168 *28*; α(P)=6.E−5 *4*
^{x}171.15[gm] *8*										I_γ: 0.050 *13*.

From ENSDF

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
[x]172.28[m] 8										I_γ: 0.040 8.
174.271 9	1.000 63	273.627	4⁻	99.361	3⁻	M1+E2	0.71 +26−23	0.88 8	1.11 7	α(K)exp=0.53 11; α(L1)exp=0.16 3 (1969La11) α(K)=0.67 10; α(L)=0.162 10; α(M)=0.0387 29 α(N)=0.0093 7; α(O)=0.00147 7; α(P)=7.1×10^{-5} 11 I_γ: Other: 1.00 15 (1969La11); 1.25 19 (2020Kr05). Mult.: Ice(K):Ice(L1)=0.53 11:0.160 24 (1969La11); reported as M1 in 1969La11.
176.112 8	0.342[a] 72	322.378	3⁻	146.275	3⁻	M1+E2	0.93 +43−31	0.78 10	0.38 8	α(K)exp=0.52 12; α(L1)exp=0.16 6 (1969La11) α(K)=0.57 12; α(L)=0.164 11; α(M)=0.0396 34 α(N)=0.0095 8; α(O)=0.00147 8; α(P)=5.9×10^{-5} 14 I_γ: Other: 0.42 6 (1969La11); 0.43 11 (2020Kr05). Mult.: Ice(K):Ice(L1)=0.22 4:0.066 22 (1969La11). Reported as complex line with mult=M1 in 1969La11; Ice data deduced by evaluator according to Iγ(176.1γ) fraction of the Iγ(176.1γ+176.6γ)=0.76 doublet.
176.2941[rn] 3	0.08[rno] 4	500.722	5⁺	324.429	5⁺	[M1,E2][f]		0.76 27		α(K)=0.55 31; α(L)=0.166 29; α(M)=0.040 9 α(N)=0.0096 20; α(O)=0.00148 21; α(P)=6.E−5 4
176.2941[rn] 3	0.056[rno] 24	912.378	6⁻	736.126?	5⁻	[M1,E2][f]		0.76 27		α(K)=0.55 31; α(L)=0.166 29; α(M)=0.040 9 α(N)=0.0096 20; α(O)=0.00148 21; α(P)=6.E−5 4
176.552 8	0.333 81	646.346	5⁻	469.794	4⁻	M1+E2	0.89 +41−30	0.79 10	0.37 9	α(K)exp=0.53 12; α(L1)exp=0.16 6 (1969La11) α(K)=0.58 12; α(L)=0.161 11; α(M)=0.0388 33 α(N)=0.0093 8; α(O)=0.00145 8; α(P)=6.1×10^{-5} 14 I_γ: Other: 0.34 5 (1969La11); 0.37 10 (2020Kr05). Mult.: Ice(K):Ice(L1)=0.18 3:0.054 18 (1969La11). Reported as complex line with mult=M1 in 1969La11; Ice data deduced by evaluator according to Iγ(176.6γ) fraction of the Iγ(176.1γ+176.6γ)=0.76 doublet.
[x]177.244[gm] 8						M1		1.016 14		α(K)exp=1.1 3 (1969La11) α(K)=0.842 12; α(L)=0.1345 19; α(M)=0.0307 4 α(N)=0.00746 10; α(O)=0.001253 18; α(P)=9.17×10^{-5} 13 I_γ: 0.22 3. Ice(K)=0.25 5 (1969La11).
177.2728[n] 2	0.24[n] 8	595.059	6⁻	417.794	5⁻	[M1,E2][f]		0.75 27		α(K)=0.54 30; α(L)=0.162 28; α(M)=0.039 9

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
										α(N)=0.0094 20; α(O)=0.00145 20; α(P)=6.E−5 4
179.448 7	0.207 36	497.294	6^-	317.846	5^-	[M1,E2][f]		0.72 26	0.23 4	α(K)=0.52 29; α(L)=0.155 25; α(M)=0.038 8 α(N)=0.0090 18; α(O)=0.00139 18; α(P)=5.4×10^{-5} 35 I_γ: Other: 0.27 4 (1969La11); 0.28 9 (2020Kr05).
^{x}182.189[gm] 8						M1+E2	0.55 35	0.82 11		α(K)exp=0.76 22 (1969La11) α(K)=0.65 12; α(L)=0.135 10; α(M)=0.0317 31 α(N)=0.0076 7; α(O)=0.00123 7; α(P)=6.9×10^{-5} 14 I_γ: 0.29 5. Ice(K)=0.220 55 (1969La11). δ: Average of the deduced upper and lower limits.
^{x}183.09[gm] 8										I_γ: 0.030 12.
^{x}186.00[gm] 8										I_γ: 0.060 12.
186.0535[n] 5	0.04[n] 3	651.779	7^+	465.686?	6^+	[M1,E2][f]		0.65 24		α(K)=0.47 27; α(L)=0.136 19; α(M)=0.033 6 α(N)=0.0079 14; α(O)=0.00122 13; α(P)=4.9×10^{-5} 31
^{x}186.70[m] 8										I_γ: 0.040 8.
^{x}187.77[hm] 10										I_γ: 0.03.
188.5670[n] 3	0.16[n] 6	722.962	5^-	534.37	4^-	[M1,E2][f]		0.62 23		α(K)=0.45 26; α(L)=0.130 17; α(M)=0.031 5 α(N)=0.0075 12; α(O)=0.00116 11; α(P)=4.7×10^{-5} 30
189.313 17	0.43[a] 11	462.969	5^-	273.627	4^-	M1+E2	0.91 +35−26	0.64 7	0.48 12	α(K)exp=0.47 8; α(L1)exp+α(L2)exp=0.114 41 (1969La11) α(K)=0.47 8; α(L)=0.126 5; α(M)=0.0303 17 α(N)=0.0073 4; α(O)=0.00114 4; α(P)=4.9×10^{-5} 10 I_γ: Other: 0.780 78 (1969La11); 1.05 11 (2020Kr05). Mult.: Ice(K):Ice(L12)=0.37 6:0.089 31 (1969La11).
^{x}190.73[m] 8										I_γ: 0.070 14.
^{x}192.60[hm] 10										I_γ: 0.04.
193.95 10	0.1279[b] 72	462.969	5^-	268.800	4^-	[M1,E2][f]		0.57 22	0.142 8	α(K)=0.42 24; α(L)=0.117 13; α(M)=0.028 4 α(N)=0.0068 10; α(O)=0.00105 8; α(P)=4.3×10^{-5} 28 E_γ,I_γ: Multiply-placed γ; Iγ estimated from statistical-model analysis (2016Ma35); see 691-keV level.

$^{186}_{75}$Re$_{111}$-17

γ(^{186}Re) (continued)

E_γ [†]	I_γ [&]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [e]	α [p]	σ_γ (b) [@]	Comments
									E_γ: Placement of γ from 463 level is uncertain (1969La11,1973Gl06). I_γ: Other: 0.090 *18* undivided Iγ (1969La11); < 0.06 (2020Kr05).
193.95[s] *10*		691.37	6⁻	497.294	6⁻	[M1,E2][f]	0.57 *22*		α(K)=0.42 *24*; α(L)=0.117 *13*; α(M)=0.028 *4* α(N)=0.0068 *10*; α(O)=0.00105 *8*; α(P)=4.3×10^{-5} *28* E_γ: Multiply-paced γ with unresolved Iγ; not observed in 2016Ma35; see 463-keV level. I_γ: Other: 0.090 *18* (1969La11); undivided Iγ.
[x]195.83[hm] *10*									I_γ: 0.03.
196.98[hs] *10*	0.0198[a] *36*	855.06?	4⁺	657.98	2⁺			0.022 *4*	E_γ: Other: 196.8368 *6* (2020Kr05). I_γ: Other: 0.03 (1969La11); 0.027 *25* (2020Kr05).
[x]197.67[m] *3*									I_γ: 0.110 *17*.
199.5[s]	0.56[c] *19*	577.720	2⁻	378.387	2⁻	[M1,E2][f]	0.53 *20*	0.62 *21*	α(K)=0.39 *22*; α(L)=0.106 *10*; α(M)=0.0255 *34* α(N)=0.0061 *8*; α(O)=0.00095 *6*; α(P)=4.0×10^{-5} *26* E_γ,I_γ: Absent in 1969La11 and reported without intensity in 1973Gl06. I_γ: Other: 0.32 *9* (2020Kr05).
200.981 *16*	0.171[a] *36*	469.794	4⁻	268.800	4⁻	[M1,E2][f]	0.52 *20*	0.19 *4*	α(K)=0.38 *21*; α(L)=0.103 *9*; α(M)=0.0248 *32* α(N)=0.0060 *7*; α(O)=0.00093 *5*; α(P)=3.9×10^{-5} *25* I_γ: Other: 0.23 *3* (1969La11); 0.23 *7* (2020Kr05).
201.78 *10*	0.036[a] *11*	470.509	3⁻	268.800	4⁻	[M1,E2][f]	0.51 *20*	0.040 *12*	α(K)=0.38 *21*; α(L)=0.102 *8*; α(M)=0.0244 *31* α(N)=0.0059 *7*; α(O)=0.00092 *5*; α(P)=3.9×10^{-5} *25* I_γ: Other: 0.040 *8* (1969La11); 0.030 *16* (2020Kr05).
[x]202.64[m] *2*									I_γ: 0.120 *18*.
202.6952[n] *3*	0.092[n] *27*	888.777	(3,4)⁻	686.055	3⁻	[M1,E2][f]	0.50 *20*		α(K)=0.37 *21*; α(L)=0.100 *8*; α(M)=0.0240 *30* α(N)=0.0058 *7*; α(O)=0.00090 *4*; α(P)=3.9×10^{-5} *24*
204.96 *15*	0.050[a] *14*	351.202	4⁺	146.275	3⁻	[E1][f]	0.0606 *9*	0.056 *15*	α(K)=0.0502 *7*; α(L)=0.00807 *11*; α(M)=0.001841 *26* α(N)=0.000441 *6*; α(O)=7.12×10^{-5} *10*; α(P)=4.24×10^{-6} *6* I_γ: Other: 0.060 *15* (1969La11); 0.029 *26* (2020Kr05).
208.9310[n] *5*	0.030[n] *17*	895.283	(3,4)⁻	686.055	3⁻				
209.82 *2*	0.369 *36*	268.800	4⁻	59.010	2⁻	[E2][f]	0.272 *4*	0.41 *4*	α(K)=0.1491 *21*; α(L)=0.0935 *13*; α(M)=0.02337 *33* α(N)=0.00557 *8*; α(O)=0.000818 *11*; α(P)=1.301×10^{-5} *18* I_γ: Other: 0.32 *5* (1969La11); 0.23 *5* (2020Kr05).
210.685 *17*	2.75 *16*	210.699	2⁻	0.0	1⁻	M1	0.628 *9*	3.05 *18*	α(L1)exp=0.085 *15*; α(M)exp=0.023 *5* (1969La11) α(K)=0.520 *7*; α(L)=0.0829 *12*; α(M)=0.01893 *27* α(N)=0.00459 *6*; α(O)=0.000772 *11*; α(P)=5.65×10^{-5} *8* I_γ: Other: 3.30 *33* (1969La11); 3.36 *28* (2020Kr05). Mult.: Ice(L1):Ice(M)=0.28 *4*:0.076 *15* (1969La11).
213.8470[n] *5*	0.08[n] *4*	860.386	6⁻	646.346	5⁻	[M1,E2][f]	0.43 *17*		α(K)=0.32 *18*; α(L)=0.083 *4*; α(M)=0.0199 *17* α(N)=0.0048 *4*; α(O)=0.000749 *13*; α(P)=3.3×10^{-5} *21*

$^{186}_{75}$Re$_{111}$-18

γ(^{186}Re) (continued)

E_γ [†]	I_γ [&]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [e]	δ [e]	α [p]	σ_γ (b) [@]	Comments
^{x}213.92[gm] *15*										I_γ: 0.060 *12*.
214.648 *8*	5.95 *36*	314.009	3$^+$	99.361	3$^-$	E1		0.0539 *8*	6.6 *4*	α(K)exp=0.035 *10*; α(L1)exp=0.0086 *23* (1969La11) α(K)=0.0447 *6*; α(L)=0.00716 *10*; α(M)=0.001632 *23* α(N)=0.000391 *5*; α(O)=6.33×10^{-5} *9*; α(P)=3.80×10^{-6} *5* I_γ: Other: 6.5 *7* (1969La11); 7.8 *5* (2020Kr05). Mult.: Ice(K):Ice(L1)=0.23 *6*:0.056 *14* (1969La11).
215.28 *15*	0.088[a] *22*	686.055	3$^-$	470.509	3$^-$	[M1,E2][f]		0.42 *17*	0.098 *24*	α(K)=0.31 *18*; α(L)=0.0811 *33*; α(M)=0.0194 *16* α(N)=0.00467 *35*; α(O)=0.000732 *12*; α(P)=3.3×10^{-5} *21* I_γ: Other: 0.110 *22* (1969La11); 0.14 *6* (2020Kr05).
217.8928[n] *5*	0.09[n] *5*	774.180	7$^+$	556.530?	6$^+$	[M1,E2][f]		0.41 *17*		α(K)=0.30 *17*; α(L)=0.0778 *26*; α(M)=0.0186 *14* α(N)=0.00447 *30*; α(O)=0.000702 *10*; α(P)=3.2×10^{-5} *20*
^{x}217.91[m] *10*						M1		0.572 *8*		α(K)exp=0.7 *3* (1969La11) α(K)=0.474 *7*; α(L)=0.0754 *11*; α(M)=0.01723 *24* α(N)=0.00418 *6*; α(O)=0.000702 *10*; α(P)=5.15×10^{-5} *7* I_γ: 0.090 *18*. Mult.: Ice(K)=0.064 *26* (1969La11).
218.6187[ns] *5*	0.08[n] *4*	317.846	5$^-$	99.361	3$^-$	[E2][f]		0.2378 *33*		α(K)=0.1337 *19*; α(L)=0.0790 *11*; α(M)=0.01971 *28* α(N)=0.00470 *7*; α(O)=0.000692 *10*; α(P)=1.176×10^{-5} *16* E_γ: Not observed in 2016Ma35. I_γ: Other: 0.060 *12* (1969La11); undivided $I\gamma$.
218.69 *10*	0.103[c] *11*	796.44	(1,2,3)$^-$	577.720	2$^-$				0.114 *12*	I_γ: Other: 0.060 *12* (1969La11); undivided $I\gamma$.
219.78[g] *10*	0.214 *16*	821.30	0$^+$	601.57	1$^+$				0.237 *18*	E_γ: Other: 219.7526 *3* (2020Kr05). I_γ: Other: 0.19 *3* (1969La11); 0.23 *8* (2020Kr05).
^{x}220.51[gm] *15*										I_γ: 0.04 *1*.
^{x}221.76[m] *10*										I_γ: 0.070 *11*.

From ENSDF

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
223.035 *15*	0.450[a] *27*	322.378	3⁻	99.361	3⁻	M1+E2	0.97 *+28−22*	0.38 *4*	0.50 *3*	α(K)exp=0.29 *4* (1969La11) α(K)=0.29 *4*; α(L)=0.0717 *10*; α(M)=0.01712 *35* α(N)=0.00412 *8*; α(O)=0.000649 *9*; α(P)=3.0×10^{-5} *5* I_γ: Other: 0.550 *55* (1969La11); 0.49 *11* (2020Kr05). Mult.: Ice(K)=0.160 *16* (1969La11).
223.1878[n] *4*	0.19[n] *8*	601.57	1⁺	378.387	2⁻	[E1][f]		0.0489 *7*		α(K)=0.0405 *6*; α(L)=0.00647 *9*; α(M)=0.001475 *21* α(N)=0.000354 *5*; α(O)=5.73×10^{-5} *8*; α(P)=3.47×10^{-6} *5*
228.42 *10*	0.0784[c] *81*	691.37	6⁻	462.969	5⁻	[M1,E2][f]		0.35 *15*	0.087 *9*	α(K)=0.27 *15*; α(L)=0.0661 *9*; α(M)=0.0158 *7* α(N)=0.00380 *14*; α(O)=0.000598 *20*; α(P)=2.8×10^{-5} *17* I_γ: Other: 0.110 *22* (1969La11) undivided Iγ; 0.028 *16* estimated Iγ (2020Kr05).
228.5199[ns] *7*	0.042[no] *24*	646.346	5⁻	417.794	5⁻	[M1,E2][f]		0.35 *15*		α(K)=0.27 *15*; α(L)=0.0660 *9*; α(M)=0.0158 *7* α(N)=0.00379 *14*; α(O)=0.000597 *20*; α(P)=2.8×10^{-5} *17* E_γ: Placement of γ from 646 level is uncertain (1969La11,1973Gl06); γ not observed in 2016Ma35. I_γ: Other: 0.110 *22* (1969La11); undivided Iγ.
[x]230.65[m] *15*										I_γ: 0.04 *1*.
232.100[rg] *16*	0.496[rb] *54*	378.387	2⁻	146.275	3⁻	M1+E2	0.57 *17*	0.410 *31*	0.55 *6*	α(K)exp=0.35 *6*; α(L1)exp+α(L2)exp=0.19 *6* (1969La11) α(K)=0.329 *31*; α(L)=0.0630 *9*; α(M)=0.01469 *23* α(N)=0.00355 *5*; α(O)=0.000578 *9*; α(P)=3.5×10^{-5} *4* E_γ: Complex γ line in 1969La11. I_γ: Other: 0.57 *6* undivided Iγ (1969La11); 0.56 *12* (2020Kr05). Mult.: Ice(K):Ice(L12)=0.20 *3*:0.11 *3* (1969La11); mult=M1+E2 for doublet; reported as M1 in 1969La11. δ: Average of deduced upper and lower limits.
232.100[rg] *16*	0.162[rb] *36*	556.530?	6⁺	324.429	5⁺	M1+E2	0.47 *17*	0.429 *32*	0.18 *4*	α(K)exp=0.35 *6*; α(L1)exp+α(L2)exp=0.19 *6* (1969La11) α(K)=0.347 *32*; α(L)=0.0631 *9*; α(M)=0.01463 *23*

$^{186}_{75}$Re$_{111}$-20

^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05 (continued)

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
										α(N)=0.00354 *5*; α(O)=0.000581 *10*; α(P)=3.7×10^{-5} *4* E_γ,I_γ: Reported as newly placed transition in 2020Kr05, however, γ is also reported in previous (n,γ) measurements. I_γ: Other: 0.57 *6* undivided Iγ (1969La11); 0.25 *8* (2020Kr05). Mult.: Ice(K):Ice(L12)=0.20 *3*:0.110 *33* (1969La11); mult=M1+E2 for doubly-placed γ; reported as M1 in 1969La11. δ: Average of deduced upper and lower limits.
237.5479[n] *3*	0.047[no] *14*	923.629	(2,3)$^-$	686.055	3$^-$					
237.60 *15*	0.066[a] *19*	826.151	4$^-$	588.705	4$^-$				0.073 *21*	E_γ: Other: 237.5479 *3* (2020Kr05). I_γ: Other: 0.090 *18* (1969La11); 0.047 *14* estimated Iγ (2020Kr05).
^{x}241.90[hm] *20*										I_γ: 0.04.
^{x}246.81[gm] *20*										I_γ: 0.10 *2*.
^{x}248.75[m] *10*										I_γ: 0.040 *8*.
^{x}249.65[m] *10*										I_γ: 0.05 *1*.
251.841 *15*	3.87 *27*	351.202	4$^+$	99.361	3$^-$	E1		0.0362 *5*	4.3 *3*	α(K)exp=0.030 *7* (1969La11) α(K)=0.0301 *4*; α(L)=0.00475 *7*; α(M)=0.001082 *15* α(N)=0.000260 *4*; α(O)=4.22×10^{-5} *6*; α(P)=2.61×10^{-6} *4* I_γ: Other: 4.6 *5* (1969La11); 4.91 *20* (2020Kr05). Mult.: Ice(K)=0.140 *28* (1969La11).
253.6189[n] *6*	0.033[n] *17*	910.478	2$^+$	657.98	2$^+$	[M1,E2][f]		0.26 *11*		α(K)=0.20 *11*; α(L)=0.0465 *31*; α(M)=0.01105 *30* α(N)=0.00266 *9*; α(O)=0.00042 *4*; α(P)=2.1×10^{-5} *13*
254.995 *15*	2.87 *17*	314.009	3$^+$	59.010	2$^-$	E1		0.0351 *5*	3.19 *19*	α(K)exp=0.021 *8* (1969La11) α(K)=0.0292 *4*; α(L)=0.00460 *6*; α(M)=0.001048 *15* α(N)=0.0002516 *35*; α(O)=4.09×10^{-5} *6*; α(P)=2.533×10^{-6} *35* I_γ: Other: 3.6 *4* (1969La11); 3.52 *17* (2020Kr05). Mult.: Ice(K)=0.076 *27* (1969La11).
257.446 *15*	2.80 *16*	316.459	1$^-$	59.010	2$^-$	M1+E2	0.55 +*22*−*23*	0.310 *31*	3.11 *18*	α(K)exp=0.25 *3* (1969La11) α(K)=0.250 *30*; α(L)=0.0460 *11*;

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
										α(M)=0.01069 18 α(N)=0.00258 5; α(O)=0.000424 13; α(P)=2.67×10^{-5} 35 I_γ: Other: 3.6 4 (1969La11); 3.46 17 (2020Kr05). Mult.: Ice(K)=0.89 4 (1969La11); Ice(L1) obscured by Ice(K) (316.5 transition); reported as M1 in 1969La11.
[x]259.40[m] 10										I_γ: 0.110 17.
260.5964[n] 5	0.060[n] 25	996.685	5⁻	736.126?	5⁻	[M1,E2][f]		0.24 11		α(K)=0.19 10; α(L)=0.0426 34; α(M)=0.0101 4 α(N)=0.00243 12; α(O)=0.00039 4; α(P)=2.0×10^{-5} 12
260.87 15	0.68[c] 14	534.37	4⁻	273.627	4⁻	(M1)[l]		0.348 5	0.76 16	α(K)=0.289 4; α(L)=0.0458 6; α(M)=0.01046 15 α(N)=0.00254 4; α(O)=0.000427 6; α(P)=3.13×10^{-5} 4 I_γ: Other: 0.30 (1969La11); 0.49 7 (2020Kr05).
261.266 12	1.05 17	577.720	2⁻	316.459	1⁻	(M1+E2)[l]	0.4 2	0.318 27	1.16 19	α(K)=0.260 26; α(L)=0.0447 11; α(M)=0.01031 18 α(N)=0.00249 5; α(O)=0.000413 12; α(P)=2.79×10^{-5} 30 I_γ: Other: 1.70 17 (1969La11); 1.85 13 (2020Kr05).
263.33[g] 20	0.207[a] 45	322.378	3⁻	59.010	2⁻	[M1,E2][f]		0.24 10	0.23 5	α(K)=0.18 10; α(L)=0.041 4; α(M)=0.0097 5 α(N)=0.00235 13; α(O)=0.00037 4; α(P)=1.9×10^{-5} 12 I_γ: Other: 0.25 5 (1969La11); 0.052 21 (2020Kr05).
265.6131[n] 5	0.13[n] 7	534.37	4⁻	268.800	4⁻	[M1,E2][f]		0.23 10		α(K)=0.18 10; α(L)=0.040 4; α(M)=0.0095 5 α(N)=0.00228 14; α(O)=0.00036 4; α(P)=1.9×10^{-5} 11
[x]266.02[gm] 20										I_γ: 0.15 3.
266.1373[n] 6	0.029[n] 16	414.237	7⁻	148.2	(8⁺)	[E1][f]		0.0316 4		α(K)=0.0263 4; α(L)=0.00413 6; α(M)=0.000941 13 α(N)=0.0002259 32; α(O)=3.68×10^{-5} 5; α(P)=2.293×10^{-6} 32
266.3501[rn] 4	0.035[rno] 13	588.705	4⁻	322.378	3⁻	[M1,E2][f]		0.23 10		α(K)=0.18 10; α(L)=0.040 4; α(M)=0.0094 5 α(N)=0.00226 14; α(O)=0.00036 4; α(P)=1.8×10^{-5} 11
266.3501[rn] 4	0.021[rno] 8	736.126?	5⁻	469.794	4⁻	[M1,E2][f]		0.23 10		α(K)=0.18 10; α(L)=0.040 4; α(M)=0.0094 5 α(N)=0.00226 14; α(O)=0.00036 4; α(P)=1.8×10^{-5} 11

$^{186}_{75}$Re$_{111}$-22

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
266.3501[rns] *4*	0.014[rno] *5*	1002.678	(3,4,5)⁻	736.126?	5⁻					
[x]266.70[gm] *20*										I_γ: 0.14 *3*.
[x]269.79[hm] *20*										I_γ: 0.04.
271.47 *10*	0.207[a] *63*	417.794	5⁻	146.275	3⁻	[E2][f]		0.1193 *17*	0.23 *7*	α(K)=0.0753 *11*; α(L)=0.0334 *5*; α(M)=0.00826 *12* α(N)=0.001974 *28*; α(O)=0.000295 *4*; α(P)=6.90×10⁻⁶ *10* I_γ: Other: 0.27 *4* (1969La11); 0.25 *8* (2020Kr05).
273.5703[n] *7*	0.040[n] *19*	691.37	6⁻	417.794	5⁻	[M1,E2][f]		0.21 *9*		α(K)=0.16 *9*; α(L)=0.036 *4*; α(M)=0.0086 *6* α(N)=0.00207 *16*; α(O)=0.00033 *4*; α(P)=1.7×10⁻⁵ *10*
[x]278.82[m] *10*										I_γ: 0.120 *18*.
282.9159[n] *7*	0.042[n] *20*	753.267	(2)⁻	470.509	3⁻					
285.10 *3*	0.532 *36*	601.57	1⁺	316.459	1⁻	E1+M2	0.32 *8*	0.13 *5*	0.59 *4*	α(K)exp<0.07 (1969La11) α(K)=0.10 *4*; α(L)=0.021 *8*; α(M)=0.0049 *20* α(N)=0.0012 *5*; α(O)=2.0×10⁻⁴ *8*; α(P)=1.3×10⁻⁵ *5* I_γ: Other: 0.56 *6* (1969La11); 0.51 *7* (2020Kr05). Mult.: Ice(K)<0.04 (1969La11); reported as E1,(E2) in 1969La11.
286.45 *15*	0.1063 *99*	864.17	(2,3)⁻	577.720	2⁻				0.118 *11*	E_γ: Other: 286.4538 *5* (2020Kr05). I_γ: Other: 0.22 *3* (1969La11); 0.18 *9* (2020Kr05).
289.06 *15*	0.040[a] *12*	462.969	5⁻	173.929	4⁻	[M1,E2][f]		0.18 *8*	0.044 *13*	α(K)=0.14 *8*; α(L)=0.030 *4*; α(M)=0.0072 *7* α(N)=0.00173 *18*; α(O)=0.00028 *4*; α(P)=1.5×10⁻⁵ *9* I_γ: Other: 0.070 *14* (1969La11); 0.058 *17* (2020Kr05).
295.88[g] *15*	0.1270 *99*	469.794	4⁻	173.929	4⁻	M1		0.2472 *35*	0.141 *11*	α(K)exp=0.37 *11* (1969La11) α(K)=0.2053 *29*; α(L)=0.0324 *5*; α(M)=0.00740 *10* α(N)=0.001796 *25*; α(O)=0.000302 *4*; α(P)=2.217×10⁻⁵ *31* I_γ: Other: 0.17 *3* (1969La11); 0.16 *4* (2020Kr05). Mult.: Ice(K)=0.063 (I13) (1969La11).
301.36[g] *15*	0.126[a] *45*	623.89	1⁻	322.378	3⁻	[E2][f]		0.0869 *12*	0.14 *5*	α(K)=0.0574 *8*; α(L)=0.02251 *32*; α(M)=0.00553 *8*

$^{186}_{75}$Re$_{111}$-23

γ(^{186}Re) (continued)

$E_γ$[†]	$I_γ$[&]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Mult.[e]	δ[e]	α[p]	$σ_γ$ (b)[@]	Comments
										α(N)=0.001323 *19*; α(O)=0.0001992 *28*; α(P)=5.35×10^{-6} *8* $I_γ$: Other: 0.14 *3* (1969La11).
304.7179[n] *6*	0.054[n] *22*	965.427	1$^+$	660.722	1$^-$	[E1][f]		0.02278 *32*		α(K)=0.01897 *27*; α(L)=0.00295 *4*; α(M)=0.000671 *9* α(N)=0.0001612 *23*; α(O)=2.64×10^{-5} *4*; α(P)=1.679×10^{-6} *24*
307.4080[n] *8*	0.031[n] *18*	965.427	1$^+$	657.98	2$^+$	[M1,E2][f]		0.15 *7*		α(K)=0.12 *7*; α(L)=0.025 *4*; α(M)=0.0059 *8* α(N)=0.00142 *20*; α(O)=0.00023 *4*; α(P)=1.3×10^{-5} *7*
307.56 *6*	0.631 *45*	686.055	3$^-$	378.387	2$^-$	M1+E2	0.3 *2*	0.211 *17*	0.70 *5*	α(K)exp=0.179 *25*; α(L1)exp+α(L2)exp=0.049 *17* (1969La11) α(K)=0.174 *16*; α(L)=0.0285 *11*; α(M)=0.00653 *20* α(N)=0.00158 *5*; α(O)=0.000264 *11*; α(P)=1.87×10^{-5} *18* $I_γ$: Other: 0.78 *8* (1969La11); 0.68 *8* (2020Kr05). Mult.: Ice(K):Ice(L12)=0.140 *14*:0.038 *13* (1969La11); reported as M1 in 1969La11.
308.8557[n] *5*	0.038[n] *20*	910.478	2$^+$	601.57	1$^+$	[M1,E2][f]		0.15 *7*		α(K)=0.12 *6*; α(L)=0.025 *4*; α(M)=0.0058 *8* α(N)=0.00140 *20*; α(O)=0.00023 *4*; α(P)=1.2×10^{-5} *7*
311.9945[n] *6*	0.046[n] *20*	889.676	(2,3)$^-$	577.720	2$^-$					
313.9705[n] *7*	0.047[n] *20*	665.188	6$^+$	351.202	4$^+$	[E2][f]		0.0770 *11*		α(K)=0.0516 *7*; α(L)=0.01934 *27*; α(M)=0.00474 *7* α(N)=0.001135 *16*; α(O)=0.0001714 *24*; α(P)=4.84×10^{-6} *7*
316.473 *20*	5.07 *14*	316.459	1$^-$	0.0	1$^-$	M1		0.2061 *29*	5.63 *16*	α(L1)exp=0.027 *5* (1969La11) α(K)=0.1712 *24*; α(L)=0.0270 *4*; α(M)=0.00616 *9* α(N)=0.001494 *21*; α(O)=0.0002513 *35*; α(P)=1.847×10^{-5} *26* $I_γ$: Other: 6.40 *64* (1969La11); 5.94 *23* (2020Kr05). Mult.: Ice(L1)=0.17 *3* (1969La11).
317.4579[rn] *8*	0.019[rno] *10*	912.378	6$^-$	595.059	6$^-$	[M1,E2][f]		0.14 *6*		α(K)=0.11 *6*; α(L)=0.023 *4*; α(M)=0.0053 *8* α(N)=0.00129 *20*; α(O)=0.00021 *4*; α(P)=1.2×10^{-5} *7*
317.4579[rn] *8*	0.028[rno] *15*	1003.526	(2,3)$^-$	686.055	3$^-$					
318.2979[n] *7*	0.046[n] *25*	736.126?	5$^-$	417.794	5$^-$	[M1,E2][f]		0.14 *6*		α(K)=0.11 *6*; α(L)=0.022 *4*; α(M)=0.0053 *8*

From ENSDF

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
									α(N)=0.00127 *20*; α(O)=0.00021 *4*; α(P)=1.1×10^{-5} *7*
319.44 *10*	0.332 *21*	378.387	2$^-$	59.010	2$^-$	[M1,E2][f]	0.14 *6*	0.368 *23*	α(K)=0.11 *6*; α(L)=0.022 *4*; α(M)=0.0052 *8* α(N)=0.00126 *20*; α(O)=0.00020 *4*; α(P)=1.1×10^{-5} *7* I_γ: Other: 0.43 *6* (1969La11); 0.35 *11* (2020Kr05).
321.1896[n] *7*	0.048[n] *26*	420.560	4$^+$	99.361	3$^-$	[E1][f]	0.02010 *28*		α(K)=0.01675 *23*; α(L)=0.00259 *4*; α(M)=0.000590 *8* α(N)=0.0001417 *20*; α(O)=2.320×10^{-5} *32*; α(P)=1.490×10^{-6} *21*
^{x}321.70[hm] *20*									I_γ: 0.21 *4*.
324.4419[n] *7*	0.049[n] *29*	902.336	(2,3)$^-$	577.720	2$^-$				
326.4786[n] *7*	0.058[n] *29*	425.823	4$^+$	99.361	3$^-$	[E1][f]	0.01934 *27*		α(K)=0.01612 *23*; α(L)=0.002492 *35*; α(M)=0.000566 *8* α(N)=0.0001362 *19*; α(O)=2.231×10^{-5} *31*; α(P)=1.436×10^{-6} *20*
328.42[hs] *20*	0.070[a] *21*	646.346	5$^-$	317.846	5$^-$	[M1,E2][f]	0.13 *6*	0.078 *23*	α(K)=0.10 *5*; α(L)=0.020 *4*; α(M)=0.0048 *8* α(N)=0.00116 *20*; α(O)=0.00019 *4*; α(P)=1.1×10^{-5} *6* I_γ: Other: 0.07 (1969La11); < 0.03 (2020Kr05).
335.66 *20*	0.041[a] *14*	657.98	2$^+$	322.378	3$^-$	[E1][f]	0.01811 *25*	0.046 *16*	α(K)=0.01510 *21*; α(L)=0.002330 *33*; α(M)=0.000530 *7* α(N)=0.0001274 *18*; α(O)=2.087×10^{-5} *29*; α(P)=1.349×10^{-6} *19* I_γ: Other: 0.11 *3* (1969La11); 0.045 *27* (2020Kr05).
341.38 *15*	0.100 *11*	657.98	2$^+$	316.459	1$^-$	[E1][f]	0.01741 *24*	0.111 *12*	α(K)=0.01452 *20*; α(L)=0.002237 *31*; α(M)=0.000508 *7* α(N)=0.0001223 *17*; α(O)=2.005×10^{-5} *28*; α(P)=1.298×10^{-6} *18* I_γ: Other: 0.26 *4* (1969La11); 0.07 *3* (2020Kr05).
344.2823[n] *9*	0.044[n] *26*	660.722	1$^-$	316.459	1$^-$	[M1,E2][f]	0.11 *5*		α(K)=0.09 *5*; α(L)=0.018 *4*; α(M)=0.0041 *8* α(N)=0.00100 *19*; α(O)=0.00016 *4*; α(P)=9.E−6 *5*
350.226[n] *1*	0.05[n] *3*	623.89	1$^-$	273.627	4$^-$				Mult.: Current level J^π assignment consistent with M3 γ; proposed (2,3)$^-$ assignment in 2020Kr05 supports [M1,E2] although intensity of γ is very weak and has 60% uncertainty.
^{x}354.10[m] *5*									α(K)exp<0.042 (1969La11) I_γ: 0.96 *10*. Mult.: Ice(K)<0.04 (1969La11); reported as E1,E2 in 1969La11. δ: δ=0.36 *9* assuming E1+M2; δ=3 *2* assuming M1+E2.
354.1162[n] *2*	0.89[n] *13*	534.37	4$^-$	180.277	6$^-$	[E2][f]	0.0545 *8*		α(K)=0.0380 *5*; α(L)=0.01255 *18*; α(M)=0.00306 *4* α(N)=0.000732 *10*; α(O)=0.0001117 *16*; α(P)=3.63×10^{-6} *5*
355.63 *5*	0.198[a] *45*	826.151	4$^-$	470.509	3$^-$			0.22 *5*	E_γ: Other: 355.7016 *4* (2020Kr05). I_γ: Other: 0.27 *4* (1969La11); 0.32 *8* (2020Kr05).
357.65 *15*	0.275 *18*	680.05	2$^-$	322.378	3$^-$	[M1,E2][f]	0.10 *5*	0.305 *20*	α(K)=0.08 *4*; α(L)=0.016 *4*; α(M)=0.0037 *7*

γ(^{186}Re) (continued)

Eγ[†]	Iγ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
										α(N)=0.00089 18; α(O)=1.4×10^{-4} 4; α(P)=8.E−6 5 Iγ: Other: 0.22 4 (1969La11); 0.19 5 estimated Iγ (2020Kr05).
360.43 4	0.856 54	534.37	4⁻	173.929	4⁻	M1		0.1453 20	0.95 6	α(K)exp=0.124 27; α(L1)exp=0.061 43 (1969La11) α(K)=0.1208 17; α(L)=0.01898 27; α(M)=0.00433 6 α(N)=0.001050 15; α(O)=0.0001766 25; α(P)=1.300×10^{-5} 18 Iγ: Other: 0.97 15 (1969La11); 0.93 16 (2020Kr05). Mult.: Ice(K):Ice(L1)=0.120 18:0.059 41 (1969La11).
360.6248[n] 17	0.07[n]	774.879	7⁻	414.237	7⁻	[M1,E2][f]		0.10 5		α(K)=0.08 4; α(L)=0.015 4; α(M)=0.0036 7 α(N)=0.00087 18; α(O)=1.4×10^{-4} 4; α(P)=8.E−6 5
362.9614[ns] 12	0.05[n] 3	860.386	6⁻	497.294	6⁻	[M1,E2][f]		0.10 5		α(K)=0.08 4; α(L)=0.015 4; α(M)=0.0035 7 α(N)=0.00085 18; α(O)=1.38×10^{-4} 35; α(P)=8.E−6 5
363.45 15	0.215 15	462.969	5⁻	99.361	3⁻	[E2][f]		0.0506 7	0.239 17	α(K)=0.0356 5; α(L)=0.01146 16; α(M)=0.00279 4 α(N)=0.000668 9; α(O)=0.0001021 14; α(P)=3.41×10^{-6} 5 Iγ: Other: 0.38 8 (1969La11); 0.24 9 (2020Kr05).
365.8498[ns] 7	0.08[n] 4	954.72	(2⁻,3⁻,4⁻)	588.705	4⁻					
[x]366.84[m] 15										Iγ: 0.22 4.
370.3793[n] 7	0.08[n] 4	469.794	4⁻	99.361	3⁻	[M1,E2][f]		0.09 4		α(K)=0.07 4; α(L)=0.0142 35; α(M)=0.0033 7 α(N)=0.00080 18; α(O)=1.30×10^{-4} 34; α(P)=8.E−6 4
373.49 15	0.1144 99	691.37	6⁻	317.846	5⁻	[M1,E2][f]		0.09 4	0.127 11	α(K)=0.07 4; α(L)=0.0138 34; α(M)=0.0032 7 α(N)=0.00078 17; α(O)=1.27×10^{-4} 34; α(P)=8.E−6 4 Iγ: Other: 0.100 25 (1969La11); 0.18 6 (2020Kr05).
375.4003[n] 12	<0.06[n]	549.330	5⁺	173.929	4⁻	[E1][f]		0.01397 20		α(K)=0.01166 16; α(L)=0.001783 25; α(M)=0.000405 6 α(N)=9.75×10^{-5} 14; α(O)=1.602×10^{-5} 22; α(P)=1.051×10^{-6} 15
378.42 5	1.370 81	378.387	2⁻	0.0	1⁻	M1+E2	0.4 2	0.116 11	1.52 9	α(K)exp=0.103 19 (1969La11) α(K)=0.096 9; α(L)=0.0157 9; α(M)=0.00361 18

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	δ[e]	α[p]	σ_γ (b)[@]	Comments
										α(N)=0.00087 *4*; α(O)=0.000146 *9*; α(P)=1.03×10^{-5} *11* I_γ: Other: 1.65 *17* (1969La11); 1.41 *9* (2020Kr05). Mult.: Ice(K)=0.170 *26* (1969La11); reported as M1 in 1969La11. δ: Average of deduced upper and lower limits.
^{x}380.72[m] *20*										I_γ: 0.20 *8*.
^{x}386.31[gm] *15*										I_γ: 0.09 *3*.
390.91 *5*	2.946 *54*	601.57	1$^+$	210.699	2$^-$	E1+M2	0.26 *8*	0.037 *16*	3.27 *6*	α(K)exp<0.02 (1969La11) α(K)=0.030 *12*; α(L)=0.0055 *25*; α(M)=0.0013 *6* α(N)=3.1×10^{-4} *14*; α(O)=5.2×10^{-5} *24*; α(P)=3.6×10^{-6} *17* I_γ: Other: 3.3 *3* (1969La11); 3.0 *3* (2020Kr05). Mult.: Ice(K)<0.06 (1969La11); reported as E1 in 1969La11.
396.1636[n] *7*	0.09[n] *4*	973.861	(2,3,4)$^-$	577.720	2$^-$					
^{x}396.54[m] *20*										I_γ: 0.20 *4*.
397.5339[n] *8*	0.06[n] *3*	860.386	6$^-$	462.969	5$^-$	[M1,E2][f]		0.08 *4*		α(K)=0.061 *32*; α(L)=0.0115 *31*; α(M)=0.0027 *6* α(N)=0.00065 *16*; α(O)=1.06×10^{-4} *30*; α(P)=6.E−6 *4*
401.3[g] *3*	0.0910 *90*	500.722	5$^+$	99.361	3$^-$	[M2][f]		0.369 *5*	0.101 *10*	α(K)=0.293 *4*; α(L)=0.0583 *8*; α(M)=0.01373 *20* α(N)=0.00334 *5*; α(O)=0.000557 *8*; α(P)=3.85×10^{-5} *5* I_γ: Other: 0.10 *4* (1969La11). Mult.: [E1] (2015BeZX).
404.7001[n] *8*	0.07[n] *3*	982.27	(2$^-$,3$^-$,4$^-$)	577.720	2$^-$					
406.92 *20*	0.177 *17*	785.58	(1,2)$^-$	378.387	2$^-$				0.197 *19*	E_γ: Other: 407.0697 *9* (2020Kr05). I_γ: Other: 0.24 *5* (1969La11); 0.06 *3* (2020Kr05).
410.6935[n] *6*	0.12[n] *4*	999.320	(3,4)$^-$	588.705	4$^-$					
411.18 *20*	0.289 *22*	470.509	3$^-$	59.010	2$^-$	[M1,E2][f]		0.069 *33*	0.321 *24*	α(K)=0.056 *29*; α(L)=0.0104 *29*; α(M)=0.0024 *6* α(N)=5.9×10^{-4} *15*; α(O)=9.6×10^{-5} *28*; α(P)=5.8×10^{-6} *33* I_γ: Other: 0.32 *6* (1969La11); 0.19 *6* (2020Kr05).
413.21 *6*	0.378 *27*	623.89	1$^-$	210.699	2$^-$	[M1,E2][f]		0.068 *33*	0.42 *3*	α(K)=0.055 *29*; α(L)=0.0103 *29*; α(M)=0.0024 *6* α(N)=5.8×10^{-4} *15*; α(O)=9.4×10^{-5} *28*; α(P)=5.8×10^{-6} *32* I_γ: Other: 0.40 *8* (1969La11); 0.32 *7* (2020Kr05).
414.0423[n] *9*	0.06[n] *3*	1002.678	(3,4,5)$^-$	588.705	4$^-$					

$^{186}_{75}$Re$_{111}$-27

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
415.5635[n] 12	0.043[n] 26	1004.156	(2,3,4)$^-$	588.705	4$^-$				
418.37 20	0.207[a] 99	796.44	(1,2,3)$^-$	378.387	2$^-$			0.23 11	E_γ: Other: 417.8704 5 in 2020Kr05. I_γ: Other: 0.26 5 (1969La11); 0.21 6 (2020Kr05).
418.5012[n] 9	0.08[n] 3	888.777	(3,4)$^-$	470.509	3$^-$	[M1,E2][f]	0.066 32		α(K)=0.053 28; α(L)=0.0099 28; α(M)=0.0023 6 α(N)=5.6×10^{-4} 15; α(O)=9.1×10^{-5} 27; α(P)=5.6×10^{-6} 31
419.8915[n] 5	0.20[n] 5	889.676	(2,3)$^-$	469.794	4$^-$				
[x]419.97[m] 20									I_γ: 0.23 6.
425.8998[ns] 6	0.08[n] 3	1003.526	(2,3)$^-$	577.720	2$^-$				
426.3975[n] 7	0.07[n] 3	1004.156	(2,3,4)$^-$	577.720	2$^-$				
[x]426.42[m] 20									I_γ: 0.17 4.
[x]430.9[m] 3									I_γ: 0.15 5.
[x]434.16[m] 20									I_γ: 0.23 6.
434.9956[n] 9	0.06[n] 3	534.37	4$^-$	99.361	3$^-$	[M1,E2][f]	0.060 29		α(K)=0.048 25; α(L)=0.0089 26; α(M)=0.0021 6 α(N)=5.0×10^{-4} 14; α(O)=8.1×10^{-5} 25; α(P)=5.1×10^{-6} 28
439.01 20	0.142 14	761.27	(1$^-$,2$^-$,3$^-$)	322.378	3$^-$			0.158 16	E_γ: Other: 438.6233 6 (2020Kr05). I_γ: Other: 0.23 5 (1969La11); 0.12 4 (2020Kr05).
442.2817[n] 11	0.027[n] 23	588.705	4$^-$	146.275	3$^-$	[M1,E2][f]	0.057 27		α(K)=0.046 24; α(L)=0.0085 25; α(M)=0.0020 5 α(N)=4.7×10^{-4} 13; α(O)=7.8×10^{-5} 24; α(P)=4.8×10^{-6} 27
444.9631[n] 7	0.07[n] 3	761.27	(1$^-$,2$^-$,3$^-$)	316.459	1$^-$				
447.1410[n] 7	0.07[n] 3	657.98	2$^+$	210.699	2$^-$	[E1][f]	0.00942 13		α(K)=0.00788 11; α(L)=0.001189 17; α(M)=0.000270 4 α(N)=6.49×10^{-5} 9; α(O)=1.072×10^{-5} 15; α(P)=7.20×10^{-7} 10
453.1551[n] 14	0.039[n] 28	923.629	(2,3)$^-$	470.509	3$^-$				
454.5360[n] 9	0.07[n] 3	988.973	(3,4)$^-$	534.37	4$^-$				
468.8837[rn] 15	0.025[rno] 20	785.58	(1,2)$^-$	316.459	1$^-$				E_γ: γ not observed in 2016Ma35. I_γ: Other: 0.22 6 (1969La11); undivided Iγ.
468.8837[rn] 15	0.025[rno] 20	791.225	(2,3)$^-$	322.378	3$^-$				
469.39 20	0.157[c] 14	680.05	2$^-$	210.699	2$^-$	[M1,E2][f]	0.049 23	0.174 16	α(K)=0.040 20; α(L)=0.0071 22; α(M)=0.0017 5 α(N)=4.0×10^{-4} 12; α(O)=6.6×10^{-5} 21; α(P)=4.2×10^{-6} 23 I_γ: Other: 0.22 6 undivided Iγ (1969La11); 0.09 4 (2020Kr05).
473.9867[ns] 11	0.07[n] 3	796.44	(1,2,3)$^-$	322.378	3$^-$				
[x]477.9[g] 3									I_γ: 0.5 2.
479.3[g]	0.568 36	796.44	(1,2,3)$^-$	316.459	1$^-$			0.63 4	E_γ: 479.3 3 for complex γ (1969La11). Other:

From ENSDF

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
									479.5829 *9* (2020Kr05). I_γ: Other: 0.7 *3* (1969La11); 0.12 *5* (2020Kr05).
484.0470[ns] *11*	0.08[n] *4*	954.72	(2⁻,3⁻,4⁻)	470.509	3⁻				
[x]487.18[m] *20*									I_γ: 0.23 *6*.
496.59 *20*	0.333 *18*	819.12	(2,3)⁻	322.378	3⁻			0.37 *2*	E_γ: Other: 496.6007 *5* (2020Kr05). I_γ: Other: 0.47 *9* (1969La11); 0.24 *6* (2020Kr05).
503.8689[ns] *11*	0.07[n] *3*	973.861	(2,3,4)⁻	469.794	4⁻				
[x]504.8[km] *8*	[k]								I_γ: 0.46 *17*.
505.9847[n] *10*	0.10[n] *4*	680.05	2⁻	173.929	4⁻	[E2][f]	0.02123 *30*		α(K)=0.01613 *23*; α(L)=0.00391 *5*; α(M)=0.000932 *13* α(N)=0.0002241 *31*; α(O)=3.52×10⁻⁵ *5*; α(P)=1.597×10⁻⁶ *22*
[x]518.0[km] *8*	[k]								I_γ: 0.39 *14*.
518.5086[n] *12*	0.07[n] *4*	988.973	(3,4)⁻	470.509	3⁻				
[x]524.4[km] *15*	[k]								I_γ: 0.13 *7*.
524.4963[n] *7*	0.13[n] *4*	623.89	1⁻	99.361	3⁻	[E2][f]	0.01944 *27*		α(K)=0.01486 *21*; α(L)=0.00351 *5*; α(M)=0.000835 *12* α(N)=0.0002009 *28*; α(O)=3.17×10⁻⁵ *4*; α(P)=1.475×10⁻⁶ *21* Mult.: [M1,E2] for J^π=(2,3)⁻ (2020Kr05).
528.6262[n] *11*	0.058[n] *28*	999.320	(3,4)⁻	470.509	3⁻				
533.0151[n] *5*	0.21[n] *5*	1003.526	(2,3)⁻	470.509	3⁻				
[x]533.9[m] *5*									I_γ: 0.21 *4*.
539.7864[n] *9*	0.09[n] *3*	856.225	(1,2)⁻	316.459	1⁻				
542.5661[rn] *10*	0.015[rno] *8*	722.962	5⁻	180.277	6⁻	[M1,E2][f]	0.034 *16*		α(K)=0.027 *14*; α(L)=0.0048 *16*; α(M)=0.00111 *35* α(N)=2.7×10⁻⁴ *9*; α(O)=4.4×10⁻⁵ *15*; α(P)=2.9×10⁻⁶ *15*
542.5661[rn] *10*	0.036[rno] *18*	860.386	6⁻	317.846	5⁻	[M1,E2][f]	0.034 *16*		α(K)=0.027 *14*; α(L)=0.0048 *16*; α(M)=0.00111 *35* α(N)=2.7×10⁻⁴ *9*; α(O)=4.4×10⁻⁵ *15*; α(P)=2.9×10⁻⁶ *15*
545.1537[rn] *13*	0.022[rno] *12*	819.12	(2,3)⁻	273.627	4⁻				
545.1537[rn] *13*	0.022[rno] *12*	923.629	(2,3)⁻	378.387	2⁻				
548.6176[n] *10*	0.060[n] *27*	872	(2⁻,3⁻,4⁻)	322.378	3⁻				
550.9 *5*	0.135[a] *45*	761.27	(1⁻,2⁻,3⁻)	210.699	2⁻			0.15 *5*	E_γ: Other: 550.7978 *9* (2020Kr05). I_γ: Other: 0.22 *4* (1969La11); 0.19 *7* (2020Kr05).
[x]556.3[km] *10*	[k]								I_γ: 0.26 *9*.
556.8625[n] *12*	0.065[n] *28*	879.183	(2,3,4)⁻	322.378	3⁻				
[x]561.6[m] *5*									I_γ: 0.14 *4*.
564.8843[n] *11*	0.062[n] *27*	623.89	1⁻	59.010	2⁻	[M1,E2][f]	0.030 *14*		α(K)=0.025 *12*; α(L)=0.0043 *15*; α(M)=9.9×10⁻⁴

From ENSDF

$^{186}_{75}$Re$_{111}$-29

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
									32 α(N)=2.4×10^{-4} 8; α(O)=4.0×10^{-5} 14; α(P)=2.6×10^{-6} 14
567.2060[ns] 11	0.049[n] 23	889.676	(2,3)$^-$	322.378	3$^-$				
573.2576[n] 18	0.037[n] 23	889.676	(2,3)$^-$	316.459	1$^-$				
576.1214[n] 16	0.025[n] 18	954.72	(2$^-$,3$^-$,4$^-$)	378.387	2$^-$				
577.4762[n] 12	0.054[n] 24	895.283	(3,4)$^-$	317.846	5$^-$				
579.8404[ns] 14	0.047[n] 27	902.336	(2,3)$^-$	322.378	3$^-$				
[x]580.4[m] 5									I_γ: 0.18 5.
580.5283[rn] 8	0.06[rno] 2	680.05	2$^-$	99.361	3$^-$	[M1,E2][f]	0.028 13		α(K)=0.023 11; α(L)=0.0040 14; α(M)=9.2×10^{-4} 30 α(N)=2.2×10^{-4} 7; α(O)=3.7×10^{-5} 13; α(P)=2.4×10^{-6} 13
580.5283[rn] 8	0.09[rno] 3	791.225	(2,3)$^-$	210.699	2$^-$				
584.3 7	0.144[a] 72	796.44	(1,2,3)$^-$	210.699	2$^-$			0.16 8	E_γ: Other: 585.4965 13 in 2020Kr05. I_γ: Other: 0.18 5 (1969La11); 0.048 24 (2020Kr05).
[x]593.4[km] 11	[k]								I_γ: 0.20 8.
594.5845[n] 18	0.042[n] 27	774.879	7$^-$	180.277	6$^-$	[M1,E2][f]	0.027 12		α(K)=0.022 11; α(L)=0.0037 13; α(M)=8.6×10^{-4} 28 α(N)=2.1×10^{-4} 7; α(O)=3.4×10^{-5} 12; α(P)=2.3×10^{-6} 12
[x]597.6[km] 10	[k]								I_γ: 0.33 12.
597.9591[ns] 8	0.11[n] 3	872	(2$^-$,3$^-$,4$^-$)	273.627	4$^-$				
601.3946[n] 7	0.15[n] 4	923.629	(2,3)$^-$	322.378	3$^-$				
603.4963[n] 10	0.085[n] 29	814.187	(1,2)$^-$	210.699	2$^-$				
606.9903[n] 5	0.27[n] 5	753.267	(2)$^-$	146.275	3$^-$				
607.5 8	0.216[a] 81	819.12	(2,3)$^-$	210.699	2$^-$			0.24 9	E_γ: Other: 608.1735 12 (2020Kr05). I_γ: Other: 0.31 9 (1969La11); 0.064 26 (2020Kr05).
610.3402[n] 14	0.037[n] 18	879.183	(2,3,4)$^-$	268.800	4$^-$				
613.3660[ns] 13	0.035[n] 18	923.629	(2,3)$^-$	314.009	3$^+$				
615.3883[n] 16	0.035[n] 18	761.27	(1$^-$,2$^-$,3$^-$)	146.275	3$^-$				
[x]616.4[m] 8									I_γ: 0.15 5.
620.8425[n] 5	0.17[n] 4	680.05	2$^-$	59.010	2$^-$	[M1,E2][f]	0.024 11		α(K)=0.020 9; α(L)=0.0033 12; α(M)=7.7×10^{-4} 26 α(N)=1.9×10^{-4} 6; α(O)=3.1×10^{-5} 11; α(P)=2.1×10^{-6} 10
[x]621.0[m] 8									I_γ: 0.14 4.
623.8411[n] 10	0.079[n] 26	623.89	1$^-$	0.0	1$^-$	[M1,E2][f]	0.024 11		α(K)=0.019 9; α(L)=0.0033 12; α(M)=7.6×10^{-4} 25 α(N)=1.8×10^{-4} 6; α(O)=3.0×10^{-5} 11; α(P)=2.0×10^{-6} 10
[x]625.7[gm] 8									I_γ: 0.18 5.
626.8018[n] 20	0.016[no] 10	774.879	7$^-$	148.2	(8$^+$)	[E1][f]	0.00460 6		α(K)=0.00386 5; α(L)=0.000569 8; α(M)=0.0001286

γ(^{186}Re) (continued)

E_γ [†]	I_γ [&]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [e]	α [p]	σ_γ (b) [@]	Comments
									18 α(N)=3.10×10^{-5} *4*; α(O)=5.15×10^{-6} *7*; α(P)=3.59×10^{-7} *5* I_γ: Corrected for ^{188}Re-line intensity (2020Kr05).
^{x}631.0[gm] *8*									I_γ: 0.36 *11*.
644.9220[rn] *8*	0.019[rno] *7*	791.225	(2,3)$^-$	146.275	3$^-$				
644.9220[rn] *8*	0.019[rno] *7*	913.58	(3,4)$^-$	268.800	4$^-$				
645.3 *8*	0.099[a] *36*	819.12	(2,3)$^-$	173.929	4$^-$			0.11 *4*	E_γ: Other: 644.9220 *8* (2020Kr05). I_γ: Other: 0.14 *4* (1969La11); 0.038 *14* estimated Iγ (2020Kr05).
645.6312[n] *14*	0.040[n] *22*	856.225	(1,2)$^-$	210.699	2$^-$				
^{x}651.3[m] *8*									I_γ: 0.11 *3*.
651.5000[n] *8*	0.078[n] *24*	973.861	(2,3,4)$^-$	322.378	3$^-$				
660.1877[rn] *12*	0.016[rno] *8*	872	(2$^-$,3$^-$,4$^-$)	210.699	2$^-$				
660.1877[rn] *12*	0.016[rno] *8*	982.27	(2$^-$,3$^-$,4$^-$)	322.378	3$^-$				
672.5994[n] *14*	0.028[n] *15*	819.12	(2,3)$^-$	146.275	3$^-$				
680.0 *10*	0.52 *12*	680.05	2$^-$	0.0	1$^-$	[M1,E2][f]	0.019 *9*	0.58 *13*	α(K)=0.016 *7*; α(L)=0.0026 *9*; α(M)=6.0×10^{-4} *21* α(N)=1.5×10^{-4} *5*; α(O)=2.4×10^{-5} *9*; α(P)=1.6×10^{-6} *8* I_γ: Other: 0.27 *8* (1969La11); 0.13 *5* (2020Kr05).
684.5342[n] *13*	0.039[n] *20*	895.283	(3,4)$^-$	210.699	2$^-$				
^{x}689.9[m] *10*									I_γ: 0.19 *6*.
691.6333[rn] *13*	0.045[rno] *18*	791.225	(2,3)$^-$	99.361	3$^-$				I_γ: An “f” flag may be missing from the Iγ field in Table 1 of 2020Kr05.
691.6333[rn] *13*	0.027[rno] *11*	902.336	(2,3)$^-$	210.699	2$^-$				
^{x}694.1[m] *10*									I_γ: 0.45 *14*.
696.9010[ns] *11*	0.068[n] *23*	872	(2$^-$,3$^-$,4$^-$)	173.929	4$^-$				
702.6092[ns] *19*	0.042[n] *23*	761.27	(1$^-$,2$^-$,3$^-$)	59.010	2$^-$				
704.7114[ns] *16*	0.043[n] *21*	973.861	(2,3,4)$^-$	268.800	4$^-$				
^{x}715.1[m] *10*									I_γ: 0.27 *8*.
721.6994[n] *20*	0.029[n] *16*	895.283	(3,4)$^-$	173.929	4$^-$				
725.5955[n] *21*	0.06[n] *3*	999.320	(3,4)$^-$	273.627	4$^-$				
726.3659[n] *12*	0.12[n] *4*	785.58	(1,2)$^-$	59.010	2$^-$				
^{x}728.1[m] *12*									I_γ: 0.29 *9*.
732.2170[n] *8*	0.18[n] *4*	791.225	(2,3)$^-$	59.010	2$^-$				
^{x}733.3[km] *18*	[k]								I_γ: 0.72 *43*.
733.5210[n] *11*	0.11[n] *4*	944.238	(2,3)$^-$	210.699	2$^-$				
737.1875[n] *10*	0.09[n] *3*	796.44	(1,2,3)$^-$	59.010	2$^-$				
743.8408[n] *18*	0.08[n] *4*	954.72	(2$^-$,3$^-$,4$^-$)	210.699	2$^-$				
753.2663[n] *8*	0.25[n] *8*	753.267	(2)$^-$	0.0	1$^-$				
^{x}754.9[km] *14*	[k]								I_γ: 1.17 *48*.

$^{186}_{75}$Re$_{111}$-31

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
755.8149[ns] 10	0.22[n] 6	923.629	(2,3)⁻						
761.6[q] 10	0.187[q] 20	761.27	(1⁻,2⁻,3⁻)	0.0	1⁻			0.207 22	I_γ: Other: 0.39 12 (1969La11); undivided $I\gamma$.
761.6[q] 10	0.187[q] 20	819.12	(2,3)⁻	59.010	2⁻			0.207 22	I_γ: Other: 0.39 12 (1969La11); undivided $I\gamma$.
[x]766.3[km] 14	[k]								I_γ: 0.85 51.
767.1551[n] 12	0.15[n] 5	913.58	(3,4)⁻	146.275	3⁻				
771.7231[rn] 8	0.112[rno] 28	872	(2⁻,3⁻,4⁻)	99.361	3⁻				
771.7231[rn] 8	0.17[rno] 4	982.27	(2⁻,3⁻,4⁻)	210.699	2⁻				
[x]772.8[km] 20	[k]								I_γ: 0.65 46.
779.7021[ns] 10	0.13[n] 5	879.183	(2,3,4)⁻	99.361	3⁻				
[x]781.2[km] 20	[k]								I_γ: 0.39 28.
796.5 15	0.16[a] 14	796.44	(1,2,3)⁻	0.0	1⁻			0.18 15	I_γ: Other: 0.20 14 (1969La11).
798.042[n] 2	0.07[n] 4	944.238	(2,3)⁻	146.275	3⁻				
803.0772[ns] 12	0.17[n] 6	902.336	(2,3)⁻	99.361	3⁻				
808.4161[rn] 16	0.10[rno] 4	954.72	(2⁻,3⁻,4⁻)	146.275	3⁻				
808.4161[rn] 16	0.42[rno] 18	982.27	(2⁻,3⁻,4⁻)	173.929	4⁻				
813.9455[rn] 15	0.12[rno] 5	814.187	(1,2)⁻	0.0	1⁻				
813.9455[rn] 15	0.12[rno] 5	913.58	(3,4)⁻	99.361	3⁻				
815.0087[n] 23	0.13[n] 7	988.973	(3,4)⁻	173.929	4⁻				
[x]815.3[km] 15	[k]								I_γ: 0.33 23.
821.3334[n] 19	0.11[n] 6	821.30	0⁺	0.0	1⁻				
824.2034[n] 18	0.16[n] 7	923.629	(2,3)⁻	99.361	3⁻				
[x]835.5[km] 13	[k]								I_γ: 0.65 33.
842.7101[n] 6	1.03[n] 18	988.973	(3,4)⁻	146.275	3⁻				
[x]843.7[km] 14	[k]								I_γ: 0.59 30.
856.2132[n] 16	0.18[n] 8	856.225	(1,2)⁻	0.0	1⁻				
889.866[n] 3	0.26[n] 17	988.973	(3,4)⁻	99.361	3⁻				
895.9148[n] 17	0.20[n] 11	954.72	(2⁻,3⁻,4⁻)	59.010	2⁻				
954.737[n] 1	1.08[n] 28	954.72	(2⁻,3⁻,4⁻)	0.0	1⁻				
3820.5[d] 5	0.0162[d] 63	6179.53	2⁺,3⁺	2359.0	(2⁺,3⁺,4⁺)	[M1][f]	1.81×10^{-3} 3	0.018 7	α(K)=0.000342 5; α(L)=4.99×10^{-5} 7; α(M)=1.129×10^{-5} 16 α(N)=2.74×10^{-6} 4; α(O)=4.63×10^{-7} 6; α(P)=3.52×10^{-8} 5; α(IPF)=0.001399 20
3859.73[d] 22	0.0613[d] 63	6179.53	2⁺,3⁺	2319.76	(2⁻,3⁻,4⁻)	[E1][f]	1.77×10^{-3} 3	0.068 7	α(K)=0.0001738 24; α(L)=2.378×10^{-5} 33; α(M)=5.33×10^{-6} 7 α(N)=1.288×10^{-6} 18; α(O)=2.178×10^{-7} 30; α(P)=1.663×10^{-8} 23; α(IPF)=0.001565 22
3918.4[#] 30	0.074[#] 15	6179.53	2⁺,3⁺	2261	(2⁻,3⁻,4⁻)	[E1][f]	1.79×10^{-3} 3		α(K)=0.0001700 24; α(L)=2.325×10^{-5} 33; α(M)=5.21×10^{-6} 7

$^{186}_{75}$Re$_{111}$-32

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
									α(N)=1.260×10^{-6} *18*; α(O)=2.130×10^{-7} *30*; α(P)=1.626×10^{-8} *23*; α(IPF)=0.001590 *22*
3934.68 *14*	0.1288 *99*	6179.53	2$^+$,3$^+$	2244.81	(2$^-$,3$^-$,4$^-$)	[E1][f]	1.80×10^{-3} *3*	0.143 *11*	α(K)=0.0001690 *24*; α(L)=2.311×10^{-5} *32*; α(M)=5.18×10^{-6} *7* α(N)=1.252×10^{-6} *18*; α(O)=2.116×10^{-7} *30*; α(P)=1.616×10^{-8} *23*; α(IPF)=0.001597 *22* I_γ: Other: 0.20 *9* (1969La11).
3960.30 *21*	0.0441 *54*	6179.53	2$^+$,3$^+$	2219.19	(2$^-$,3$^-$,4$^-$)	[E1][f]	1.81×10^{-3} *3*	0.049 *6*	α(K)=0.0001674 *23*; α(L)=2.288×10^{-5} *32*; α(M)=5.13×10^{-6} *7* α(N)=1.240×10^{-6} *17*; α(O)=2.096×10^{-7} *29*; α(P)=1.601×10^{-8} *22*; α(IPF)=0.001608 *23* I_γ: Other: 0.074 *17* (1969La11).
3976.1 *3*	0.0441 *63*	6179.53	2$^+$,3$^+$	2203.4	(2$^-$,3$^-$,4$^-$)	[E1][f]	1.81×10^{-3} *3*	0.049 *7*	α(K)=0.0001664 *23*; α(L)=2.275×10^{-5} *32*; α(M)=5.10×10^{-6} *7* α(N)=1.232×10^{-6} *17*; α(O)=2.084×10^{-7} *29*; α(P)=1.591×10^{-8} *22*; α(IPF)=0.001615 *23* I_γ: Other: 0.055 *12* (1969La11).
4038.3[#g]	0.14[#] *4*	6179.53	2$^+$,3$^+$	2141.2					
4073.1[#] *30*	0.22[#] *6*	6179.53	2$^+$,3$^+$	2106					
4096.7[#] *30*	0.16[#] *4*	6179.53	2$^+$,3$^+$	2083					
4116.0[#] *40*	0.043[#] *10*	6179.53	2$^+$,3$^+$	2063					
4124.0[#] *40*	0.056[#] *13*	6179.53	2$^+$,3$^+$	2055					
4175.3[#] *30*	0.18[#] *4*	6179.53	2$^+$,3$^+$	2004					
4194.5[#] *30*	0.08[#] *3*	6179.53	2$^+$,3$^+$	1985					
4214.71 *13*	0.045 *27*	6179.53	2$^+$,3$^+$	1964.77	(2$^-$,3$^-$,4$^-$)	[E1][f]	1.89×10^{-3} *3*	0.05 *3*	α(K)=0.0001528 *21*; α(L)=2.086×10^{-5} *29*; α(M)=4.67×10^{-6} *7* α(N)=1.130×10^{-6} *16*; α(O)=1.911×10^{-7} *27*; α(P)=1.461×10^{-8} *20*; α(IPF)=0.001712 *24* I_γ: Other: 0.17 *5* (1969La11).
4273.7 *4*	0.0505 *72*	6179.53	2$^+$,3$^+$	1905.8	(2$^-$,3$^-$,4$^-$)	[E1][f]	1.91×10^{-3} *3*	0.056 *8*	α(K)=0.0001497 *21*; α(L)=2.044×10^{-5} *29*; α(M)=4.58×10^{-6} *6* α(N)=1.107×10^{-6} *16*; α(O)=1.872×10^{-7} *26*; α(P)=1.431×10^{-8} *20*; α(IPF)=0.001734 *24* I_γ: Other: 0.116 *29* (1969La11).
4298.14 *21*	0.155 *13*	6179.53	2$^+$,3$^+$	1881.34	(2$^-$,3$^-$,4$^-$)	[E1][f]	1.92×10^{-3} *3*	0.172 *14*	α(K)=0.0001485 *21*; α(L)=2.027×10^{-5} *28*; α(M)=4.54×10^{-6} *6* α(N)=1.098×10^{-6} *15*; α(O)=1.857×10^{-7} *26*; α(P)=1.420×10^{-8} *20*; α(IPF)=0.001743 *24* I_γ: Other: 0.091 *23* (1969La11).

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
4333.07[d] *21*	0.0613[d] *81*	6179.53	2+,3+	1846.41	(2−,3−)	[E1][f]	1.93×10^{-3} *3*	0.068 *9*	α(K)=0.0001467 *21*; α(L)=2.003×10^{-5} *28*; α(M)=4.49×10^{-6} *6* α(N)=1.085×10^{-6} *15*; α(O)=1.835×10^{-7} *26*; α(P)=1.403×10^{-8} *20*; α(IPF)=0.001756 *25*
4340.8[d] *3*	0.0414[d] *54*	6179.53	2+,3+	1838.7	(1−,2−,3−)	[E1][f]	1.93×10^{-3} *3*	0.046 *6*	α(K)=0.0001464 *20*; α(L)=1.998×10^{-5} *28*; α(M)=4.47×10^{-6} *6* α(N)=1.082×10^{-6} *15*; α(O)=1.830×10^{-7} *26*; α(P)=1.399×10^{-8} *20*; α(IPF)=0.001759 *25*
4351.94[d] *16*	0.169[d] *13*	6179.53	2+,3+	1827.54	(2−,3−,4−)	[E1][f]	1.93×10^{-3} *3*	0.188 *14*	α(K)=0.0001458 *20*; α(L)=1.990×10^{-5} *28*; α(M)=4.46×10^{-6} *6* α(N)=1.078×10^{-6} *15*; α(O)=1.823×10^{-7} *26*; α(P)=1.394×10^{-8} *20*; α(IPF)=0.001763 *25*
4388.1[#] *40*	0.16[#] *6*	6179.53	2+,3+	1791	(2−,3−,4−)	[E1][f]	1.95×10^{-3} *3*		α(K)=0.0001441 *20*; α(L)=1.966×10^{-5} *28*; α(M)=4.40×10^{-6} *6* α(N)=1.065×10^{-6} *15*; α(O)=1.801×10^{-7} *25*; α(P)=1.377×10^{-8} *19*; α(IPF)=0.001776 *25*
4412.2[#] *50*	0.081[#] *45*	6179.53	2+,3+	1767					
4421.5[d] *4*	0.081[d] *14*	6179.53	2+,3+	1758.0	(2−,3−)	[E1][f]	1.96×10^{-3} *3*	0.090 *15*	α(K)=0.0001425 *20*; α(L)=1.944×10^{-5} *27*; α(M)=4.35×10^{-6} *6* α(N)=1.053×10^{-6} *15*; α(O)=1.781×10^{-7} *25*; α(P)=1.362×10^{-8} *19*; α(IPF)=0.001788 *25*
4436.32[d] *21*	0.0937[d] *81*	6179.53	2+,3+	1743.16	(2−,3−,4−)	[E1][f]	1.96×10^{-3} *3*	0.104 *9*	α(K)=0.0001418 *20*; α(L)=1.935×10^{-5} *27*; α(M)=4.33×10^{-6} *6* α(N)=1.048×10^{-6} *15*; α(O)=1.772×10^{-7} *25*; α(P)=1.356×10^{-8} *19*; α(IPF)=0.001793 *25*
4460.57[d] *23*	0.196[d] *15*	6179.53	2+,3+	1718.91	(2−,3−,4−)	[E1][f]	1.97×10^{-3} *3*	0.218 *17*	α(K)=0.0001407 *20*; α(L)=1.919×10^{-5} *27*; α(M)=4.30×10^{-6} *6* α(N)=1.040×10^{-6} *15*; α(O)=1.758×10^{-7} *25*; α(P)=1.345×10^{-8} *19*; α(IPF)=0.001801 *25* I_γ: Other: 0.25 *7* (1969La11).
4484.8[d] *4*	0.0279[d] *54*	6179.53	2+,3+	1694.7	(2−,3−)	[E1][f]	1.97×10^{-3} *3*	0.031 *6*	α(K)=0.0001396 *20*; α(L)=1.904×10^{-5} *27*; α(M)=4.26×10^{-6} *6* α(N)=1.031×10^{-6} *14*; α(O)=1.744×10^{-7} *24*; α(P)=1.334×10^{-8} *19*; α(IPF)=0.001810 *25*
4507.2 *3*	0.185 *14*	6179.53	2+,3+	1672.3	(1−,2−,3−)	[E1][f]	1.98×10^{-3} *3*	0.205 *15*	α(K)=0.0001386 *19*; α(L)=1.890×10^{-5} *26*; α(M)=4.23×10^{-6} *6* α(N)=1.024×10^{-6} *14*; α(O)=1.732×10^{-7} *24*; α(P)=1.325×10^{-8} *19*; α(IPF)=0.001818 *25* I_γ: Other: 0.12 *3* (1969La11).

$^{186}_{75}$Re$_{111}$-34

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
4514.4[#] *50*	0.07[#] *4*	6179.53	2+,3+	1665	(2−,3−,4−)	[E1][f]	1.98×10^{-3} *3*		α(K)=0.0001383 *19*; α(L)=1.886×10^{-5} *27*; α(M)=4.22×10^{-6} *6* α(N)=1.021×10^{-6} *14*; α(O)=1.728×10^{-7} *24*; α(P)=1.322×10^{-8} *19*; α(IPF)=0.001820 *26*
4520.35[d] *14*	0.039[d] *14*	6179.53	2+,3+	1659.12	(2−,3−,4−)	[E1][f]	1.98×10^{-3} *3*	0.043 *16*	α(K)=0.0001380 *19*; α(L)=1.882×10^{-5} *26*; α(M)=4.22×10^{-6} *6* α(N)=1.020×10^{-6} *14*; α(O)=1.724×10^{-7} *24*; α(P)=1.319×10^{-8} *18*; α(IPF)=0.001822 *26*
4532.60 *22*	0.134 *14*	6179.53	2+,3+	1646.87	(2−,3−,4−)	[E1][f]	1.99×10^{-3} *3*	0.149 *16*	α(K)=0.0001375 *19*; α(L)=1.875×10^{-5} *26*; α(M)=4.20×10^{-6} *6* α(N)=1.015×10^{-6} *14*; α(O)=1.717×10^{-7} *24*; α(P)=1.314×10^{-8} *18*; α(IPF)=0.001826 *26* I_γ: Other: 0.116 *29* (1969La11).
4542.2 *50*		6179.53	2+,3+	1637					I_γ: Other: 0.073 *20* (1969La11).
4551.29 *21*	0.0721 *72*	6179.53	2+,3+	1628.18	(2−,3−,4−)	[E1][f]	1.99×10^{-3} *3*	0.080 *8*	α(K)=0.0001367 *19*; α(L)=1.864×10^{-5} *26*; α(M)=4.17×10^{-6} *6* α(N)=1.009×10^{-6} *14*; α(O)=1.707×10^{-7} *24*; α(P)=1.306×10^{-8} *18*; α(IPF)=0.001833 *26* I_γ: Other: 0.028 *7* (1969La11).
4572.37 *21*	0.1243 *99*	6179.53	2+,3+	1607.10	(2−,3−,4−)	[E1][f]	2.00×10^{-3} *3*	0.138 *11*	α(K)=0.0001358 *19*; α(L)=1.851×10^{-5} *26*; α(M)=4.15×10^{-6} *6* α(N)=1.003×10^{-6} *14*; α(O)=1.696×10^{-7} *24*; α(P)=1.297×10^{-8} *18*; α(IPF)=0.001840 *26* I_γ: Other: 0.066 *15* (1969La11).
4577.8[d] *3*	0.0360[d] *54*	6179.53	2+,3+	1601.7	(2−,3−,4−)	[E1][f]	2.00×10^{-3} *3*	0.040 *6*	α(K)=0.0001355 *19*; α(L)=1.848×10^{-5} *26*; α(M)=4.14×10^{-6} *6* α(N)=1.001×10^{-6} *14*; α(O)=1.693×10^{-7} *24*; α(P)=1.295×10^{-8} *18*; α(IPF)=0.001842 *26* I_γ: Other: 0.14 *3* (1969La11).
4592.42 *15*	0.170 *12*	6179.53	2+,3+	1587.05	(2−,3−)	[E1][f]	2.01×10^{-3} *3*	0.189 *13*	α(K)=0.0001349 *19*; α(L)=1.839×10^{-5} *26*; α(M)=4.12×10^{-6} *6* α(N)=9.96×10^{-7} *14*; α(O)=1.685×10^{-7} *24*; α(P)=1.289×10^{-8} *18*; α(IPF)=0.001847 *26*
4607.49[d] *19*	0.0775[d] *72*	6179.53	2+,3+	1571.98	(1−,2−,3−)	[E1][f]	2.01×10^{-3} *3*	0.086 *8*	α(K)=0.0001343 *19*; α(L)=1.831×10^{-5} *26*; α(M)=4.10×10^{-6} *6* α(N)=9.91×10^{-7} *14*; α(O)=1.677×10^{-7} *23*; α(P)=1.283×10^{-8} *18*; α(IPF)=0.001853 *26*
4613.12 *17*	0.1234 *99*	6179.53	2+,3+	1566.35	(2−,3−,4−)	[E1][f]	2.01×10^{-3} *3*	0.137 *11*	α(K)=0.0001341 *19*; α(L)=1.827×10^{-5} *26*;

$^{186}_{75}$Re$_{111}$-35

γ(^{186}Re) (continued)

Eγ[†]	Iγ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
									α(M)=4.09×10^{-6} *6* α(N)=9.90×10^{-7} *14*; α(O)=1.674×10^{-7} *23*; α(P)=1.281×10^{-8} *18*; α(IPF)=0.001855 *26* I_γ: Other: 0.16 *4* (1969La11).
4628.82[d] *19*	0.0811[d] *63*	6179.53	2$^+$,3$^+$	1550.65	(1$^-$,2$^-$,3$^-$)	[E1][f]	2.02×10^{-3} *3*	0.090 *7*	α(K)=0.0001334 *19*; α(L)=1.818×10^{-5} *25*; α(M)=4.07×10^{-6} *6* α(N)=9.85×10^{-7} *14*; α(O)=1.666×10^{-7} *23*; α(P)=1.275×10^{-8} *18*; α(IPF)=0.001860 *26* I_γ: Other: 0.20 *5*; doublet with undivided Iγ (1969La11).
4634.52 *16*	0.281 *17*	6179.53	2$^+$,3$^+$	1544.95	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.02×10^{-3} *3*	0.312 *19*	α(K)=0.0001332 *19*; α(L)=1.815×10^{-5} *25*; α(M)=4.06×10^{-6} *6* α(N)=9.83×10^{-7} *14*; α(O)=1.663×10^{-7} *23*; α(P)=1.272×10^{-8} *18*; α(IPF)=0.001862 *26* I_γ: Other: 0.20 *5*; doublet with undivided Iγ (1969La11).
4654.23[d] *19*	0.0568[d] *54*	6179.53	2$^+$,3$^+$	1525.24	(4$^-$)	[E1][f]	2.02×10^{-3} *3*	0.063 *6*	α(K)=0.0001324 *19*; α(L)=1.804×10^{-5} *25*; α(M)=4.04×10^{-6} *6* α(N)=9.77×10^{-7} *14*; α(O)=1.652×10^{-7} *23*; α(P)=1.265×10^{-8} *18*; α(IPF)=0.001869 *26* I_γ: Other: 0.16 *6* (1969La11).
4692.81 *16*	0.164 *12*	6179.53	2$^+$,3$^+$	1486.66	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.04×10^{-3} *3*	0.182 *13*	α(K)=0.0001308 *18*; α(L)=1.782×10^{-5} *25*; α(M)=3.99×10^{-6} *6* α(N)=9.65×10^{-7} *14*; α(O)=1.633×10^{-7} *23*; α(P)=1.250×10^{-8} *17*; α(IPF)=0.001883 *26* I_γ: Other: 0.077 *21* (1969La11).
4703.6 *3*	0.099 *11*	6179.53	2$^+$,3$^+$	1475.9	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.04×10^{-3} *3*	0.110 *12*	α(K)=0.0001304 *18*; α(L)=1.776×10^{-5} *25*; α(M)=3.98×10^{-6} *6* α(N)=9.62×10^{-7} *13*; α(O)=1.627×10^{-7} *23*; α(P)=1.246×10^{-8} *17*; α(IPF)=0.001887 *26* I_γ: Other: 0.082 *24* (1969La11).
4717.1[d] *5*	0.0189[d] *45*	6179.53	2$^+$,3$^+$	1462.4	(2$^-$,3$^-$)	[E1][f]	2.04×10^{-3} *3*	0.021 *5*	α(K)=0.0001298 *18*; α(L)=1.769×10^{-5} *25*; α(M)=3.96×10^{-6} *6* α(N)=9.58×10^{-7} *13*; α(O)=1.620×10^{-7} *23*; α(P)=1.240×10^{-8} *17*; α(IPF)=0.001891 *26*
4722.02[d] *20*	0.0541[d] *63*	6179.53	2$^+$,3$^+$	1457.45	(2$^-$,3$^-$)	[E1][f]	2.05×10^{-3} *3*	0.060 *7*	α(K)=0.0001296 *18*; α(L)=1.766×10^{-5} *25*; α(M)=3.96×10^{-6} *6* α(N)=9.57×10^{-7} *13*; α(O)=1.618×10^{-7} *23*; α(P)=1.239×10^{-8} *17*; α(IPF)=0.001893 *27*
4729.7[d] *4*	0.0225[d] *45*	6179.53	2$^+$,3$^+$	1449.8	(1$^-$,2$^-$,3$^-$)	[E1][f]	2.05×10^{-3} *3*	0.025 *5*	α(K)=0.0001293 *18*; α(L)=1.762×10^{-5} *25*; α(M)=3.95×10^{-6} *6* α(N)=9.54×10^{-7} *13*; α(O)=1.614×10^{-7} *23*; α(P)=1.236×10^{-8} *17*; α(IPF)=0.001896 *27*

$^{186}_{75}$Re$_{111}$-36

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
4741.76 *23*	0.0883 *99*	6179.53	2+,3+	1437.71	(2−,3−,4−)	[E1][f]	2.05×10^{-3} *3*	0.098 *11*	α(K)=0.0001289 *18*; α(L)=1.756×10^{-5} *25*; α(M)=3.93×10^{-6} *6* α(N)=9.51×10^{-7} *13*; α(O)=1.608×10^{-7} *23*; α(P)=1.231×10^{-8} *17*; α(IPF)=0.001900 *27* I_γ: Other: 0.072 *61* (1969La11).
4760.5[d] *3*	0.0478[d] *63*	6179.53	2+,3+	1419.0	(2−,3−)	[E1][f]	2.06×10^{-3} *3*	0.053 *7*	α(K)=0.0001281 *18*; α(L)=1.746×10^{-5} *24*; α(M)=3.91×10^{-6} *5* α(N)=9.45×10^{-7} *13*; α(O)=1.599×10^{-7} *22*; α(P)=1.224×10^{-8} *17*; α(IPF)=0.001906 *27*
4774.04 *15*	0.667 *36*	6179.53	2+,3+	1405.43	(2−,3−,4−)	[E1][f]	2.06×10^{-3} *3*	0.74 *4*	α(K)=0.0001276 *18*; α(L)=1.739×10^{-5} *24*; α(M)=3.89×10^{-6} *5* α(N)=9.41×10^{-7} *13*; α(O)=1.592×10^{-7} *22*; α(P)=1.219×10^{-8} *17*; α(IPF)=0.001911 *27* I_γ: Other: 0.37 *7* (1969La11).
4786.5[d] *3*	0.0288[d] *72*	6179.53	2+,3+	1393.0	(2−,3−)	[E1][f]	2.06×10^{-3} *3*	0.032 *8*	α(K)=0.0001272 *18*; α(L)=1.732×10^{-5} *24*; α(M)=3.88×10^{-6} *5* α(N)=9.38×10^{-7} *13*; α(O)=1.586×10^{-7} *22*; α(P)=1.215×10^{-8} *17*; α(IPF)=0.001915 *27*
4803.8[d] *7*	0.0198[d] *90*	6179.53	2+,3+	1375.7	(1−,2−,3−)	[E1][f]	2.07×10^{-3} *3*	0.022 *10*	α(K)=0.0001265 *18*; α(L)=1.723×10^{-5} *24*; α(M)=3.86×10^{-6} *5* α(N)=9.33×10^{-7} *13*; α(O)=1.578×10^{-7} *22*; α(P)=1.208×10^{-8} *17*; α(IPF)=0.001921 *27* I_γ: Other: 0.058 *31* (1969La11).
4819.2[d] *4*	0.0162[d] *45*	6179.53	2+,3+	1360.3	(2−,3−,4−)	[E1][f]	2.07×10^{-3} *3*	0.018 *5*	α(K)=0.0001259 *18*; α(L)=1.715×10^{-5} *24*; α(M)=3.84×10^{-6} *5* α(N)=9.29×10^{-7} *13*; α(O)=1.571×10^{-7} *22*; α(P)=1.203×10^{-8} *17*; α(IPF)=0.001927 *27*
4824.1[d] *3*	0.0297[d] *45*	6179.53	2+,3+	1355.4	(2−,3−)	[E1][f]	2.08×10^{-3} *3*	0.033 *5*	α(K)=0.0001257 *18*; α(L)=1.712×10^{-5} *24*; α(M)=3.83×10^{-6} *5* α(N)=9.27×10^{-7} *13*; α(O)=1.569×10^{-7} *22*; α(P)=1.201×10^{-8} *17*; α(IPF)=0.001928 *27*
4828.31 *18*	0.0847 *81*	6179.53	2+,3+	1351.16	(4−)	[E1][f]	2.08×10^{-3} *3*	0.094 *9*	α(K)=0.0001256 *18*; α(L)=1.710×10^{-5} *24*; α(M)=3.83×10^{-6} *5* α(N)=9.26×10^{-7} *13*; α(O)=1.567×10^{-7} *22*; α(P)=1.199×10^{-8} *17*; α(IPF)=0.001930 *27* I_γ: Other: 0.050 *23* (1969La11).
4837.2[d] *4*	0.0153[d] *36*	6179.53	2+,3+	1342.3	(2+,3+,4+)	[M1][f]	2.05×10^{-3} *3*	0.017 *4*	α(K)=0.0002005 *28*; α(L)=2.90×10^{-5} *4*; α(M)=6.55×10^{-6} *9* α(N)=1.588×10^{-6} *22*; α(O)=2.69×10^{-7} *4*; α(P)=2.050×10^{-8} *29*; α(IPF)=0.001809 *25*

From ENSDF

$^{186}_{75}$Re$_{111}$-37

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
4857.83[d] *19*	0.226[d] *15*	6179.53	2+,3+	1321.64	(2−,3−)	[E1][f]	2.09×10^{-3} *3*	0.251 *17*	α(K)=0.0001245 *17*; α(L)=1.695×10^{-5} *24*; α(M)=3.80×10^{-6} *5* α(N)=9.18×10^{-7} *13*; α(O)=1.553×10^{-7} *22*; α(P)=1.189×10^{-8} *17*; α(IPF)=0.001939 *27*
4862.15 *16*	0.640 *36*	6179.53	2+,3+	1317.32	(2−,3−,4−)	[E1][f]	2.09×10^{-3} *3*	0.71 *4*	α(K)=0.0001243 *17*; α(L)=1.693×10^{-5} *24*; α(M)=3.79×10^{-6} *5* α(N)=9.17×10^{-7} *13*; α(O)=1.551×10^{-7} *22*; α(P)=1.188×10^{-8} *17*; α(IPF)=0.001941 *27* I_γ: Other: 0.060 *13* (1969La11).
4872.8[#] *50*	0.13[#] *4*	6179.53	2+,3+	1307	(2−,3−,4−)	[E1]	2.09×10^{-3} *3*		α(K)=0.0001239 *17*; α(L)=1.688×10^{-5} *24*; α(M)=3.78×10^{-6} *5* α(N)=9.14×10^{-7} *13*; α(O)=1.546×10^{-7} *22*; α(P)=1.184×10^{-8} *17*; α(IPF)=0.001944 *27*
4893.7 *9*	0.0505 *81*	6179.53	2+,3+	1285.8	(2−,3−)	[E1][f]	2.10×10^{-3} *3*	0.056 *9*	α(K)=0.0001232 *17*; α(L)=1.677×10^{-5} *23*; α(M)=3.76×10^{-6} *5* α(N)=9.08×10^{-7} *13*; α(O)=1.536×10^{-7} *22*; α(P)=1.177×10^{-8} *16*; α(IPF)=0.001951 *27* I_γ: Other: 0.042 *11* (1969La11).
4915.6[#] *40*	0.100[#] *36*	6179.53	2+,3+	1264	(1−)	[E1]	2.10×10^{-3} *3*		α(K)=0.0001224 *17*; α(L)=1.667×10^{-5} *23*; α(M)=3.73×10^{-6} *5* α(N)=9.02×10^{-7} *13*; α(O)=1.527×10^{-7} *21*; α(P)=1.169×10^{-8} *16*; α(IPF)=0.001958 *27*
4936.82[d] *20*	0.315[d] *27*	6179.53	2+,3+	1242.64	(2−,3−)	[E1][f]	2.11×10^{-3} *3*	0.35 *3*	α(K)=0.0001217 *17*; α(L)=1.656×10^{-5} *23*; α(M)=3.71×10^{-6} *5* α(N)=8.97×10^{-7} *13*; α(O)=1.517×10^{-7} *21*; α(P)=1.162×10^{-8} *16*; α(IPF)=0.001965 *28*
4939.2[d] *3*	0.071[d] *14*	6179.53	2+,3+	1240.3	(2−,3−,4−)	[E1][f]	2.11×10^{-3} *3*	0.079 *16*	α(K)=0.0001216 *17*; α(L)=1.655×10^{-5} *23*; α(M)=3.71×10^{-6} *5* α(N)=8.96×10^{-7} *13*; α(O)=1.516×10^{-7} *21*; α(P)=1.161×10^{-8} *16*; α(IPF)=0.001966 *28*
4948.2[d] *3*	0.0523[d] *54*	6179.53	2+,3+	1231.3	(2−,3−)	[E1][f]	2.11×10^{-3} *3*	0.058 *6*	α(K)=0.0001213 *17*; α(L)=1.651×10^{-5} *23*; α(M)=3.70×10^{-6} *5* α(N)=8.94×10^{-7} *13*; α(O)=1.512×10^{-7} *21*; α(P)=1.158×10^{-8} *16*; α(IPF)=0.001969 *28*
4951.58[d] *20*	0.1243[d] *90*	6179.53	2+,3+	1227.88	(2−,3−,4−)	[E1][f]	2.11×10^{-3} *3*	0.138 *10*	α(K)=0.0001212 *17*; α(L)=1.649×10^{-5} *23*; α(M)=3.69×10^{-6} *5* α(N)=8.93×10^{-7} *13*; α(O)=1.511×10^{-7} *21*; α(P)=1.157×10^{-8} *16*; α(IPF)=0.001970 *28*
4967.5[d] *4*	0.0207[d] *45*	6179.53	2+,3+	1212.0	(2+,3+,4+)	[M1][f]	2.08×10^{-3} *3*	0.023 *5*	α(K)=0.0001891 *26*; α(L)=2.73×10^{-5} *4*;

$^{186}_{75}Re_{111}$-38

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
									α(M)=6.17×10^{-6} *9* α(N)=1.496×10^{-6} *21*; α(O)=2.531×10^{-7} *35*; α(P)=1.931×10^{-8} *27*; α(IPF)=0.001859 *26*
4981.57 *17*	0.284 *18*	6179.53	2$^+$,3$^+$	1197.89	(2$^-$,3$^-$)	[E1][f]	2.12×10^{-3} *3*	0.315 *20*	α(K)=0.0001201 *17*; α(L)=1.635×10^{-5} *23*; α(M)=3.66×10^{-6} *5* α(N)=8.85×10^{-7} *12*; α(O)=1.497×10^{-7} *21*; α(P)=1.147×10^{-8} *16*; α(IPF)=0.001979 *28* I_γ: Other: 0.102 36 (1969La11).
4994.47 *18*	0.1036 *81*	6179.53	2$^+$,3$^+$	1184.99	(2$^-$,3$^-$)	[E1][f]	2.12×10^{-3} *3*	0.115 *9*	α(K)=0.0001197 *17*; α(L)=1.629×10^{-5} *23*; α(M)=3.65×10^{-6} *5* α(N)=8.82×10^{-7} *12*; α(O)=1.492×10^{-7} *21*; α(P)=1.143×10^{-8} *16*; α(IPF)=0.001983 *28* I_γ: Other: 0.071 *32* (1969La11).
5007.27 *17*	0.820 *45*	6179.53	2$^+$,3$^+$	1172.19	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.13×10^{-3} *3*	0.91 *5*	α(K)=0.0001192 *17*; α(L)=1.623×10^{-5} *23*; α(M)=3.63×10^{-6} *5* α(N)=8.79×10^{-7} *12*; α(O)=1.486×10^{-7} *21*; α(P)=1.139×10^{-8} *16*; α(IPF)=0.001987 *28* I_γ: Other: 0.48 *11* (1969La11).
5021.66[d] *19*	0.0892[d] *72*	6179.53	2$^+$,3$^+$	1157.80	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.13×10^{-3} *3*	0.099 *8*	α(K)=0.0001188 *17*; α(L)=1.616×10^{-5} *23*; α(M)=3.62×10^{-6} *5* α(N)=8.75×10^{-7} *12*; α(O)=1.480×10^{-7} *21*; α(P)=1.134×10^{-8} *16*; α(IPF)=0.001992 *28*
5028.32 *17*	0.775 *45*	6179.53	2$^+$,3$^+$	1151.14	(4$^-$)	[E1][f]	2.13×10^{-3} *3*	0.86 *5*	α(K)=0.0001185 *17*; α(L)=1.613×10^{-5} *23*; α(M)=3.61×10^{-6} *5* α(N)=8.73×10^{-7} *12*; α(O)=1.477×10^{-7} *21*; α(P)=1.132×10^{-8} *16*; α(IPF)=0.001994 *28* I_γ: Other: 0.48 *11* (1969La11).
5038.6[d] *3*	0.0252[d] *36*	6179.53	2$^+$,3$^+$	1140.9	(2$^-$,3$^-$)	[E1][f]	2.14×10^{-3} *3*	0.028 *4*	α(K)=0.0001182 *17*; α(L)=1.608×10^{-5} *23*; α(M)=3.60×10^{-6} *5* α(N)=8.71×10^{-7} *12*; α(O)=1.473×10^{-7} *21*; α(P)=1.128×10^{-8} *16*; α(IPF)=0.001997 *28*
5047.39 *19*	0.0937 *72*	6179.53	2$^+$,3$^+$	1132.07	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.14×10^{-3} *3*	0.104 *8*	α(K)=0.0001179 *17*; α(L)=1.604×10^{-5} *22*; α(M)=3.59×10^{-6} *5* α(N)=8.69×10^{-7} *12*; α(O)=1.469×10^{-7} *21*; α(P)=1.126×10^{-8} *16*; α(IPF)=0.001999 *28* I_γ: Other: 0.05 *2* (1969La11).
5056.96[d] *22*	0.0748[d] *72*	6179.53	2$^+$,3$^+$	1122.50	(2$^-$,3$^-$)	[E1][f]	2.14×10^{-3} *3*	0.083 *8*	α(K)=0.0001176 *16*; α(L)=1.600×10^{-5} *22*; α(M)=3.58×10^{-6} *5* α(N)=8.66×10^{-7} *12*; α(O)=1.465×10^{-7} *21*; α(P)=1.123×10^{-8} *16*; α(IPF)=0.002002 *28*

$^{186}_{75}$Re$_{111}$-39

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
5076.77[d] *17*	0.236[d] *15*	6179.53	2$^+$,3$^+$	1102.69	(2$^-$,3$^-$)	[E1][f]	2.15×10^{-3} *3*	0.262 *17*	α(K)=0.0001169 *16*; α(L)=1.591×10^{-5} *22*; α(M)=3.56×10^{-6} *5* α(N)=8.61×10^{-7} *12*; α(O)=1.457×10^{-7} *20*; α(P)=1.116×10^{-8} *16*; α(IPF)=0.002008 *28*
5082.45 *17*	0.1559 *99*	6179.53	2$^+$,3$^+$	1097.01	(4$^-$)	[E1][f]	2.15×10^{-3} *3*	0.173 *11*	α(K)=0.0001167 *16*; α(L)=1.588×10^{-5} *22*; α(M)=3.56×10^{-6} *5* α(N)=8.60×10^{-7} *12*; α(O)=1.455×10^{-7} *20*; α(P)=1.115×10^{-8} *16*; α(IPF)=0.002010 *28* I_γ: Other: 0.22 *5* (1969La11).
5108.0[d] *6*	0.0225[d] *72*	6179.53	2$^+$,3$^+$	1071.5	(2$^-$,3$^-$)	[E1][f]	2.15×10^{-3} *3*	0.025 *8*	α(K)=0.0001159 *16*; α(L)=1.577×10^{-5} *22*; α(M)=3.53×10^{-6} *5* α(N)=8.54×10^{-7} *12*; α(O)=1.444×10^{-7} *20*; α(P)=1.107×10^{-8} *15*; α(IPF)=0.002018 *28*
5110.90 *21*	0.133 *11*	6179.53	2$^+$,3$^+$	1068.56	(2$^-$,3$^-$)	[E1][f]	2.15×10^{-3} *3*	0.148 *12*	α(K)=0.0001158 *16*; α(L)=1.576×10^{-5} *22*; α(M)=3.53×10^{-6} *5* α(N)=8.53×10^{-7} *12*; α(O)=1.443×10^{-7} *20*; α(P)=1.106×10^{-8} *15*; α(IPF)=0.002019 *28* I_γ: Other: 0.055 *11* (1969La11).
5122.0[d] *5*	0.0117[d] *36*	6179.53	2$^+$,3$^+$	1057.5	(2$^-$,3$^-$)	[E1][f]	2.16×10^{-3} *3*	0.013 *4*	α(K)=0.0001155 *16*; α(L)=1.571×10^{-5} *22*; α(M)=3.52×10^{-6} *5* α(N)=8.50×10^{-7} *12*; α(O)=1.439×10^{-7} *20*; α(P)=1.102×10^{-8} *15*; α(IPF)=0.002022 *28*
5125.7[d] *6*	0.0108[d] *36*	6179.53	2$^+$,3$^+$	1053.8	(1$^-$,2$^-$,3$^-$)	[E1][f]	2.16×10^{-3} *3*	0.012 *4*	α(K)=0.0001154 *16*; α(L)=1.569×10^{-5} *22*; α(M)=3.51×10^{-6} *5* α(N)=8.50×10^{-7} *12*; α(O)=1.437×10^{-7} *20*; α(P)=1.101×10^{-8} *15*; α(IPF)=0.002023 *28*
5139.21 *18*	0.703 *45*	6179.53	2$^+$,3$^+$	1040.25	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.16×10^{-3} *3*	0.78 *5*	α(K)=0.0001149 *16*; α(L)=1.563×10^{-5} *22*; α(M)=3.50×10^{-6} *5* α(N)=8.46×10^{-7} *12*; α(O)=1.432×10^{-7} *20*; α(P)=1.097×10^{-8} *15*; α(IPF)=0.002027 *28* I_γ: Other: 0.45 *10* (1969La11).
5161.86[d] *16*	0.0090[d] *27*	6179.53	2$^+$,3$^+$	1017.60	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.17×10^{-3} *3*	0.010 *3*	α(K)=0.0001142 *16*; α(L)=1.553×10^{-5} *22*; α(M)=3.48×10^{-6} *5* α(N)=8.41×10^{-7} *12*; α(O)=1.423×10^{-7} *20*; α(P)=1.090×10^{-8} *15*; α(IPF)=0.002034 *28*
5165.74[d] *24*	0.0387[d] *36*	6179.53	2$^+$,3$^+$	1013.72	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.17×10^{-3} *3*	0.043 *4*	α(K)=0.0001141 *16*; α(L)=1.552×10^{-5} *22*; α(M)=3.47×10^{-6} *5* α(N)=8.40×10^{-7} *12*; α(O)=1.421×10^{-7} *20*; α(P)=1.089×10^{-8} *15*; α(IPF)=0.002035 *28*

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
5176.43 *18*	0.450 *27*	6179.53	2$^+$,3$^+$	1002.678	(3,4,5)$^-$	[E1][f]	2.17×10^{-3} *3*	0.50 *3*	α(K)=0.0001138 *16*; α(L)=1.547×10^{-5} *22*; α(M)=3.46×10^{-6} *5* α(N)=8.38×10^{-7} *12*; α(O)=1.417×10^{-7} *20*; α(P)=1.086×10^{-8} *15*; α(IPF)=0.002038 *29* I_γ: Other: 0.26 *6* (1969La11).
5190.54[d] *21*	0.0460[d] *54*	6179.53	2$^+$,3$^+$	988.973	(3,4)$^-$	[E1][f]	2.18×10^{-3} *3*	0.051 *6*	α(K)=0.0001133 *16*; α(L)=1.541×10^{-5} *22*; α(M)=3.45×10^{-6} *5* α(N)=8.34×10^{-7} *12*; α(O)=1.412×10^{-7} *20*; α(P)=1.082×10^{-8} *15*; α(IPF)=0.002042 *29*
5197.19[d] *17*	0.0451[d] *45*	6179.53	2$^+$,3$^+$	982.27	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.18×10^{-3} *3*	0.050 *5*	α(K)=0.0001131 *16*; α(L)=1.538×10^{-5} *22*; α(M)=3.44×10^{-6} *5* α(N)=8.33×10^{-7} *12*; α(O)=1.409×10^{-7} *20*; α(P)=1.080×10^{-8} *15*; α(IPF)=0.002044 *29*
5206.20 *19*	0.248 *16*	6179.53	2$^+$,3$^+$	973.861	(2,3,4)$^-$	[E1][f]	2.18×10^{-3} *3*	0.275 *18*	α(K)=0.0001128 *16*; α(L)=1.535×10^{-5} *21*; α(M)=3.44×10^{-6} *5* α(N)=8.31×10^{-7} *12*; α(O)=1.406×10^{-7} *20*; α(P)=1.077×10^{-8} *15*; α(IPF)=0.002047 *29* I_γ: Other: 0.106 *3* (1969La11).
5224.73 *22*	0.0432 *45*	6179.53	2$^+$,3$^+$	954.72	(2$^-$,3$^-$,4$^-$)	[E1][f]	2.18×10^{-3} *3*	0.048 *5*	α(K)=0.0001123 *16*; α(L)=1.527×10^{-5} *21*; α(M)=3.42×10^{-6} *5* α(N)=8.27×10^{-7} *12*; α(O)=1.398×10^{-7} *20*; α(P)=1.072×10^{-8} *15*; α(IPF)=0.002052 *29* I_γ: Other: 0.042 *19* (1969La11).
5244.14 *19*	0.1153 *81*	6179.53	2$^+$,3$^+$	935.31	(2$^-$,3$^-$)	[E1][f]	2.19×10^{-3} *3*	0.128 *9*	α(K)=0.0001117 *16*; α(L)=1.519×10^{-5} *21*; α(M)=3.40×10^{-6} *5* α(N)=8.22×10^{-7} *12*; α(O)=1.391×10^{-7} *19*; α(P)=1.066×10^{-8} *15*; α(IPF)=0.002058 *29* I_γ: Other: 0.04 *1* (1969La11).
5255.94 *19*	0.277 *17*	6179.53	2$^+$,3$^+$	923.629	(2,3)$^-$	[E1][f]	2.19×10^{-3} *3*	0.307 *19*	α(K)=0.0001113 *16*; α(L)=1.514×10^{-5} *21*; α(M)=3.39×10^{-6} *5* α(N)=8.20×10^{-7} *11*; α(O)=1.387×10^{-7} *19*; α(P)=1.063×10^{-8} *15*; α(IPF)=0.002062 *29* I_γ: Other: 0.14 *3* (1969La11).
5277.08 *18*	0.414 *27*	6179.53	2$^+$,3$^+$	902.336	(2,3)$^-$	[E1][f]	2.20×10^{-3} *3*	0.46 *3*	α(K)=0.0001107 *15*; α(L)=1.505×10^{-5} *21*; α(M)=3.37×10^{-6} *5* α(N)=8.15×10^{-7} *11*; α(O)=1.379×10^{-7} *19*; α(P)=1.057×10^{-8} *15*; α(IPF)=0.002068 *29* I_γ: Other: 0.33 *7* (1969La11).
5284.36[d] *18*	0.207[d] *14*	6179.53	2$^+$,3$^+$	895.283	(3,4)$^-$	[E1][f]	2.20×10^{-3} *3*	0.230 *15*	α(K)=0.0001105 *15*; α(L)=1.502×10^{-5} *21*;

γ(^{186}Re) (continued)

E_γ [†]	I_γ [&]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [e]	α [p]	σ_γ (b) [@]	Comments
									α(M)=3.36×10^{-6} *5* α(N)=8.13×10^{-7} *11*; α(O)=1.376×10^{-7} *19*; α(P)=1.054×10^{-8} *15*; α(IPF)=0.002070 *29*
5290.81 *23*	0.0360 *45*	6179.53	2$^+$,3$^+$	888.777	(3,4)$^-$	[E1] [f]	2.20×10^{-3} *3*	0.040 *5*	α(K)=0.0001103 *15*; α(L)=1.500×10^{-5} *21*; α(M)=3.36×10^{-6} *5* α(N)=8.12×10^{-7} *11*; α(O)=1.373×10^{-7} *19*; α(P)=1.053×10^{-8} *15*; α(IPF)=0.002072 *29* I_γ: Other: 0.062 *21* (1969La11).
5307.8 [#] *40*	0.100 [#] *32*	6179.53	2$^+$,3$^+$	872	(2$^-$,3$^-$,4$^-$)	[E1] [f]	2.21×10^{-3} *3*		α(K)=0.0001098 *15*; α(L)=1.493×10^{-5} *21*; α(M)=3.34×10^{-6} *5* α(N)=8.08×10^{-7} *11*; α(O)=1.367×10^{-7} *19*; α(P)=1.048×10^{-8} *15*; α(IPF)=0.002077 *29*
5323.2 [d] *5*	0.0117 [d] *27*	6179.53	2$^+$,3$^+$	856.225	(1,2)$^-$	[E1] [f]	2.21×10^{-3} *3*	0.013 *3*	α(K)=0.0001094 *15*; α(L)=1.487×10^{-5} *21*; α(M)=3.33×10^{-6} *5* α(N)=8.05×10^{-7} *11*; α(O)=1.362×10^{-7} *19*; α(P)=1.044×10^{-8} *15*; α(IPF)=0.002082 *29* I_γ: Other: 0.076 *26* (1969La11).
5353.09 *20*	0.414 *27*	6179.53	2$^+$,3$^+$	826.151	4$^-$	[E1] [f]	2.22×10^{-3} *3*	0.46 *3*	α(K)=0.0001085 *15*; α(L)=1.475×10^{-5} *21*; α(M)=3.30×10^{-6} *5* α(N)=7.98×10^{-7} *11*; α(O)=1.351×10^{-7} *19*; α(P)=1.035×10^{-8} *14*; α(IPF)=0.002091 *29* I_γ: Other: 0.30 *7* (1969La11).
5360.18 *20*	0.193 *12*	6179.53	2$^+$,3$^+$	819.12	(2,3)$^-$	[E1] [f]	2.22×10^{-3} *3*	0.214 *13*	α(K)=0.0001083 *15*; α(L)=1.472×10^{-5} *21*; α(M)=3.29×10^{-6} *5* α(N)=7.97×10^{-7} *11*; α(O)=1.348×10^{-7} *19*; α(P)=1.033×10^{-8} *14*; α(IPF)=0.002093 *29* I_γ: Other: 0.061 *20* (1969La11).
5383.06 *19*	0.0775 *54*	6179.53	2$^+$,3$^+$	796.44	(1,2,3)$^-$	[E1] [f]	2.23×10^{-3} *3*	0.086 *6*	α(K)=0.0001077 *15*; α(L)=1.463×10^{-5} *20*; α(M)=3.27×10^{-6} *5* α(N)=7.92×10^{-7} *11*; α(O)=1.340×10^{-7} *19*; α(P)=1.027×10^{-8} *14*; α(IPF)=0.002100 *29* I_γ: Other: 0.045 *22* (1969La11).
5388.19 [d] *24*	0.0315 [d] *36*	6179.53	2$^+$,3$^+$	791.225	(2,3)$^-$	[E1] [f]	2.23×10^{-3} *3*	0.035 *4*	α(K)=0.0001075 *15*; α(L)=1.461×10^{-5} *20*; α(M)=3.27×10^{-6} *5* α(N)=7.91×10^{-7} *11*; α(O)=1.338×10^{-7} *19*; α(P)=1.026×10^{-8} *14*; α(IPF)=0.002101 *29*
5418.6 [d] *3*	0.0128 [d] *21*	6179.53	2$^+$,3$^+$	761.27	(1$^-$,2$^-$,3$^-$)	[E1] [f]	2.24×10^{-3} *3*	0.0142 *23*	α(K)=0.0001067 *15*; α(L)=1.450×10^{-5} *20*; α(M)=3.24×10^{-6} *5* α(N)=7.85×10^{-7} *11*; α(O)=1.328×10^{-7} *19*; α(P)=1.018×10^{-8} *14*; α(IPF)=0.002111 *30*

$^{186}_{75}$Re$_{111}$-42

γ(^{186}Re) (continued)

E_γ [†]	I_γ [&]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [e]	α [p]	σ_γ (b) [@]	Comments
5426.00[d] *21*	0.0315[d] *27*	6179.53	$2^+,3^+$	753.267	$(2)^-$	[E1][f]	2.24×10^{-3} *3*	0.035 *3*	α(K)=0.0001065 *15*; α(L)=1.447×10^{-5} *20*; α(M)=3.24×10^{-6} *5* α(N)=7.83×10^{-7} *11*; α(O)=1.325×10^{-7} *19*; α(P)=1.016×10^{-8} *14*; α(IPF)=0.002113 *30*
5493.50 *18*	0.268 *16*	6179.53	$2^+,3^+$	686.055	3^-	[E1][f]	2.26×10^{-3} *3*	0.297 *18*	α(K)=0.0001046 *15*; α(L)=1.422×10^{-5} *20*; α(M)=3.18×10^{-6} *4* α(N)=7.69×10^{-7} *11*; α(O)=1.302×10^{-7} *18*; α(P)=9.98×10^{-9} *14*; α(IPF)=0.002133 *30* I_γ: Other: 0.17 *4* (1969La11).
5499.4[d] *3*	0.0279[d] *27*	6179.53	$2^+,3^+$	680.05	2^-	[E1][f]	2.26×10^{-3} *3*	0.031 *3*	α(K)=0.0001045 *15*; α(L)=1.419×10^{-5} *20*; α(M)=3.18×10^{-6} *4* α(N)=7.68×10^{-7} *11*; α(O)=1.300×10^{-7} *18*; α(P)=9.97×10^{-9} *14*; α(IPF)=0.002135 *30*
5555.4[d] *8*	0.0059[d] *21*	6179.53	$2^+,3^+$	623.89	1^-	[E1][f]	2.27×10^{-3} *3*	0.0065 *23*	α(K)=0.0001030 *14*; α(L)=1.399×10^{-5} *20*; α(M)=3.13×10^{-6} *4* α(N)=7.57×10^{-7} *11*; α(O)=1.281×10^{-7} *18*; α(P)=9.83×10^{-9} *14*; α(IPF)=0.002152 *30*
5601.65 *18*	0.331 *20*	6179.53	$2^+,3^+$	577.720	2^-	[E1][f]	2.29×10^{-3} *3*	0.367 *22*	α(K)=0.0001018 *14*; α(L)=1.383×10^{-5} *19*; α(M)=3.09×10^{-6} *4* α(N)=7.49×10^{-7} *10*; α(O)=1.266×10^{-7} *18*; α(P)=9.71×10^{-9} *14*; α(IPF)=0.002166 *30* I_γ: Other: 0.22 *5* (1969La11).
5645.07 *20*	0.232 *14*	6179.53	$2^+,3^+$	534.37	4^-	[E1][f]	2.30×10^{-3} *3*	0.257 *16*	α(K)=0.0001007 *14*; α(L)=1.368×10^{-5} *19*; α(M)=3.06×10^{-6} *4* α(N)=7.40×10^{-7} *10*; α(O)=1.253×10^{-7} *18*; α(P)=9.61×10^{-9} *13*; α(IPF)=0.002179 *31* I_γ: Other: 0.12 *3* (1969La11).
5709.67 *20*	0.348 *22*	6179.53	$2^+,3^+$	469.794	4^-	[E1][f]	2.31×10^{-3} *3*	0.386 *24*	α(K)=9.91×10^{-5} *14*; α(L)=1.346×10^{-5} *19*; α(M)=3.01×10^{-6} *4* α(N)=7.29×10^{-7} *10*; α(O)=1.233×10^{-7} *17*; α(P)=9.45×10^{-9} *13*; α(IPF)=0.002198 *31* I_γ: Other: 0.23 *5* (1969La11).
5753.2[d] *3*	0.0216[d] *36*	6179.53	$2^+,3^+$	425.823	4^+	[M1][f]	2.27×10^{-3} *3*	0.024 *4*	α(K)=0.0001377 *19*; α(L)=1.977×10^{-5} *28*; α(M)=4.46×10^{-6} *6* α(N)=1.081×10^{-6} *15*; α(O)=1.829×10^{-7} *26*; α(P)=1.397×10^{-8} *20*; α(IPF)=0.002111 *30*
5759.1 *8*	0.0054 *27*	6179.53	$2^+,3^+$	420.560	4^+	[M1][f]	2.28×10^{-3} *3*	0.006 *3*	α(K)=0.0001374 *19*; α(L)=1.973×10^{-5} *28*; α(M)=4.45×10^{-6} *6* α(N)=1.079×10^{-6} *15*; α(O)=1.825×10^{-7} *26*; α(P)=1.394×10^{-8} *20*; α(IPF)=0.002113 *30* I_γ: Other: 0.027 *13* (1969La11).

γ(^{186}Re) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[e]	α[p]	σ_γ (b)[@]	Comments
5800.93 *21*	0.0460 *36*	6179.53	$2^+,3^+$	378.387	2^-	[E1][f]	2.34×10^{-3} *3*	0.051 *4*	α(K)=9.70×10^{-5} *14*; α(L)=1.316×10^{-5} *18*; α(M)=2.95×10^{-6} *4* α(N)=7.12×10^{-7} *10*; α(O)=1.205×10^{-7} *17*; α(P)=9.25×10^{-9} *13*; α(IPF)=0.002225 *31* I_γ: Other: 0.034 *18* (1969La11).
5856.95 *19*	0.414 *27*	6179.53	$2^+,3^+$	322.378	3^-	[E1][f]	2.35×10^{-3} *3*	0.46 *3*	α(K)=9.57×10^{-5} *13*; α(L)=1.299×10^{-5} *18*; α(M)=2.91×10^{-6} *4* α(N)=7.03×10^{-7} *10*; α(O)=1.189×10^{-7} *17*; α(P)=9.12×10^{-9} *13*; α(IPF)=0.002241 *31* I_γ: Other: 0.25 *6* (1969La11).
5863.4[d] *3*	0.0360[d] *27*	6179.53	$2^+,3^+$	316.459	1^-	[E1][f]	2.35×10^{-3} *3*	0.040 *3*	α(K)=9.56×10^{-5} *13*; α(L)=1.297×10^{-5} *18*; α(M)=2.90×10^{-6} *4* α(N)=7.02×10^{-7} *10*; α(O)=1.187×10^{-7} *17*; α(P)=9.11×10^{-9} *13*; α(IPF)=0.002243 *31*
5905.7[d] *2*	0.0856[d] *81*	6179.53	$2^+,3^+$	273.627	4^-	[E1][f]	2.37×10^{-3} *3*	0.095 *9*	α(K)=9.46×10^{-5} *13*; α(L)=1.284×10^{-5} *18*; α(M)=2.87×10^{-6} *4* α(N)=6.95×10^{-7} *10*; α(O)=1.176×10^{-7} *16*; α(P)=9.02×10^{-9} *13*; α(IPF)=0.002254 *32*
5910.62 *19*	1.793 *45*	6179.53	$2^+,3^+$	268.800	4^-	[E1][f]	2.37×10^{-3} *3*	1.99 *5*	α(K)=9.45×10^{-5} *13*; α(L)=1.282×10^{-5} *18*; α(M)=2.87×10^{-6} *4* α(N)=6.94×10^{-7} *10*; α(O)=1.174×10^{-7} *16*; α(P)=9.01×10^{-9} *13*; α(IPF)=0.002256 *32* I_γ: Other: 1.14 *24* (1969La11).
5968.92 *24*	0.0469 *36*	6179.53	$2^+,3^+$	210.699	2^-	[E1][f]	2.38×10^{-3} *3*	0.052 *4*	α(K)=9.32×10^{-5} *13*; α(L)=1.265×10^{-5} *18*; α(M)=2.83×10^{-6} *4* α(N)=6.84×10^{-7} *10*; α(O)=1.158×10^{-7} *16*; α(P)=8.89×10^{-9} *12*; α(IPF)=0.002271 *32* I_γ: Other: 0.031 *14* (1969La11).
6005.59 *21*	0.166 *11*	6179.53	$2^+,3^+$	173.929	4^-	[E1][f]		0.184 *12*	α(IPF)=0.002282 *32* I_γ: Other: 0.089 22 (1969La11).
6033.26 *21*	0.225 *14*	6179.53	$2^+,3^+$	146.275	3^-	[E1][f]		0.250 *15*	α(IPF)=0.002289 *32* I_γ: Other: 0.14 *3* (1969La11).
6080.29 *20*	0.366 *22*	6179.53	$2^+,3^+$	99.361	3^-	[E1][f]		0.406 *24*	α(IPF)=0.002303 *32* I_γ: Other: 0.22 *5* (1969La11).
6120.38 *20*	0.358 *21*	6179.53	$2^+,3^+$	59.010	2^-	[E1][f]		0.397 *23*	α(IPF)=0.002314 *32* I_γ: Other: 0.18 *4* (1969La11).
6179.30 *21*	0.0532 *36*	6179.53	$2^+,3^+$	0.0	1^-	[E1][f]		0.059 *4*	α(IPF)=0.002330 *33* I_γ: Other: 0.023 *7* (1969La11).

[†] All γ rays depopulating levels below S_n from 1969La11, except where noted. Primary γ rays depopulating the level at S_n from 2016Ma35, except where noted.

[‡] From 2016Ma35.

[#] Primary γ-ray energy and intensity per 100 neutron captures from 1969La11 (not observed in 2016Ma35).

[@] Absolute partial γ-ray cross sections from 2016Ma35. For intensity per 100 neutron captures multiply by 0.901.

γ(^{186}Re) (continued)

& Absolute γ-ray intensities per 100 neutron captures deduced from 2016Ma35, except where noted. Population per 100 neutron captures from 1969La11 given in comment fields where available.

[a] Transition Iγ resolved using branching ratios from 1969La11.

[b] γ ray multiply placed; transition Iγ divided using statistical-model calculations in 2016Ma35.

[c] Transition Iγ resolved using statistical-model calculations in 2016Ma35.

[d] Reported only in 2016Ma35.

[e] Deduced by evaluators from Ice data of 1969La11 (magnetic spectrometer) except where noted. δ calculated using BrIccMixing code, version 2.3d.

[f] Assumed by evaluators. For primary γ decays from the capture state with a 2^+(1.2%),3^+(98.8%) composition (2016Ma35), we have assumed [E1] or [M1] according to angular-momentum selection rules. In cases where both E1 and M1 are permissible primary γ decays, we assume [E1] for stronger transitions Iγ≥0.027 (2016Ma35) and [M1] for weaker transitions; although either multipolarity may be possible, any change to the calculated conversion coefficient will have a negligible impact.

[g] Complex γ line (1969La11).

[h] Weak γ; questionable existence (1969La11).

[i] α(L)exp, α(K)exp for doubly-placed γ consistent with pure E1 transition. The full intensity has been assigned to an E1 γ deexciting the 324 level; this γ accounts for approx. 97% of the total doublet intensity according to Iγ measurements from 2016Ma35. The yield for the other γ deexciting the 418 level is significantly smaller than the statistical Iγ and Ice uncertainties, and the level scheme also dictates Δπ=no for its placement.

[j] Ice and Iγ from 1969La11 divided as described in comments. Total yields reported in 1969La11 give consistent α(K)exp=0.93 *13* and corresponds to mult=M1+E2, δ=0.93 *+27−22*, but is for a γ with possible second placement from 736-keV level. The evaluators assign M1+E2 to the definitely-placed transition, and (M1+E2) for the tentative placement.

[k] From “Los Alamos” spectrum of 1969La11, measured using Compton-suppressed Ge(Li) detector; γ not reported in “Riso” spectrum. Relative Iγ data (”Los Alamos” spectrum) in Table 3 of 1969La11 was scaled (by evaluators) to Iγ/100n (”Riso” spectrum) using the 214.6γ (Iγ/100n=6.50 *65* corresponds to relative Iγ=1.0) for normalization. Iγ/100n values given in comment fields.

[l] α(L1)exp=0.065 *11* for (260.9γ+261.3γ) doublet which is dominated by the 261.3γ. Ice(K) is stated for this doublet in two places in Table 3 (1969La11), but the values differ from each other. Possibly, those Ice(K) values are for the relevant components of the doublet, but erroneously indicated to be doublet intensities; if so, α(K)exp(260.9)=0.33 *23* with mult=M1, and α(K)exp(261.3)=0.28 *5* with mult=M1+E2 and δ=0.4 *2*.

[m] Unplaced γ; intensity reported in comment field as I_γ/100n (1969La11).

[n] Taken from 2020Kr05.

[o] Estimated Iγ (2020Kr05).

[p] Additional information 2.

[q] Multiply placed with undivided intensity.

[r] Multiply placed with intensity suitably divided.

[s] Placement of transition in the level scheme is uncertain.

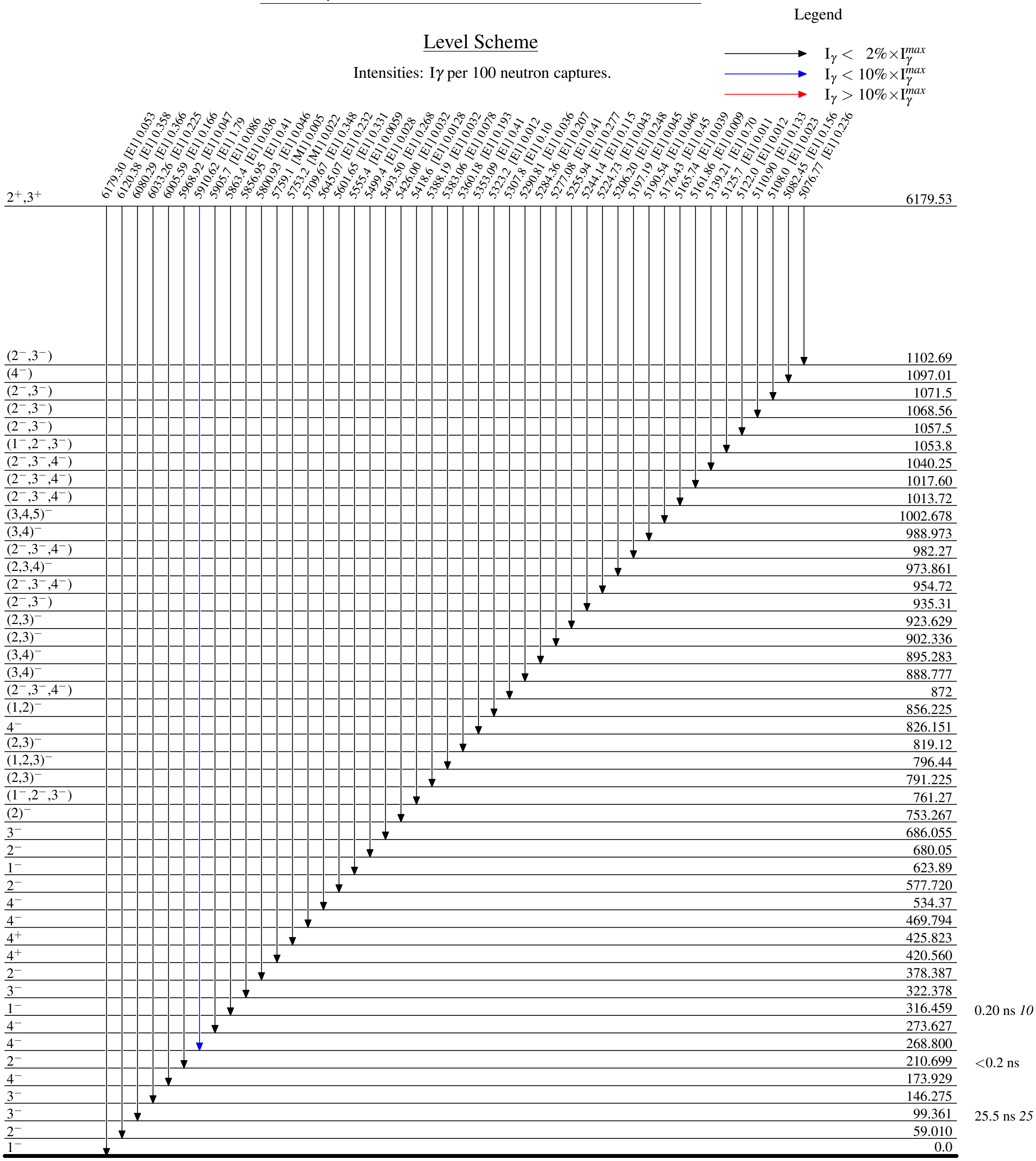
[x] γ ray not placed in level scheme.

$^{186}_{75}Re_{111}$-45

^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme

Intensities: Iγ per 100 neutron captures.

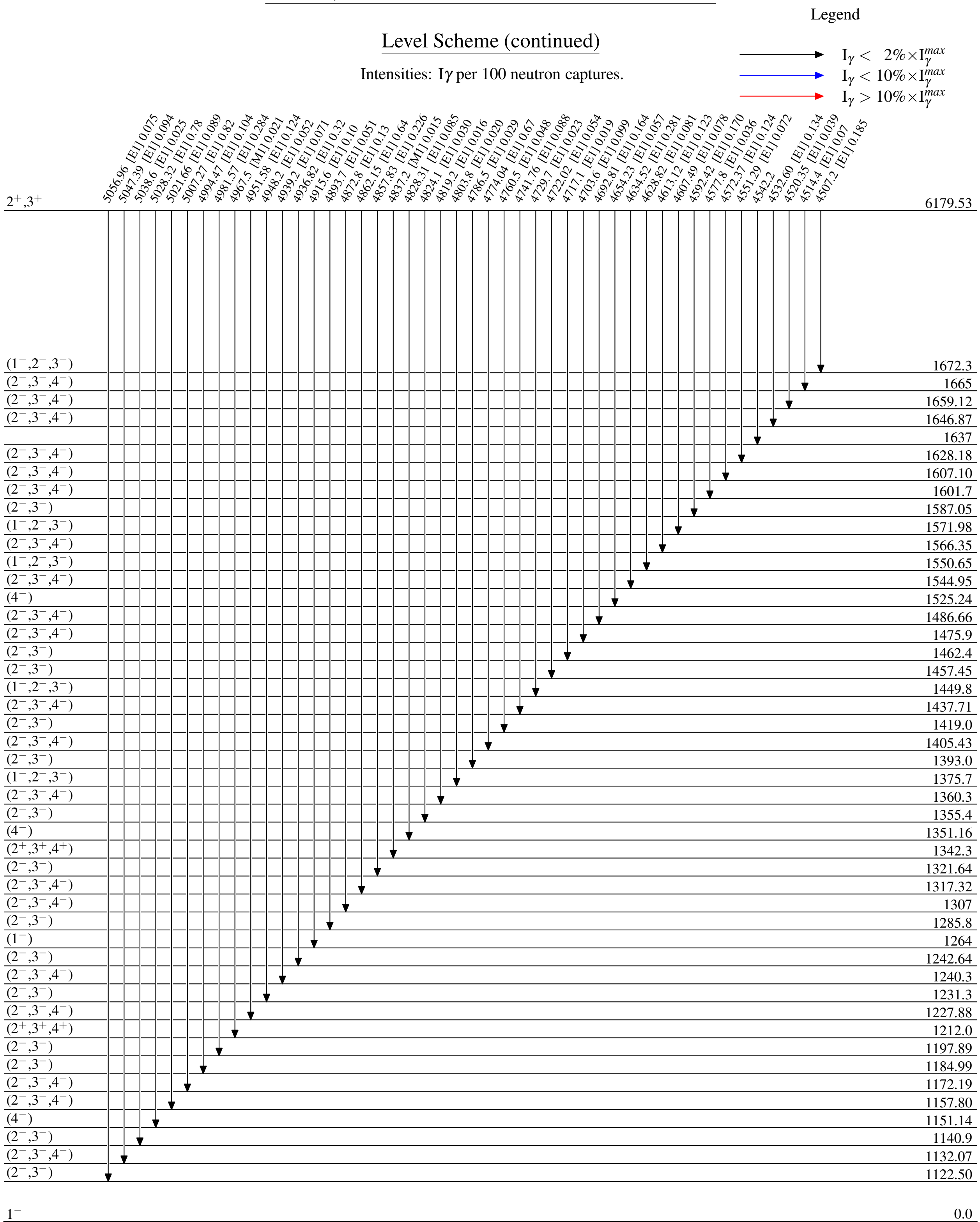


$^{186}_{75}Re_{111}$

^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

Intensities: Iγ per 100 neutron captures.

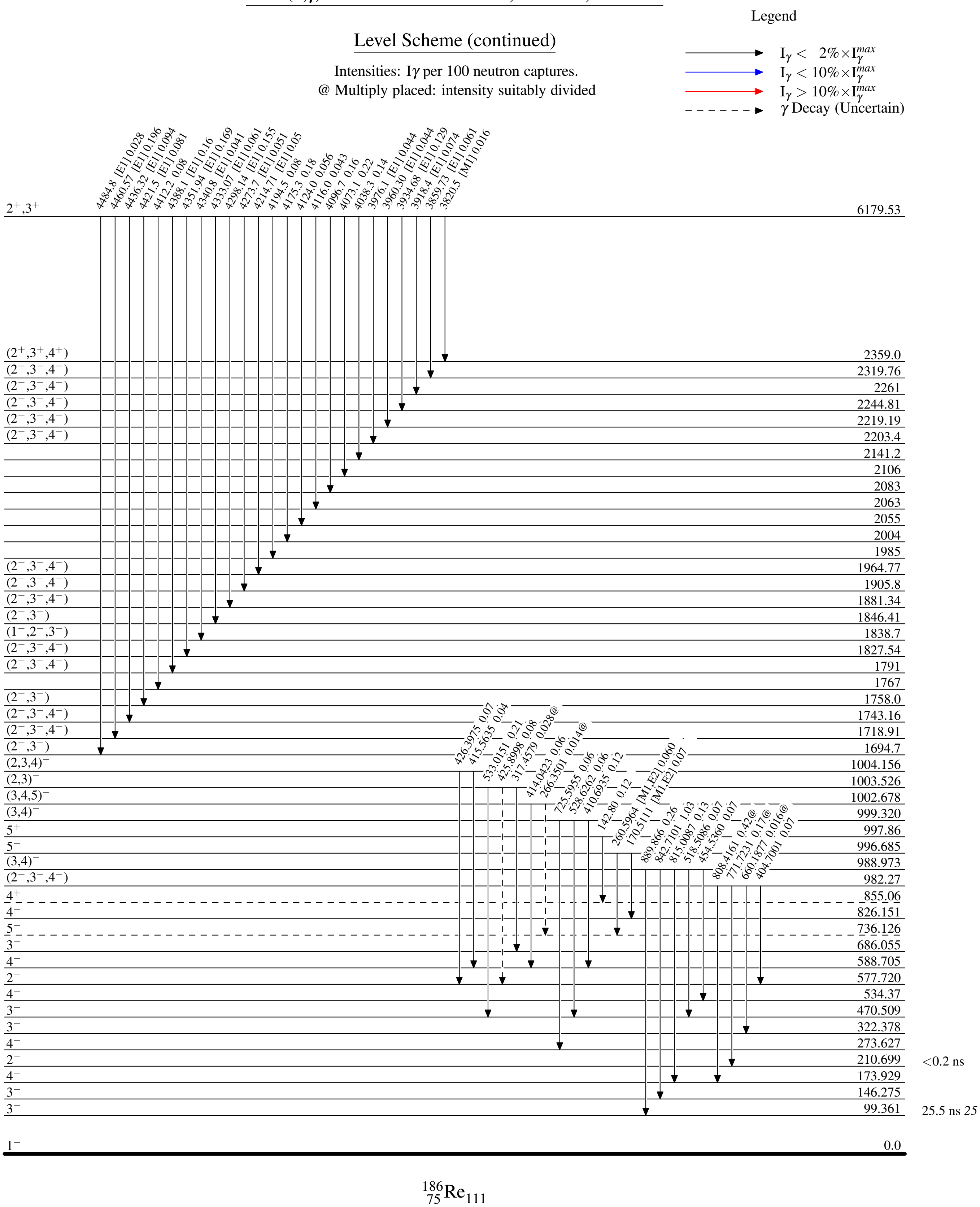


$^{186}_{75}Re_{111}$

^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

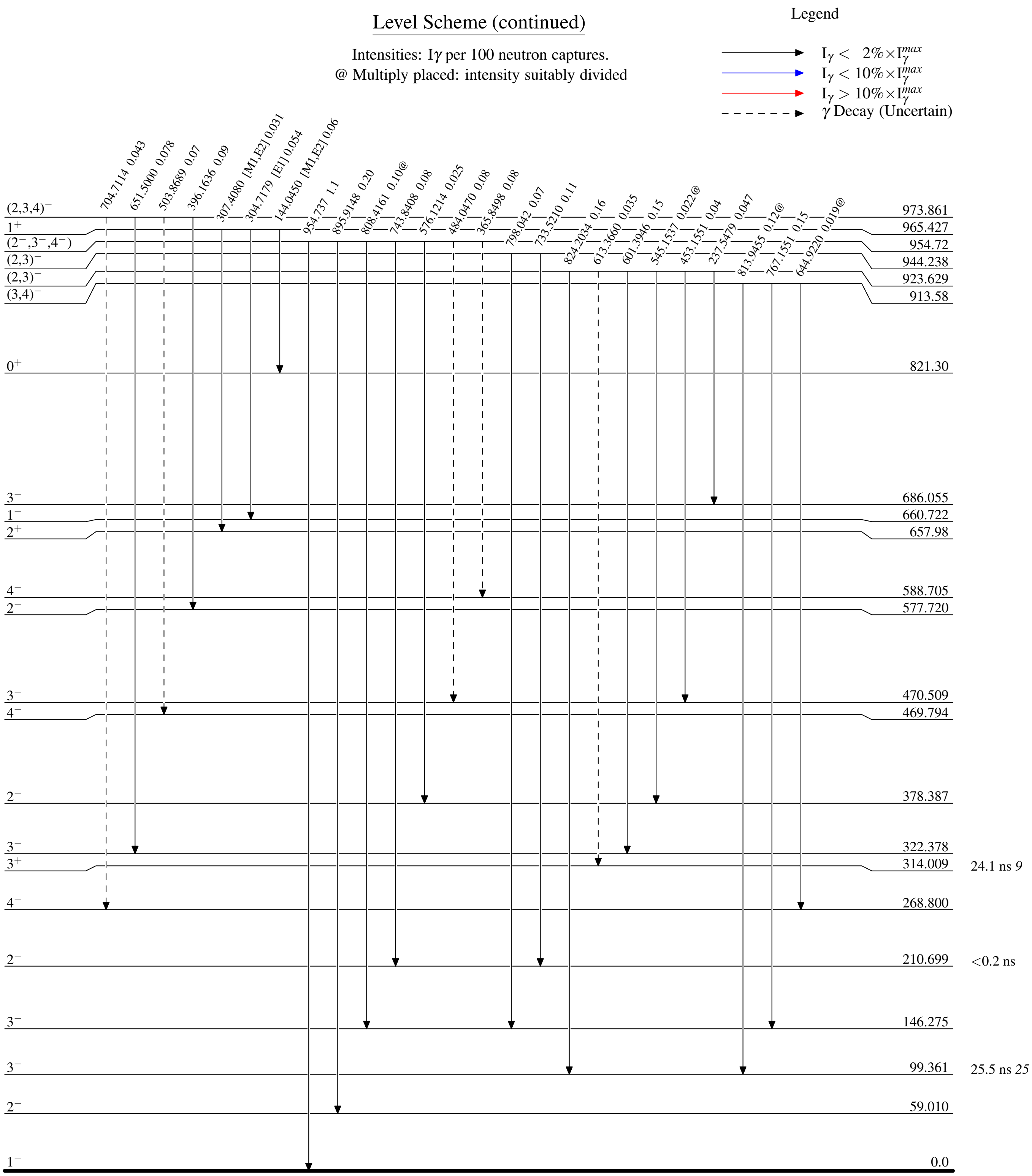
Intensities: Iγ per 100 neutron captures.
@ Multiply placed: intensity suitably divided



^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

Intensities: Iγ per 100 neutron captures.
@ Multiply placed: intensity suitably divided

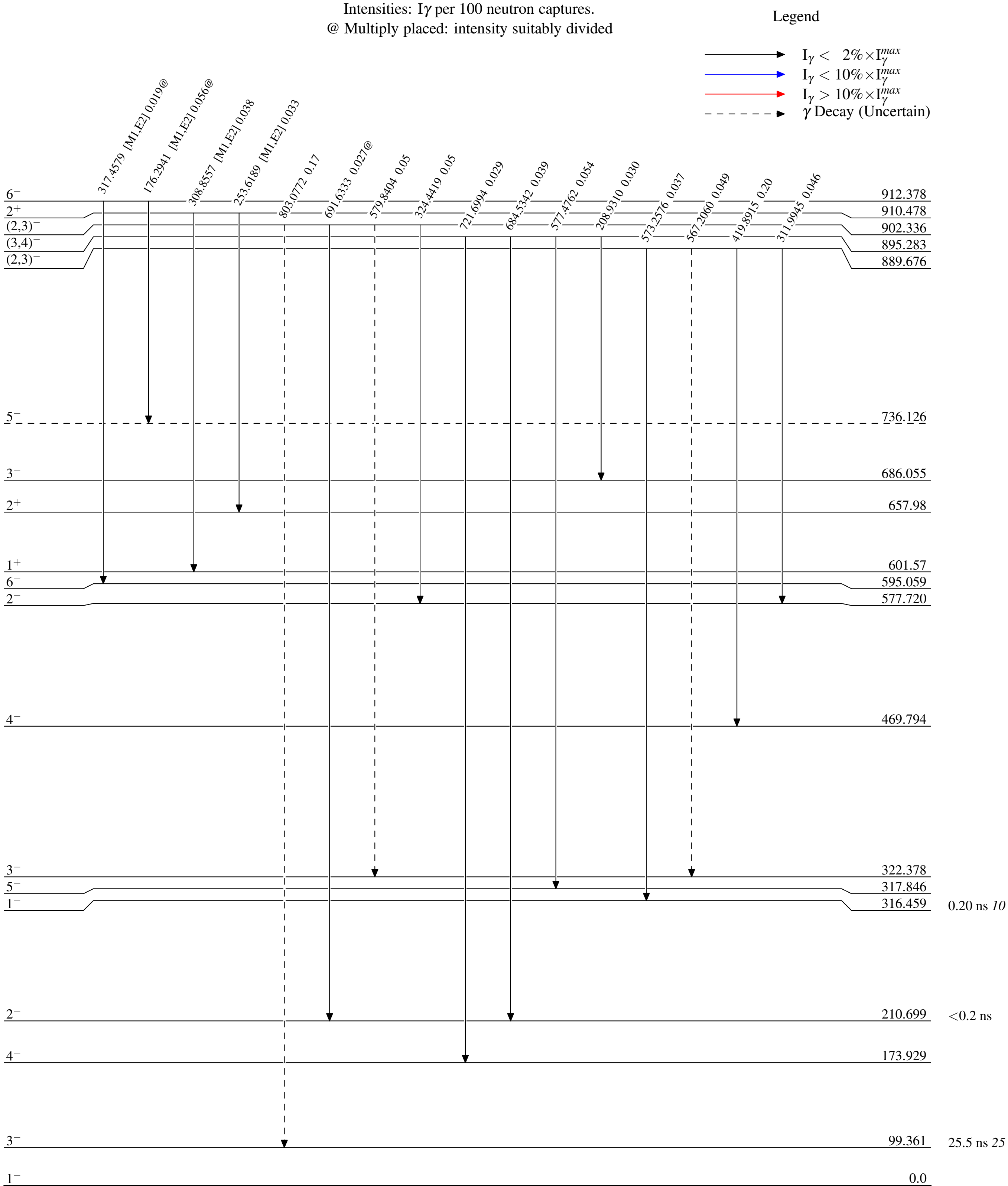


$^{186}_{75}Re_{111}$

^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

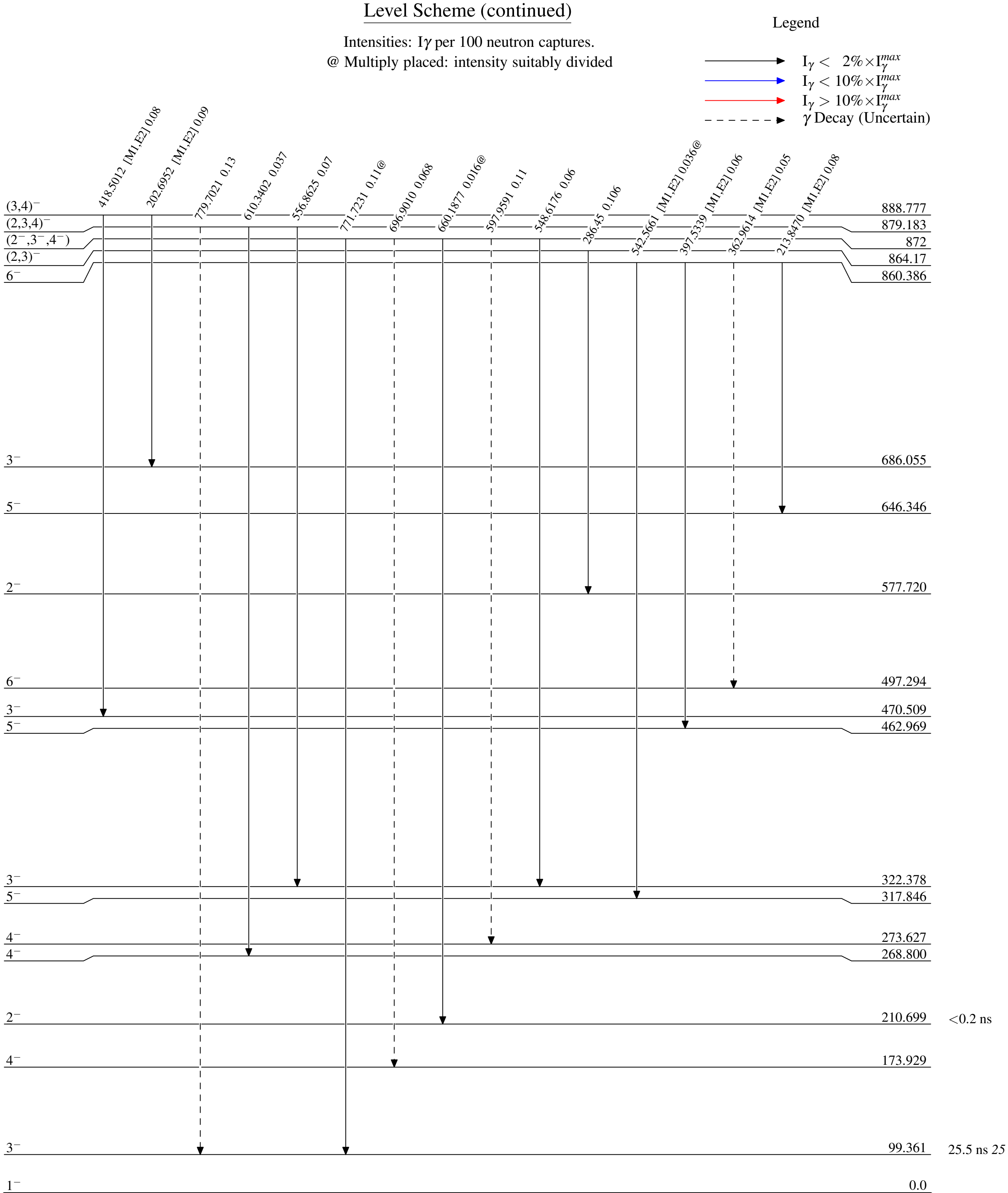
Intensities: Iγ per 100 neutron captures.
@ Multiply placed: intensity suitably divided



$^{185}Re(n,\gamma)$ E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

Intensities: Iγ per 100 neutron captures.
@ Multiply placed: intensity suitably divided

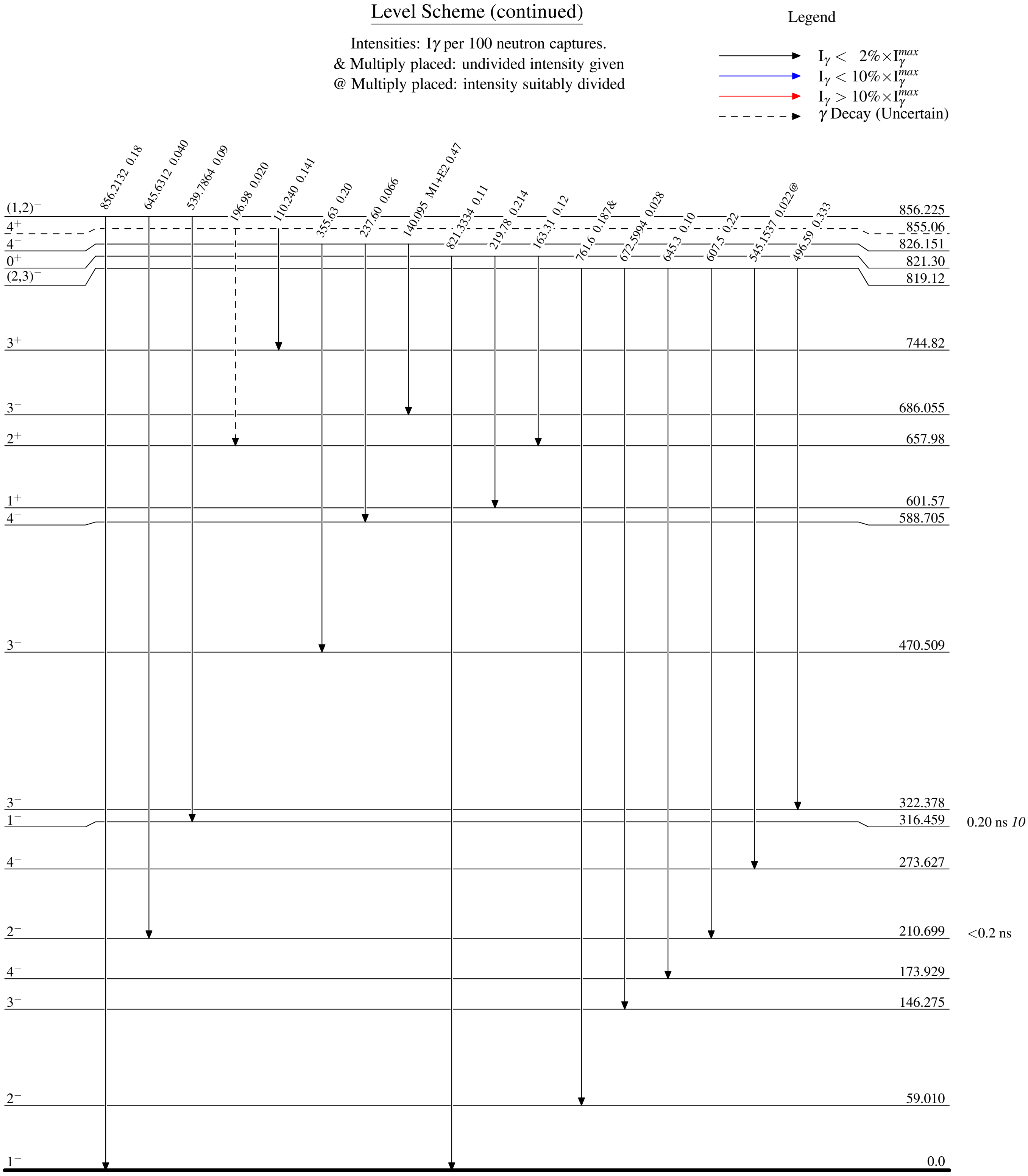


$^{186}_{75}Re_{111}$

$^{185}Re(n,\gamma)$ E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

Intensities: $I\gamma$ per 100 neutron captures.
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

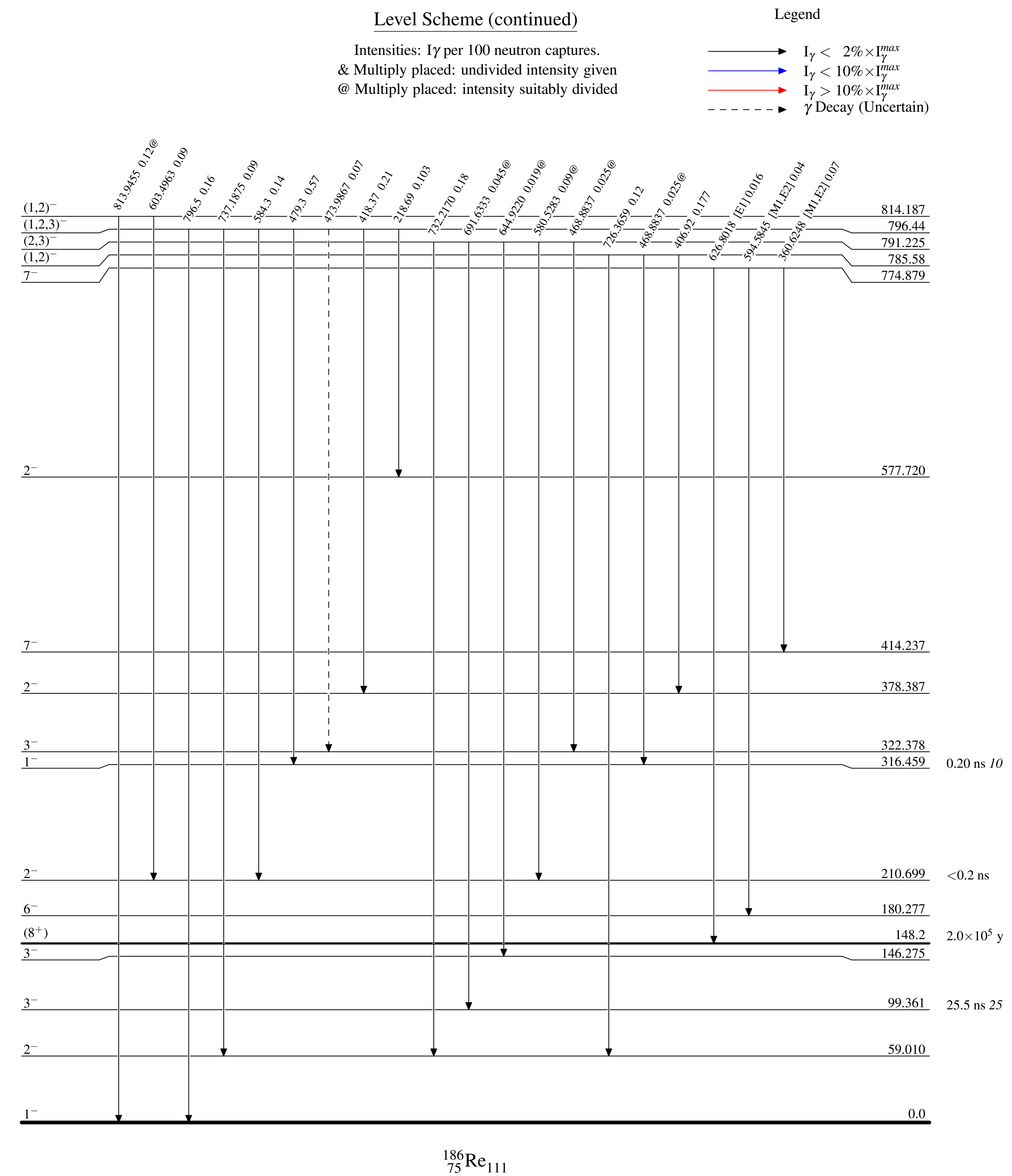


$^{186}_{75}Re_{111}$

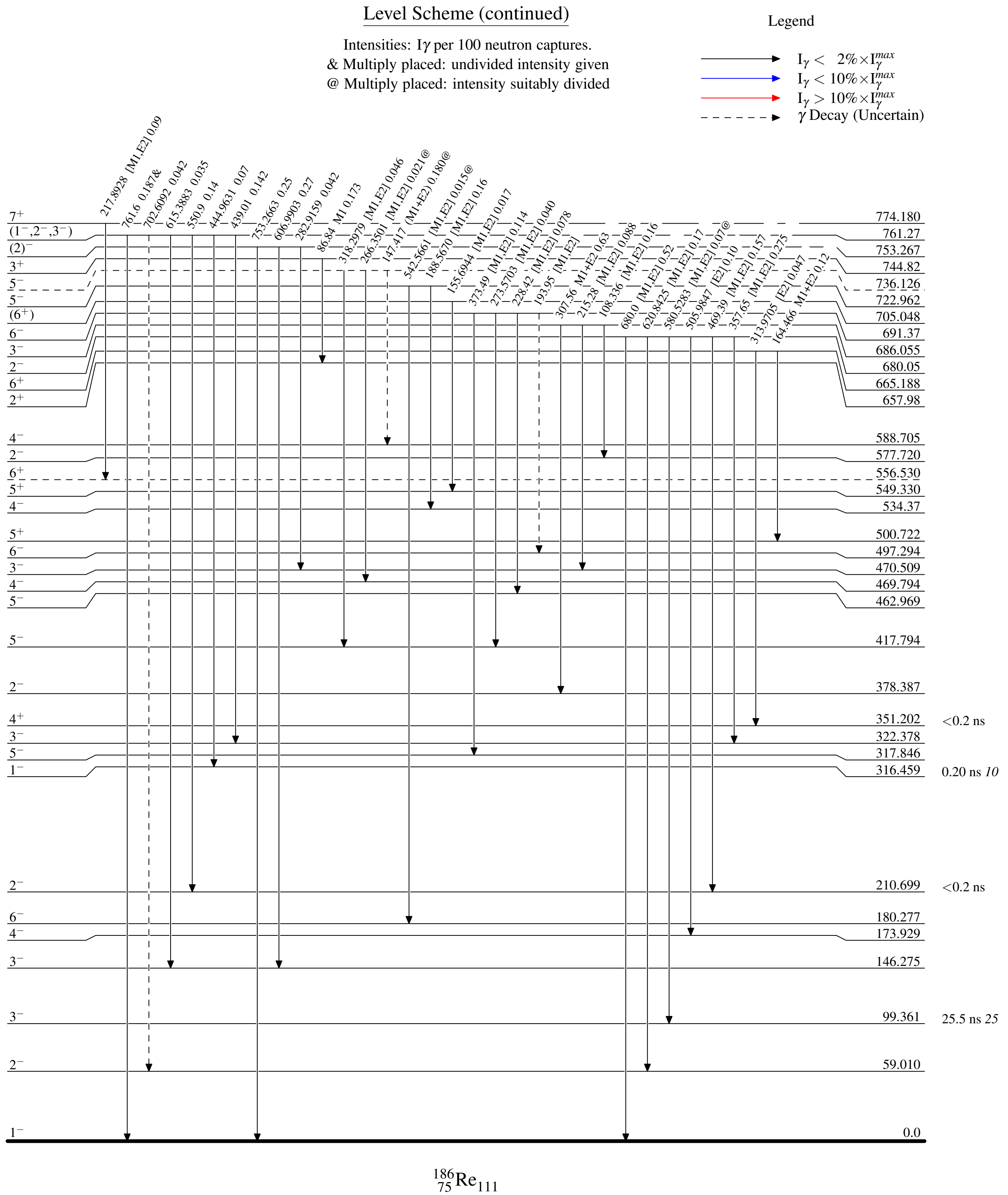
^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

Intensities: Iγ per 100 neutron captures.
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



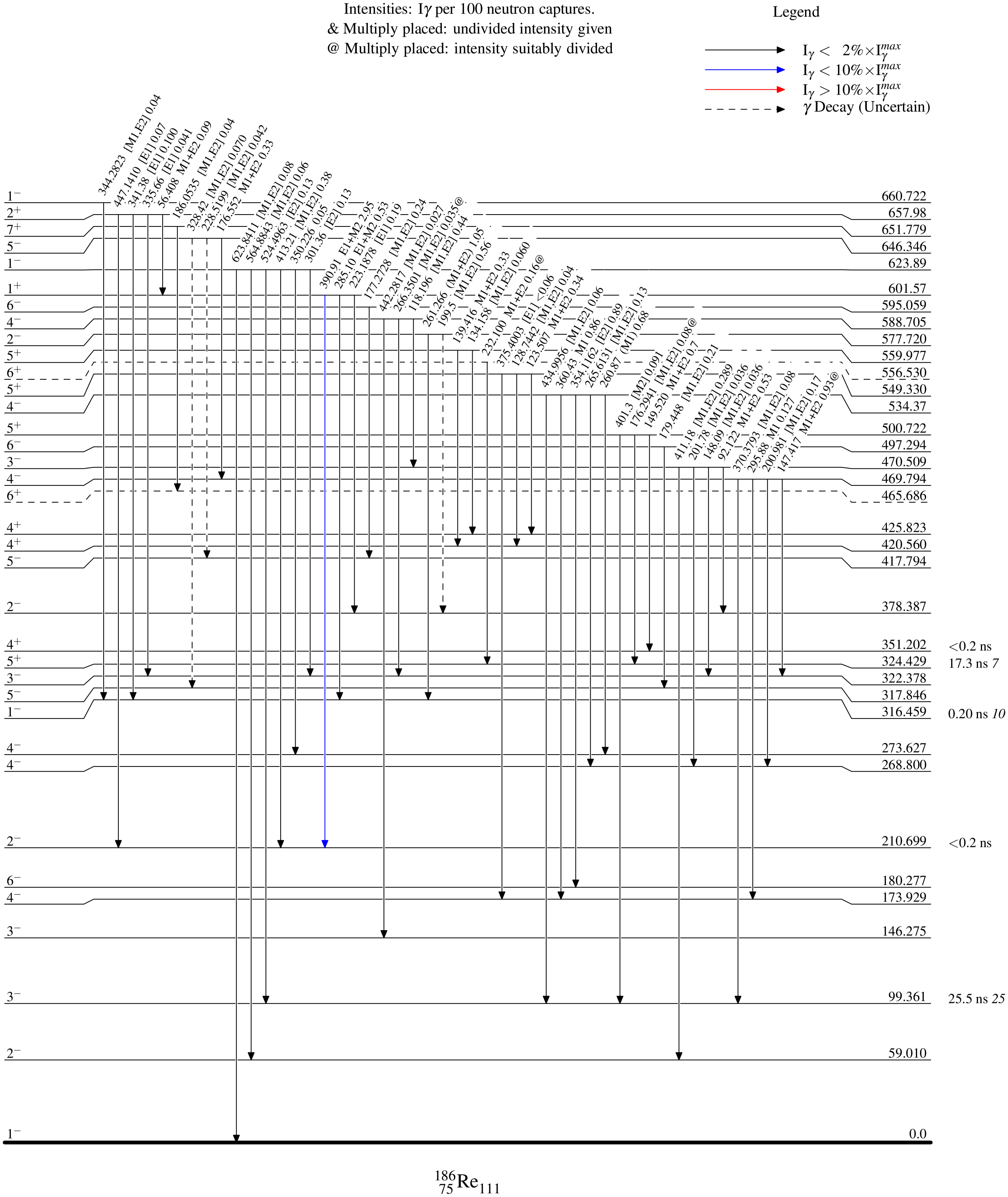
^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05



^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

Intensities: Iγ per 100 neutron captures.
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



$^{186}_{75}Re_{111}$

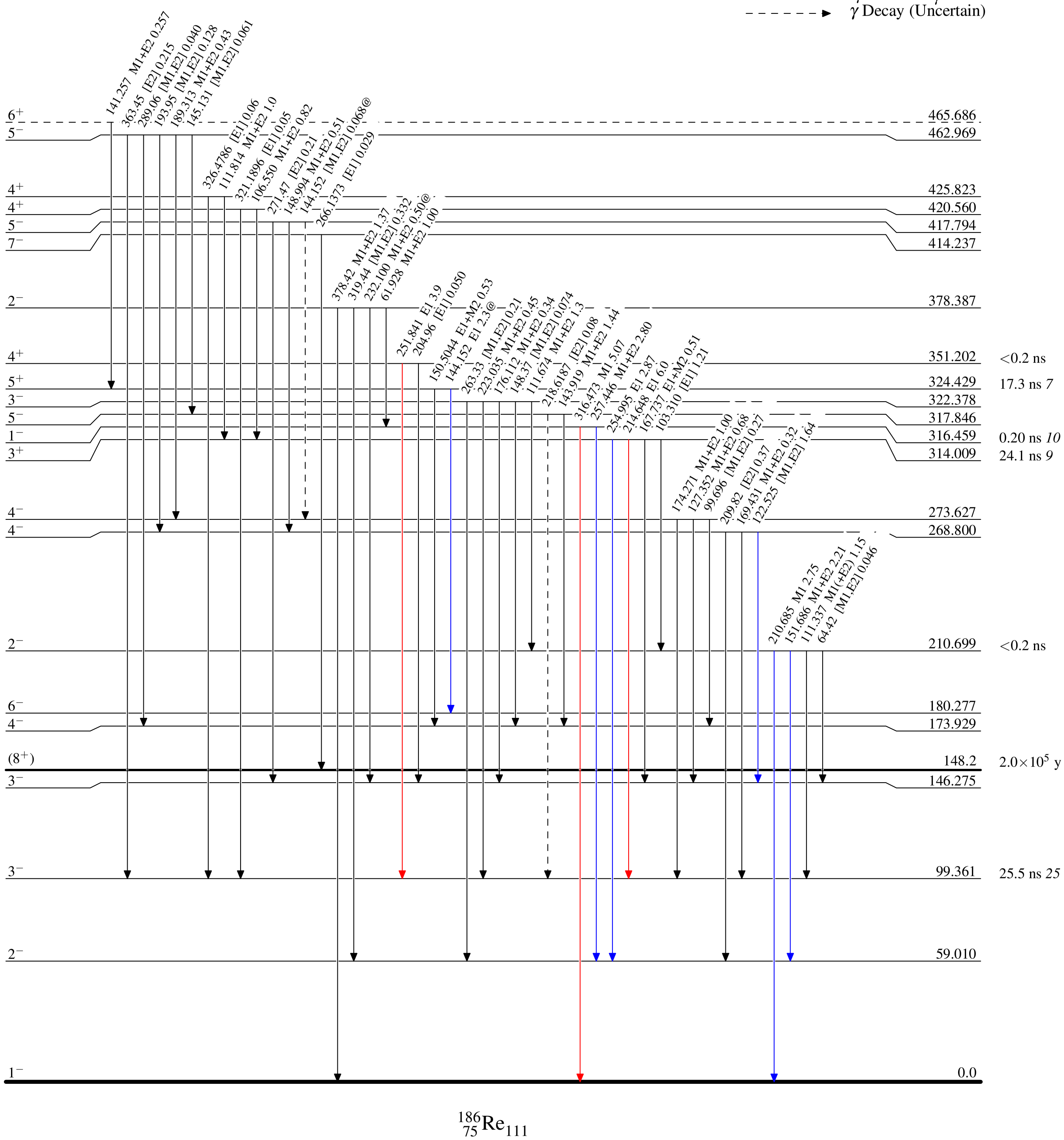
^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

Intensities: Iγ per 100 neutron captures.
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend

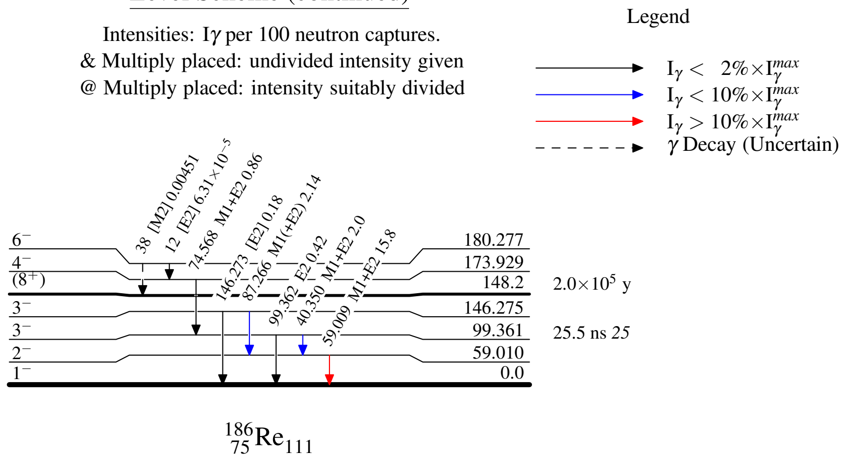
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



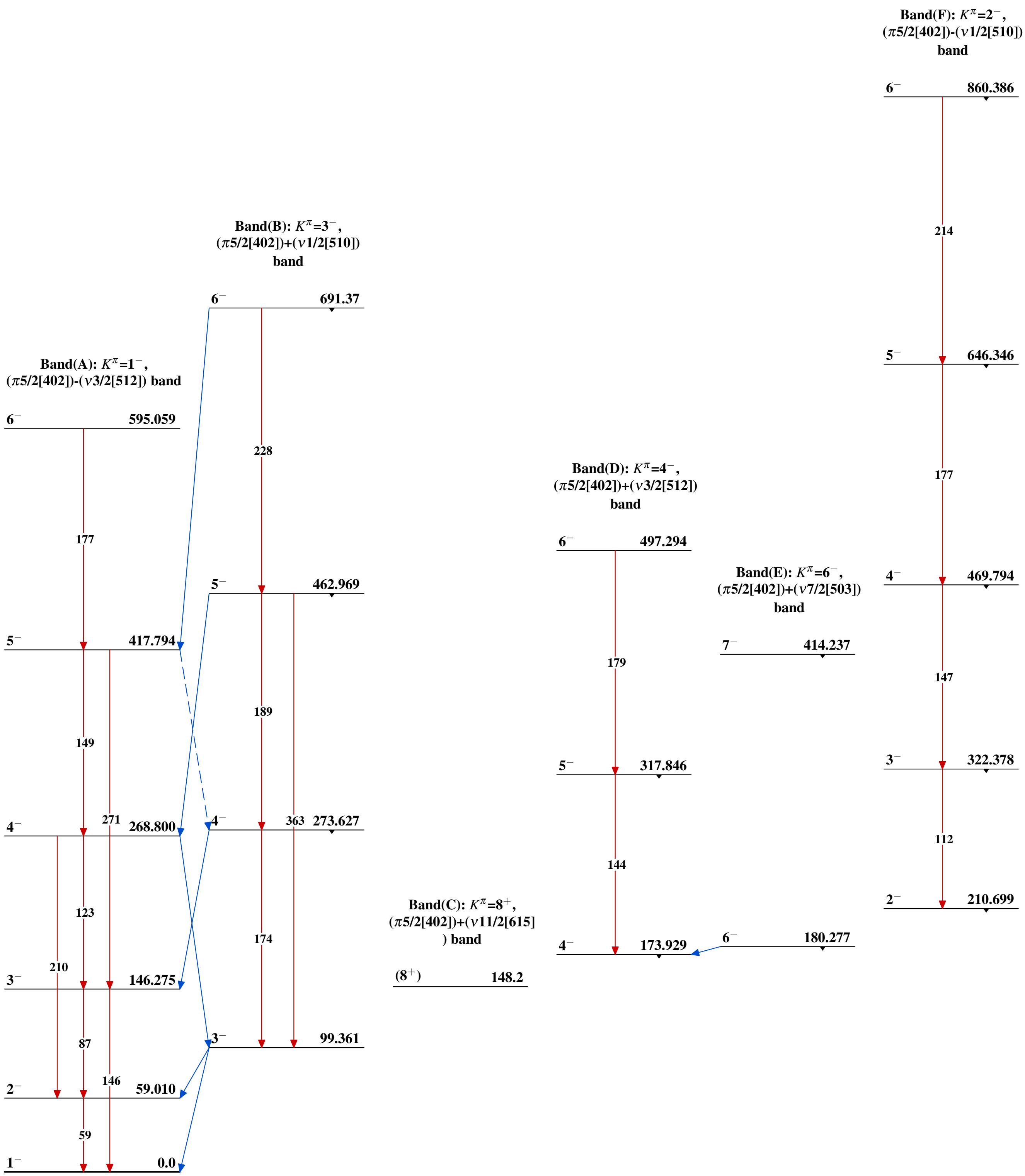
^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

Level Scheme (continued)

Intensities: Iγ per 100 neutron captures.
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

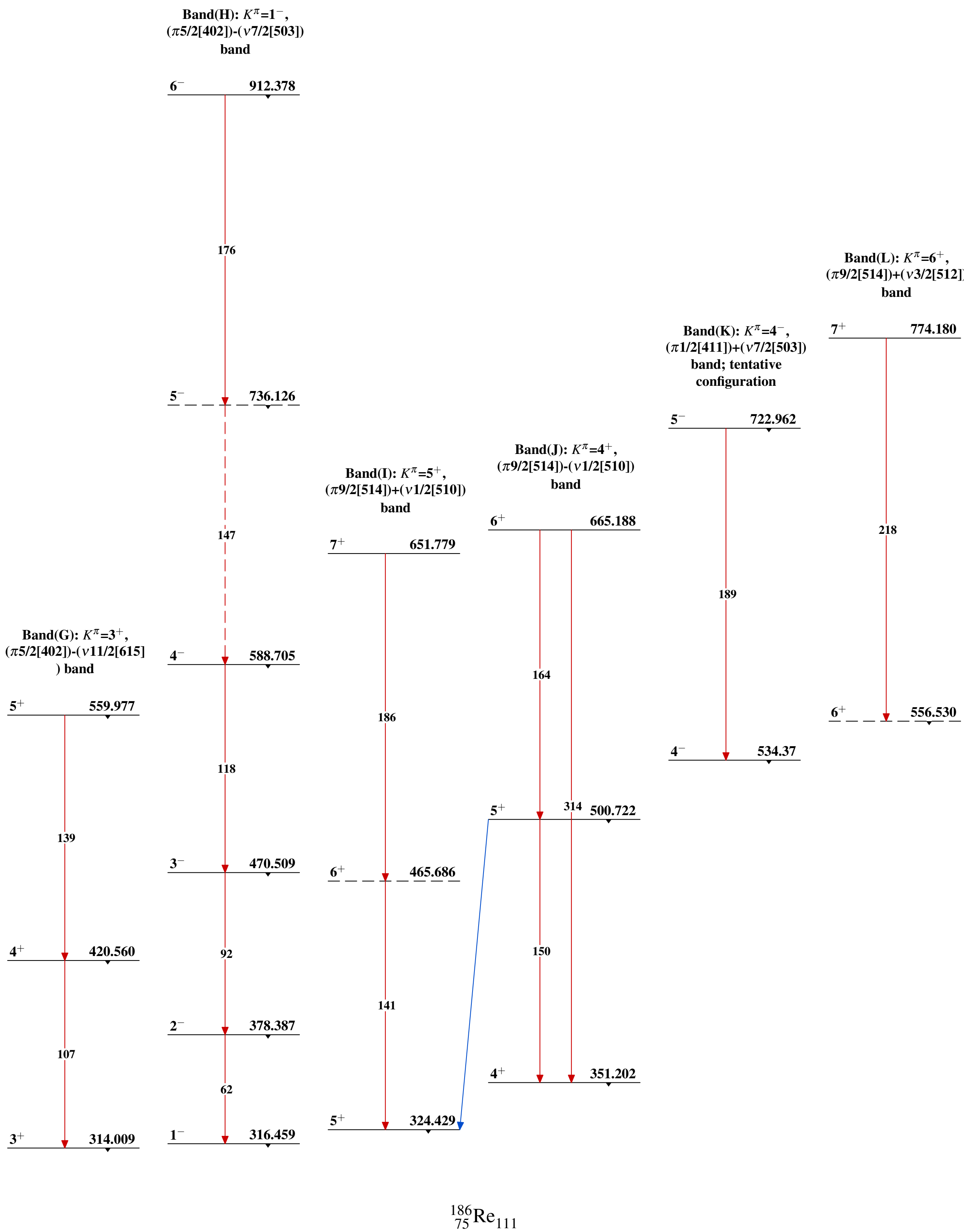


^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05

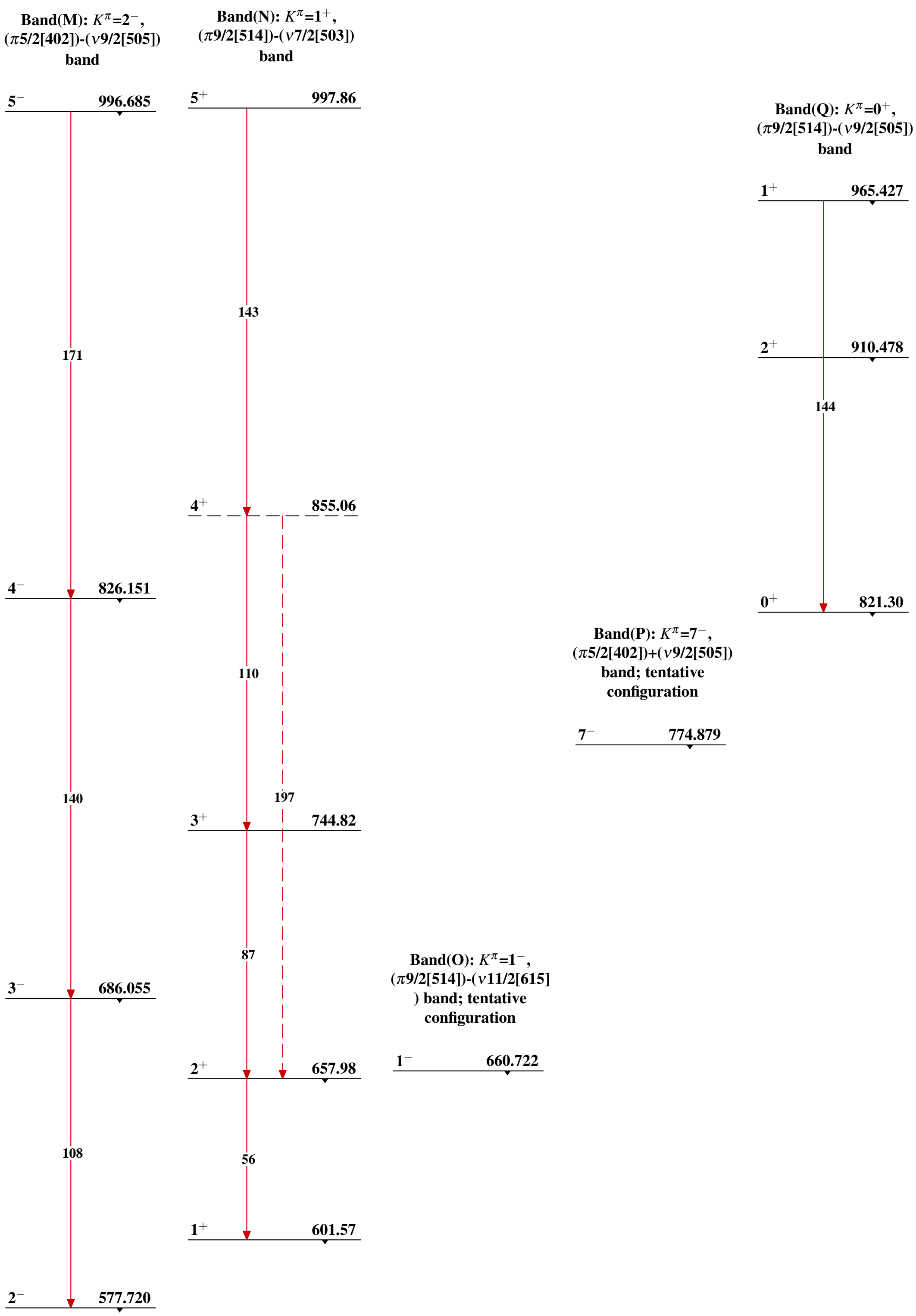


$^{186}_{75}Re_{111}$

^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05 (continued)



^{185}Re(n,γ) E=thermal 2016Ma35,1969La11,2020Kr05 (continued)



$^{186}_{75}Re_{111}$