Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 108,1583 (2007)	1-Jun-2007

Q(β^-)=−1400.6 *24*; S(n)=6887 *3*; S(p)=3707.2 *20*; Q(α)=3051.0 *20* 2012Wa38
Note: Current evaluation has used the following Q record −1400.5 24 6886.9 27 3707.1 20 3051.0 20 2003AU03.

^{208}Bi Levels

configuration: assignments are from sources given in the J^π footnotes.

Cross Reference (XREF) Flags

A	^{206}Pb(α,d)	H	^{210}Bi(p,t): target=9$^-$ isomer	O	^{208}Pb(π^+,π^0)
B	^{207}Pb(^{3}He,d),(α,t)	I	^{208}Bi IT decay	P	^{208}Pb(p,n),(p,np′)
C	^{208}Pb(p,nγ)	J	^{208}Po ε decay	Q	^{208}Pb(^{3}He,t),(^{3}He,tp),(^{3}He,tn)
D	^{208}Pb(^{48}Ca,Xγ)	K	^{212}At α decay (0.314 s)	R	^{209}Bi(γ,n)
E	^{209}Bi(p,d)	L	^{212}At α decay (0.119 s)	S	^{209}Bi(n,2nγ)
F	^{209}Bi(d,t),(^{3}He,α)	M	^{207}Pb(p,p′),(pol p,p′) IAR	T	^{209}Bi(^{17}O,^{18}Oγ)
G	^{209}Bi(d,tγ)	N	^{207}Pb(^{7}Li,α2nγ)	U	^{208}Pb(^{6}Li,^{6}He)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	XREF	Comments
0.0	5$^+$	3.68×10^5 y *4*	ABC EFGHIJKL N RSTU	%ε+%β^+=100 μ=+4.578 *13*; Q=−0.51 *7* J$^\pi$: from μ and L(p,d)=1. configuration=$\pi 1h_{9/2}\nu 3p^{-1}_{1/2}$. μ,Q: from 2000Pe30. The values supersede the incorrect values of 1997Ki15. T$_{1/2}$: from 1964Ha07. Other: 1959Mi19. Isotope shift measured (1983LaZZ, 2000Pe30, 2007Me09).
63.02 *4*	4$^+$[@]		ABC EFGHIJKL N RSTU	configuration=$\pi 1h_{9/2}\nu 3p^{-1}_{1/2}$.
510.28 *7*	6$^+$[@]	118 ps *14*	A C EFGHI KL N RSTU	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{5/2}$. J$^\pi$: E2(+M1) γ to 5$^+$. T$_{1/2}$: from recoil distance plunger method in ^{209}Bi(^{17}O,^{18}O).
601.46 *4*	4$^+$[@]	5.5 ps *21*	BC EFGH JKL N RSTU	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{5/2}$ + $\pi 2f_{7/2}\nu 3p^{-1}_{1/2}$. configuration: the second configuration is a small admixture. J$^\pi$: M1 γ to 5$^+$. T$_{1/2}$: from recoil distance plunger method in ^{209}Bi(^{17}O,^{18}O).
628.33 *6*	5$^+$[@]		abC efGh L n ST	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{5/2}$.
633.14 *5*	3$^+$[@]		abC efGh JK N rST	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{5/2}$ + $\pi 2f_{7/2}\nu 3p^{-1}_{1/2}$. configuration: the second configuration is a small admixture. J$^\pi$: M1 γ to 5$^+$.
650.57 *10*	7$^+$[@]	>1.0 ns	A C EFGHI L N RST	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{5/2}$. J$^\pi$: E2 γ to 5$^+$. M1 γ to 6$^+$. T$_{1/2}$: from ^{209}Bi(^{17}O,^{18}O). The authors observe a long-lived component in the 511 transition deexciting the 511 level. They point out that the intensity of this component is consistent with its being due to the cascade decay of the 651 level through the 511 level.

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Adopted Levels, Gammas (continued)

^{208}Bi Levels (continued)

E(level)[†]	J^{π}[‡]	$T_{1/2}$	XREF	Comments
886.36 *8*	5^{+}[@]	0.18 ps *+8−6*	A C EFGH KL N RS	configuration=$\pi 1h_{9/2}\nu 3p_{3/2}^{-1}$. $T_{1/2}$: from Doppler-shift attenuation in ^{207}Pb(^{7}Li,α2nγ).
924.85 *6*	2^{+}[@]		C EFGH JK S	J^{π}: log ft=13.5 from 0^{+}. configuration=$\pi 1h_{9/2}\nu 2f_{5/2}^{-1}$.
936.27 *6*	3^{+}[#]	>1.7 ps	ABC H K N RS	configuration=$\pi 2f_{7/2}\nu 3p_{1/2}^{-1}$. $T_{1/2}$: from Doppler-shift attenuation in ^{207}Pb(^{7}Li,α2nγ).
958.99 *7*	4^{+}[@]		C EFGH KL N R	configuration=$\pi 1h_{9/2}\nu 3p_{3/2}^{-1}$.
1033.26 *6*	4^{+}[#]	0.72 ps *+26−17*	ABC EF K N RS	configuration=$\pi 2f_{7/2}\nu 3p_{1/2}^{-1}$. $T_{1/2}$: from Doppler-shift attenuation in ^{207}Pb(^{7}Li,α2nγ).
1069.11 *6*	3^{+}[@]	0.44 ps *+21−12*	C EFG K N RS	configuration=$\pi 1h_{9/2}\nu 3p_{3/2}^{-1}$. $T_{1/2}$: from Doppler-shift attenuation in ^{207}Pb(^{7}Li,α2nγ).
1095.06 *14*	6^{+}[@]	0.13 ps *+5−4*	C EFGH L N R	configuration=$\pi 1h_{9/2}\nu 3p_{3/2}^{-1}$. $T_{1/2}$: from Doppler-shift attenuation in ^{207}Pb(^{7}Li,α2nγ).
1469.47 *11*	4^{+},5^{+},6^{+}		A C F N S	configuration=$\pi 2f_{7/2}\nu 2f_{5/2}^{-1}$. J^{π}: γ's to 4^{+} and 6^{+}. L(d,t)=1 or 3. Suggested by 2006Bo08 in (p,nγ) as the 5^{+} member of the $\pi 2f_{7/2}\nu 2f_{5/2}^{-1}$ multiplet.
1529.40 *7*	3^{+},4^{+}		A C EF	J^{π}: γ's to 3^{+} and 5^{+}. L(d,t)=1 or 3. γ from the 3^{-} 1919 level. Feeding from the 2^{-} 2894 level suggests that J^{π} Ne 4^{+}; however, that branch is weak and the uncertainty in the branching is large. Suggested by 2006Bo08 in (p,nγ) as the 3^{+} member of the $\pi 2f_{7/2}\nu 2f_{5/2}^{-1}$ multiplet.
1539.39 *7*	2^{+},3^{+}	>1.2 ps	C N	J^{π}: γ's to 2^{+} and 4^{+}. γ from 1^{+} 1802 level. Suggested by 2006Bo08 in (p,nγ) as the 2^{+} member of the $\pi 2f_{7/2}\nu 2f_{5/2}^{-1}$ multiplet. $T_{1/2}$: from Doppler-shift attenuation in ^{207}Pb(^{7}Li,α2nγ).
1563.45 *9*	3^{+},4^{+}		BC	J^{π}: γ's to 3^{+} and 5^{+}. L(^{3}He,d)=3. Suggested by 2006Bo08 in (p,nγ) as the 4^{+} member of the $\pi 2f_{7/2}\nu 2f_{5/2}^{-1}$ multiplet.
1571.1 *4*	10^{-}[@]	2.58 ms *4*	A DEF HI S	%IT=100 μ=2.672 *14* (1974Hu11,1985No09,2005St24) configuration=$\pi 1h_{9/2}\nu 1i_{13/2}^{-1}$. J^{π}: E3 γ to 7^{+}. $T_{1/2}$: from ^{208}Bi IT decay. μ: From g=0.2672 *14* in ^{208}Bi IT decay, as given in 2005St24.
1603 *5*			F	
1624.68 *11*	6^{-}[#]		ABC EF	configuration=$\pi 1i_{13/2}\nu 3p_{1/2}^{-1}$.
1657.47 *22*	8^{-}[@]		C EF H	configuration=$\pi 1h_{9/2}\nu 1i_{13/2}^{-1}$.
1666.58 *16*	7^{-}[#]		ABC EF	configuration=$\pi 1i_{13/2}\nu 3p_{1/2}^{-1}$.
1703.35 *7*	5^{-}[@][f]		C EF	configuration=$\pi 1h_{9/2}\nu 1i_{13/2}^{-1}$.
1715.66[e] *19*	6^{-},7^{-}[@]		abC ef h	configuration=$\pi 1h_{9/2}\nu 1i_{13/2}^{-1}$.
1716.17[e] *25*	6^{-},7^{-}[@]		abC ef h	configuration=$\pi 1h_{9/2}\nu 1i_{13/2}^{-1}$.
1731 *5*			F	

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Adopted Levels, Gammas (continued)

^{208}Bi Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
1786.1 *15*	9^-	EF H	configuration=$\pi 1h_{9/2}\nu 1i^{-1}_{13/2}$. J^{π}: L=0 in ^{210}Bi(9^-)(p,t). configuration: based on L-transfer in ^{209}Bi(p,d). However, observation that L=0 in ^{210}Bi(9^-)(p,t), with configuration=$\pi 1h_{9/2}\nu 2g^{-1}_{9/2}$ for the ^{210}Bi target requires the presence of core-excited components in the wavefunction (1979Er11).
1802.09 *8*	1^+[a]	ABC PQ	configuration=$\pi 2f_{7/2}\nu 2f^{-1}_{5/2}$.
1824.45 *16*		C	J^{π}: γ to 4^+. Suggested by 2006Bo08 in (p,nγ) as possibly being either the 6^+ member of the $\pi 2f_{7/2}\nu 2f^{-1}_{5/2}$ multiplet or the 5^+ member of the $\pi 2f_{7/2}\nu 3p^{-1}_{3/2}$ multiplet.
1836 *4*	(5^+,6^+,7^+)	A	J^{π}: L(α,d)=(6).
1839.03 *9*	4^-[@f]	C EF	configuration=$\pi 1h_{9/2}\nu 1i^{-1}_{13/2}$.
1870.77 *10*	3^+,4^+	C EF	configuration=$\pi 2f_{7/2}\nu 3p^{-1}_{3/2}$. J^{π}: γ to 2^+. L(p,d)=1. Suggested by 2006Bo08 in (p,nγ) as the 3^+ member of the indicated configuration.
1882.14 *11*	2^+,3,4,5^+	ABC	J^{π}: γ's to 3^+ and 4^+ give J^{π}=2^+,3,4,5^+. L(α,d)=(5) or (3) gives π=−, suggesting J^{π}=3^-,4^-. The authors state that L is determined only within ±1. They give L=(5) in the main table, but in their angular distribution plot they include L=3 which gives just as good a fit. L=2 and 6 are definitely ruled out (evaluator) and L=4 also gives a poorer fit (evaluator). Suggested by 2006Bo08 in (p,nγ) as the 4^+ member of the $\pi 2f_{7/2}\nu 3p^{-1}_{3/2}$ multiplet.
1919.97 *7*	3^-[@]	C EF	configuration=$\pi 1h_{9/2}\nu 1i^{-1}_{13/2}$. J^{π}: γ's to 2^+ and 4^+.
2077.66 *8*	0^-,1^-,2^-[h]	C	
2126.90 *8*	2^+,3,4^+	BC	configuration=$\pi 2f_{7/2}\nu 3p^{-1}_{3/2}$. J^{π}: γ's to 2^+ and 4^+. Suggested by 2006Bo08 in (p,nγ) as the 2^+ member of the indicated configuration.
2132 *7*		H	
2160 *7*		H	
2179.42 *20*	4^+,5,6,7^+	C	J^{π}: γ's to 5^+ and 6^+.
2180.04 *21*	4^+,5,6,7^+	C	J^{π}: γ's to 5^+ and 6^+.
2202.89 *12*	1^-,2^-,3^-[h]	C	J^{π}: M1 γ to 2^-.
2246 *5*		A	
2308.08 *9*	2^+,3,4	C	J^{π}: γ's to 3^+ and 3^-. γ to 4^+,5^+,6^+.
2340.1 *4*	7^+[@]	C EF H	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$.
2358.47 *20*	2^+,3,4,5^+	C	J^{π}: γ's to 3^+ and 4^+.
2383.86 *19*	4^+,5^+[@c]	C ef	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$.
2385.97 *15*	4^+,5^+[@c]	C ef	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$.
2404.2 *5*		C	J^{π}: γ to 3^+.
2407 *5*	9^-	a H	configuration=^{206}Pb(0^+)$\pi 1h_{9/2}\nu 2g_{9/2}$. configuration: from ^{206}Pb(α,d) and ^{210}Bi(9^-)(p,t). J^{π}: L=0 in ^{210}Bi(9^-)(p,t).
2409.10 *18*	6^+[@]	a C EF	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$.
2415.72 *12*	1^+,2,3,4^-[h]	C	J^{π}: γ from 3^+ 2565 level. γ to 2^-.
2426.7 *4*	11^-	B DEF H	configuration=$\pi 1h_{9/2}\nu 1i^{-1}_{13/2}$.
2436.87 *19*		C	J^{π}: γ to 3^+,4^+. γ from 2^+,3^+ 3069 level.
2457.38 *10*	3^+[@]	C EF	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$.
2470 *5*	9^-	A H	configuration=^{206}Pb(0^+)$\pi 1h_{9/2}\nu 2g_{9/2}$. configuration: from ^{206}Pb(α,d) and ^{210}Bi(9^-)(p,t). J^{π}: L=0 in ^{210}Bi(9^-)(p,t).
2478.49 *12*	2,3,4	C	J^{π}: γ's to 3^- and 3^+.

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Adopted Levels, Gammas (continued)

^{208}Bi Levels (continued)

E(level)†	J$^{\pi}$‡	XREF	Comments
2495.53 *11*	4,5$^+$	C	J$^{\pi}$: γ's to 3$^+$, to 5$^+$ and to 5$^-$.
2501.56 *11*	2$^+$@	a C EF	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$. J$^{\pi}$: γ's to 2$^+$ and 3$^+$.
2513.51 *10*	2$^+$,3,4,5$^+$	a C	J$^{\pi}$: γ's to 3$^+$ and 4$^+$.
2544.83 *14*		C	J$^{\pi}$: γ to 2$^-$.
2554 *5*		H	
2556.45 *9*	2,3,4	C	J$^{\pi}$: γ's to 3$^+$ and 3$^-$.
2564.79 *14*	3$^+$	C	J$^{\pi}$: γ to 5$^+$. γ from 1$^+$ 3165.
2570.31 *13*	1,2,3	C	J$^{\pi}$: γ's to 2$^+$ and 2$^-$.
2586.58 *11*	3$^+$,4,5$^+$	C	J$^{\pi}$: γ's to 3$^+$ and 5$^+$.
2605 *6*		A	
2612.63 *14*	4$^+$,5$^+$	C	J$^{\pi}$: γ's to 3$^+$ and 6$^+$.
2631.02 *16*	5,6,7$^-$	C	J$^{\pi}$: γ's to 5$^-$, to 6$^+$, and to 6$^-$.
2636.34 *14*	2$^+$,3,4,5$^+$	A C	J$^{\pi}$: γ's to 3$^+$ and 4$^+$.
2657.29 *24*		C	
2660.7 *4*	8$^+$@	C EF H	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$.
2679.42 *11*	1$^+$,2,3	C f	J$^{\pi}$: γ's to 2$^-$, 2$^+$, and 3$^+$.
2693.78 *12*	2$^+$,3,4,5$^+$	C f	J$^{\pi}$: γ's to 3$^+$ and 4$^+$.
2718.55 *12*	2,3,4^g	C EF	J$^{\pi}$: γ's to 3$^+$ and 3$^-$.
2719 *6*	(6$^-$)	A	J$^{\pi}$: L(α,d)=(5+7).
2733.04 *14*		C	J$^{\pi}$: γ to 2$^+$.
2739.52 *12*	3,4,5	C	J$^{\pi}$: γ's to 2$^+$ and 6$^-$. Note that J^{π}=3$^-$ would require the 1114.6γ to Be M3, which, from B(M3)(W.u.)<10 would yield $T_{1/2}$>0.6 μs. This is unlikely.
2804 *6*	(10$^-$)&	A	configuration=^{206}Pb(0$^+$)$\pi 1h_{9/2}\nu 1i_{11/2}$. J$^{\pi}$: L($\alpha$,d)=11.
2826 *6*	(6$^-$,7$^-$,8$^-$)	A	J$^{\pi}$: L(α,d)=(7).
2838.89 *11*	1$^+$,2,3	C	J$^{\pi}$: γ's to 2$^+$, 2$^-$, and 3$^+$.
2843 *7*		H	
2843.36 *22*		C	J$^{\pi}$: γ to 2$^-$.
2869.57 *11*	3$^+$,4,5,6$^+$	C	J$^{\pi}$: γ's to 4$^+$ and 5$^+$.
2879.66 *15*	2$^+$,3,4,5$^+$	C	J$^{\pi}$: γ's to 4$^+$ and to 2$^+$,3$^+$.
2881.30 *20*	3$^+$,4,5$^+$	a C	J$^{\pi}$: γ's to 3$^+$ and 5$^+$.
2884.07 *16*	1$^+$@	a C EF	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$. J$^{\pi}$: γ's to 2$^+$.
2886.77 *12*	*d*	abC	J$^{\pi}$: γ to 4$^+$.
2888.47 *16*	*d*	abC	J$^{\pi}$: γ to 5$^+$.
2893.76 *13*	2$^-$	a C E PQ	configuration=$\pi 1h_{9/2}\nu 1i^{-1}_{13/2}$. J$^{\pi}$: γ's to 1$^+$, 3$^-$ and 3$^+$. The suggested J^{π} and configuration are proposed by 1973Cr05 in (p,d); however, the assignment there is very tentative. J^{π} and configuration are confirmed by agreement of $\sigma(\theta)$ in (p,n),(p,np′) with an RPA calculation. The calculations of 2006Bo08 in (p,nγ) also confirm this assignment.
2903.58 *16*	0$^+$,1,2,3$^+$	C	J$^{\pi}$: γ's to 1$^+$ and 2$^+$.
2912? *10*		F	E(level): seen only in (d,t) and peak is weak in that reaction.
2932.84 *13*	3$^+$,4,5$^+$	C	J$^{\pi}$: γ's to 3$^+$ and 5$^+$.
2942.88 *16*	2$^+$#	BC	configuration=$\pi 2f_{5/2}\nu 3p^{-1}_{1/2}$.
2950.96 *11*	2$^+$,3	C	J$^{\pi}$: γ's to 2$^+$, 2$^-$, and 4$^+$.
3049 *3*		E	
3069.34 *12*	2$^+$#	BC EF	configuration=$\pi 3p_{3/2}\nu 3p^{-1}_{1/2}$. J$^{\pi}$: γ to 4$^+$ rules out the J^{π}=1$^+$ alternative allowed by L(^{3}He,d)=1.
3091 *5*	(8)$^-$&	A H	configuration=^{206}Pb(0$^+$)$\pi 2f_{7/2}\nu 2g_{9/2}$ and ^{206}Pb(2$^+$)$\pi 1h_{9/2}\nu 2g_{9/2}$. J$^{\pi}$: L(p,t)=2. configuration: from ^{206}Pb(α,d) and ^{210}Bi(p,t).

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Adopted Levels, Gammas (continued)

^{208}Bi Levels (continued)

E(level)[†]	J^{π}[‡]	XREF	Comments
3114 *3*	$3^+,4^+,5^+,6^+$	E	J^π: L(p,d)=1.
3141 *3*	$3^+,4^+,5^+,6^+$	E	J^π: L(p,d)=1.
3154 *5*	$-$	H	configuration=^{206}Pb(2^+)$\pi 1h_{9/2}\nu 2g^{-1}_{9/2}$. J^π: L=2 in ^{210}Bi(9^-)(p,t).
3154.98 *22*		C	
3165.93 *14*	$1^+,2,3,4^+$	C	J^π: γ's to 2^+ and 3^+.
3171 *5*	1^+[a]	AB PQ	configuration=$\pi 3p_{3/2}\nu 3p^{-1}_{1/2}$. E(level): E(^{3}He,t)=3174 *25*. E(p,n)=3130 *100* with L=0+1 so the (p,n) peak must include one or more adjacent levels.
3201.1 *4*	(12^+)	D	J^π: γ's to 11^- and 10^-. M1 γ from (13^+).
3207 *7*		A	
3212 *3*		E	
3240 *3*		E	
3246 *7*		A	
3257 *5*	$1^+,2^+$[#]	B	configuration=$\pi 3p_{3/2}\nu 3p^{-1}_{1/2}$. J^π: L(^{3}He,d)=1.
3271 *3*	$+$[@]	EF	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$. configuration: the level appears to have a $\nu 2f^{-1}_{7/2}$ component also.
3286.38 *9*	2^+[#]	BC	configuration=$\pi 3p_{3/2}\nu 3p^{-1}_{1/2}$. J^π: γ's to 4^+ rule out the $J^\pi=1^+$ alternative allowed by L(^{3}He,d)=1.
3300 *7*	$-$	A H	configuration=^{206}Pb(2^+)$\pi 1h_{9/2}\nu 2g_{9/2}$. J^π: the level is a doublet (from peak Γ), both members of which have L=2 in ^{210}Bi(9^-)(p,t).
3318 *3*	$+$[@]	EF	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$.
3327 *3*	$4^-,5^-$	a E	configuration=$\pi 1h_{9/2}\nu 3s^{-1}_{1/2}$. J^π: L(p,d)=0.
3332 *7*		a H	
3347 *3*	$4^-,5^-$	E	configuration=$\pi 1h_{9/2}\nu 3s^{-1}_{1/2}$. J^π: L(p,d)=0.
3351.34 *20*		C	J^π: γ to $4^+,5^+$. γ to $3^+,4^+$.
3362 *3*	$+$[@]	EF	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$. configuration: the level appears to have a $\nu 2f^{-1}_{7/2}$ component also.
3379 *7*		A	
3387 *3*		EF	
3390.9 *4*		C	J^π: γ to 3^+ and possibly to 2^-.
3407 *5*	$1^+,2^+$[#]	B	configuration=$\pi 3p_{3/2}\nu 3p^{-1}_{1/2}$. J^π: L(^{3}He,d)=1.
3411 *10*		H	
3412 *3*	$+$[@]	EF	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$.
3425.08 *12*		C	
3427.2 *4*		C	
3449.4 *5*	(13^+)	D P	configuration=$\pi 1i_{13/2}\nu 1i^{-1}_{13/2}$. configuration: from ^{208}Pb(p,n) (E=3400). J^π: from $\sigma(\theta)$ in (p,n) and assumption of stretched configuration. M1 γ to (12^+).
3453 *5*	$-$	a H	configuration=^{206}Pb(2^+)$\pi 1h_{9/2}\nu 2g_{9/2}$. E(level): peak is a doublet in (α,d). J^π: L=2 in ^{210}Bi(9^-)(p,t).
3457 *5*	$1^+,2^+$[#]	aB	configuration=$\pi 3p_{3/2}\nu 3p^{-1}_{1/2}$. E(level): peak is a doublet in (α,d).
3461 *3*	$+$[@]	EF	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$.
3499.7 *8*	(11^+)[&]	A D	conf=^{206}Pb(0^+)$\pi 1i_{13/2}\pi 2g_{9/2}$.

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Adopted Levels, Gammas (continued)

^{208}Bi Levels (continued)

E(level)[†]	J$^\pi$[‡]	XREF	Comments
3521 *7*	9^-	H	J$^\pi$: γ to 10^-. configuration=^{206}Pb(0^+)$\pi 1h_{9/2}\nu 2g_{9/2}$. J$^\pi$: L=0 in ^{210}Bi(9^-)(p,t).
3524 *3*	+[@]	b EF	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$.
3532 *5*		B	
3541 *3*	+[@]	E	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$.
3547 *7*		A	
3563 *5*	−	H	configuration=^{206}Pb(2^+)$\pi 1h_{9/2}\nu 2g_{9/2}$. J$^\pi$: L=2 in ^{210}Bi(9^-)(p,t).
3565 *3*	+[@]	EF	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$.
3600.6 *5*	(12^+)[&]	A D	configuration=^{206}Pb(0^+)$\pi 1h_{9/2}\nu 1j_{15/2}$. J$^\pi$: γ's to (11^+) and 11^-.
3611 *3*	$1^+,2^+$[#]	B E	configuration=$\pi 3p_{3/2}\nu 3p^{-1}_{1/2}$.
3631 *7*		H	E(level): level is a doublet (from peak width).
3662 *3*		EF	XREF: F(3649).
3688 *3*		EF	
3718 *5*	+[@]	EF	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$.
3742 *3*		E	
3751 *7*		H	
3766 *3*		E	
3767 *10*		H	
3795 *8*		A	E(level): level is a doublet (from peak width).
3851 *5*		H	
3854 *8*		A	
3863 *25*	1^+[a]	PQ	E(level): on the basis of its energy, this peak in (^{3}He,t) might include the 3851, 3854 and/or 3886 levels. E=3920 *100* in (p,n) with L=0+1 so the (p,n) peak must include one or more adjacent levels.
3886 *3*	($^+$)[@]	E	configuration=$\pi 1h_{9/2}\nu 1h^{-1}_{9/2}$.
3905 *8*		A	
3906 *10*		H	
3967 *8*		A	
4013 *10*		H	
4015 *4*	+[@]	E	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$.
4015 *8*		A	
4043 *25*	1^+[a]	Q	E(level): on the basis of its energy, this (^{3}He,t) peak might include the 4013, 4015, and/or 4049 levels.
4049 *8*		A	
4087 *10*		H	
4137 *10*		H	
4156 *9*		A	E(level): doublet in (α,d) (from peak width).
4159.1 *5*	(13^+)[b]	D	J$^\pi$: γ's to (13^+) and (12^+).
4183 *4*		E	
4236 *9*		A	E(level): doublet in (α,d) (from peak width).
4238 *5*		H	
4284 *9*		A	
4291.0 *5*	(13)[b]	D	J$^\pi$: γ's to (12^+) and (13^+).
4357 *9*		A	
4399 *9*		A	
4448 *9*		A	
4484.3 *5*	(14^+)[b]	D	J$^\pi$: γ to (13^+).
4543 *4*	+[@]	E	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$.
4556 *4*	+	E	J$^\pi$: L(p,d)=1.
4587 *4*	+	E	J$^\pi$: L(p,d)=1.

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Adopted Levels, Gammas (continued)

^{208}Bi Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$	XREF	Comments
4617 *4*	1^{+}[a]		E PQ	configuration=$\pi 1h_{9/2}\nu 2f^{-1}_{7/2}$. E(level): E(^{3}He,t)=4621 *25*. E(p,n)=4610 *100* with L=0+1, so the (p,n) peak must include one or more other levels.
4635.3 *5*	(15^{+})[b]		D	Jπ: γ's to (13^{+}) and (14^{+}).
4652 *10*			A	
4697?			A	
4836.2 *5*	(14^{-})[&]		A D	configuration=^{206}Pb(0^{+})$\pi 1i_{13/2}\nu 1j_{15/2}$. Jπ: L(α,d)=(13). γ to (13^{+}) and possibly to (11^{+}).
4885 *10*			A	
5008 *10*			A	
5067 *10*			A	
5463.0 *6*	(15^{-})[b]		A D	E(level): level is a doublet in (α,d) (from peak Γ). Jπ: γ's to (12^{+}) and (14^{-}).
5552? *11*			A	
5626.6 *6*	(16^{-})[b]		D	Jπ: γ's to (15^{+}), (15^{-}) and (13^{+}).
5.9×10^3 *2*	1^{+}[a]		PQ	E(level): E(p,n)=5700 *100* with L=0+1, so the (p,n) peak includes one or more adjacent levels.
7.13×10^3 *10*			P	Jπ: L(p,n)=0+1 so the (p,n) peak consists of more than one level.
8.19×10^3 *10*	1^{+}[a]		PQ	
≈9000		≈40 ns	D	2003Fo03 in ^{208}Pb(^{48}Ca,Xγ) state that they have established the presence of an isomer at about 9 MeV with a half-life of the order of 40 ns.
9.16×10^3 *10*	$(1)^{+}$		P	Jπ: from L=0 in (p,n).
9.8×10^3 *2*	1^{+}[a]		Q	
10.38×10^3 *10*	$(1)^{+}$		P	Jπ: from L=0 in (p,n).
15165 *6*	0^{+}	231 keV *6*	M PQ	Γ: other: 230 *17* from (^{3}He,t). Γ(p)=130 *4*; Γ(p 3p1/2)=51.6 *17*; Γ(p 2f5/2)=20.6 *17*; Γ(p 3p3/2)=58 *3*; Γ(p 2f7/2)≤4. E(level): from ^{207}Pb(p,p′),(pol p,p′)IAR. Others: 15165 *10* from ^{208}Pb(p,n),(p,np′), 15171 *18* from ^{208}Pb(^{3}He,t),(3hetp), (^{3}He,tn). Jπ: σ(θ) isotropic in ^{207}Pb(p,p′) IAR. IAR of ^{208}Pb g.s. Γ: Γ and Γ(p 3p1/2) are from ^{207}Pb(p,p) IAR. The inelastic widths are based on ratios given in ^{208}Pb(p,np′) IAS. Γ(p)=ΣΓ(p nlj). Note that Γ(p)=149 *9* from ^{207}Pb(p,p′),(pol p,p′) IAR.
15.6×10^3 *2*	1^{+}		PQ	Γ=3720 keV *250*; Γ_p=184 keV *49* Jπ: from L=0 and tp(θ) in (^{3}He,t),(^{3}He,tp),(^{3}He,tn). configuration=Gamow−Teller resonance; Γ_p=58 keV *20*, 102 keV *31*, 8 keV *9*, and 16 keV *8* for proton decay to the 3p1/2, 2f7/2 + 3p3/2, 1i13/2, and 2f7/2 neutron hole states, respectively, in ^{207}Pb.
17780	3^{-}	166 keV *47*	M	
18363	5^{-}	234 keV *19*	M	
18640	4^{-}	242 keV *18*	M	
18874	5^{-}	195 keV *51*	M	
19085	4^{-}	245 keV *67*	M	
19126	5^{-}	281 keV *70*	M	
19161	6^{-}	285 keV *85*	M	
19203	7^{-}	277 keV *67*	M	

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Adopted Levels, Gammas (continued)

^{208}Bi Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
19216	3^-	339 keV *54*	M	
19290	4^-	261 keV *61*	M	Jπ: Jπ(4125 parent analog)=$(4,5)^-$, possible doublet.
19345	5^-	306 keV *56*	M	
19371	6^-	226 keV *42*	M	
19395	2^-	336 keV *72*	M	
19420	3^-	312 keV *42*	M	
19462	5^-	289 keV *51*	M	
19524	4^-	319 keV *51*	M	
19646	6^-	329 keV *78*	M	
19776	7^+		M	Jπ: Jπ(4610 parent analog)=8^+.
19863	3^-	301 keV *30*	M	
20026	7^+		M	
20139	2^-	247 keV *12*	M	Jπ: Jπ(4974 parent analog)=3^-.
20203	3^-	262 keV *25*	M	
20292	2^-	318 keV *16*	M	
20410	3^-	272 keV *10*	M	
20445	1^-	285 keV *19*	M	
20539	2^-	290 keV *15*	M	
20647	5^-	225 keV *51*	M	
20677	1^-	291 keV *38*	M	
20860	5^-	328 keV *76*	M	Jπ: Jπ(5695 parent analog)=7^-.
20943	(2^-)	298 keV *32*	M	Jπ: Jπ(5778 parent analog)=3^-.
21039	3^-	281 keV *20*	M	
21089	2^-	252 keV *78*	M	
21.1×10^3 *80*	$0^-,1^-,2^-$	10 MeV *3*	PQ	Jπ: L=1, ΔS=1 in (p,n). E(level): from (^{3}He,t). E=21500 *1000* in (p,n). Γ: from (p,n). configuration=isovector spin-flip dipole resonance.
21112	1^-	268 keV *19*	M	
21134	3^-		M	Jπ: Jπ(5969 parent analog)=4^-.
21175	4^-		M	Jπ: Jπ(6010 parent analog)=3^-.
21252	2^-		M	
21428	1^-		M	
21479	1^-		M	
22.90×10^3 *20*	$(1)^+$	≈670 keV	P	Jπ: L=0,ΔS=1 in (p,n). configuration: assigned by 1980Ho21 as T=T_0, and interpreted as the analog of the M1 strength in ^{208}Pb near 7.5 MeV.
23500	$0^-,1^-,2^-$	2.9 MeV	P	Jπ: L(p,n)=1.
24.60×10^3 *20*	$(1)^+$	1.2 MeV	P	Jπ: L(p,n)=0.
28000	$(2)^+$	14 MeV	P	Jπ: L(p,n)=2.

† From a least-squares fit to the adopted Eγ. Energies for levels not deexcited by gammas are averages from all reactions populating the level. Note that values from (p,d), from (^{3}He,d),(α,t), from (d,t),(^{3}He,α) and from (p,t) have been adjusted as noted in the source datasets. Above about 2500, the association of levels seen in the different reactions, except where Jπ information is known, is uncertain. The evaluator has chosen to show separate levels in such cases. It is possible that some of these levels that overlap in energy are the same. For E(level)>15.6 MeV, energies are from ^{207}Pb(p,p′),(pol p,p′). These levels are probable IAR of ^{208}Pb levels. For data on the Gamow-Teller resonance at 15.6 MeV, and on resonances above 21 MeV, see ^{208}Pb(^{3}He,t),(^{3}He,tp),(^{3}He,tn), ^{208}Pb(p,n),(p,np′), and ^{208}Pb(π^+,π^0).

‡ 2006Bo08, in (p,nγ), compare the experimental energies with a shell-model calculation (see 2006Bo08 for details). Their calculation gives agreement with the Jπ and configuration assignments for the levels seen previously in transfer reactions, and their observed γ branchings are consistent with the assignments. In addition, the authors propose assignments for five of the six

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Adopted Levels, Gammas (continued)

^{208}Bi Levels (continued)

members of the $\pi 2f_{7/2}\nu 2f^{-1}_{5/2}$ multiplet, and three of the four members of the $\pi 2f_{7/2}\nu 3p^{-1}_{3/2}$ multiplet. They suggest that the 1824 level could Be the 6^+ member of the first of these multiplets, or the 5^+ member of the second multiplet. Their calculations confirm the 1802 level as the 1^+ member of the $f_{7/2}$-$f_{5/2}$ multiplet. These assignments are given in comments. Assignments for E(level)>15 MeV are from σ and analyzing power in ^{207}Pb(p,p′),(pol p,p′) IAR.

[#] From 1971Al05 in ^{207}Pb(^{3}He,d) based on L-transfer and σ. This reaction populates levels with configuration=πnlj$\nu 3p^{-1}_{1/2}$J where the proton particle states involved are 1h9/2 (L=5), 2f7/2 (L=3), 1i13/2 (L=6), 2f5/2 (L=3), and 3p3/2 (L=1). As long as the full strength is seen for a multiplet, then this strength must Be distributed among the members of that multiplet in proportion to 2J+1. The authors note that the total strength in each multiplet is close to that expected on the basis of sum rule limits. The L=1 states are fragmented so only the combination 1^+,2^+ can Be established. Supporting arguments are given where available.

[@] From L and σ in (p,d) (1973Cr05). This reaction populates levels with configuration=$\pi 1h_{9/2}\nu(\mathrm{nlj})^{-1}$J where the hole states involved are $3p_{1/2}$, $2f_{5/2}$, $3p_{3/2}$, $1i_{13/2}$, $2f_{7/2}$, $1h_{9/2}$, and $3s_{1/2}$. The energies of these hole states are well known in ^{207}Pb. As long as the full pick-up strength for a given L transfer is observed, then the pickup strength must Be distributed among the various possible J values in proportion to 2J+1. See 1973Cr05 in ^{209}Bi(p,d) and also 1971Al05 in ^{209}Bi(d,t),(^{3}He,α). The 628 and 633 levels are an unresolved doublet with $J^\pi=3^+$ and 5^+. The 633 level is assigned as the 3^+ member of the doublet on the basis of its strong γ feeding from the 2^+ level at 925. For the L=5 levels, and for the levels above 3800, only π can Be established. Supporting arguments are given where available.

[&] From 1977Da05 in ^{206}Pb(α,d) based on similarity of Q value, L value and σ with levels in ^{206}Bi and ^{210}Bi; and assumption that the levels are two−particle+(^{206}Pb core) states with J(π)+J(ν)=J(max).

[a] From L(^{3}He,t)=0 at E=200 and 450 MeV, and the assumption that possible 0^+ anti-analog states below the analog of the ^{208}Pb g.s. will not Be populated at the bombarding energies used (1991Ja04).

[b] Proposed by 2003Fo03 on the basis of the agreement of energy with calculations using the shell model, and the observed γ decay modes.

[c] In (p,d) a level at 2385.3 *22* is proposed as a 4^+, 5^+ doublet. The 2383.8 and 2386.0 levels both deexcite to levels with $J^\pi=3^+$ and 5^+. The evaluator assigns these levels as the components of the doublet.

[d] 1971Al05 report $J^\pi=3^+$ with configuration=$\pi 2f_{5/2}\nu 3p^{-1}_{1/2}$ for a peak at 2887 *5*. This could correspond to either the 2886.6 level or the 2888.4 level.

[e] Doublet in ^{209}Bi(p,d), ^{209}Bi(d,t), and ^{207}Pb(^{3}He,d),(α,t) on the basis of strength. No broadening observed in (p,d), thus the levels are <3 keV apart. Doublet resolved in (p,nγ).

[f] J(1703) and J(1839) are reversed from the values suggested by 1971Al05 in ^{209}Bi(d,t).

[g] Suggested by 1971Al05 in (d,t) as possible $J^\pi=2^-$ member of the configuration=$\pi 1h_{9/2}\nu 1i^{-1}_{13/2}$ multiplet; however, the level is weakly populated and no L values was determined. The 2^- member of that multiplet is now known to Be at 2894.

[h] 2006Bo08 in (p,nγ) suggest that the 2078 level is a two-particle two-hole excitation and that the lowest such state is expected to have $J^\pi=1^-$. The 2208 level deexcites via an E1 γ to 1^+ and so has $J^\pi=0^-$, 1^-, or 2^-. The 1141γ to 3^+ suggests $J^\pi=2^-$; however, as pointed out by the authors, the branching of this transition is small, and is not inconsistent with mult=M2, allowing $J^\pi=1^-$. The evaluator notes that the 1141γ could also Be E3, in which case $J^\pi=0^-$ is also not ruled out. 2006Bo08 further suggest that the states at 2203, 2416, and 2478 are probably also two-particle two-hole states. See 2006Bo08 for a discussion of these configurations.

$\gamma(^{208}\mathrm{Bi})$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	δ	α[h]	$I_{(\gamma+ce)}$	Comments
63.02	4^+	63.00 *6*		0.0	5^+	M1(+E2)[g]	<0.14[g]	7.8 *5*		E_γ: weighted average of 62.94 *5* from 0.119-s ^{212}At(α), 63.13 *10* from ^{208}Po ε decay, and 63.1 *1* from (p,nγ).
510.28	6^+	447.3 *1*	4.0[‡] *11*	63.02	4^+	[E2]		0.0410		B(E2)(W.u.)=0.10 *3*
		510.15 *15*	100[‡]	0.0	5^+	E2(+M1)[f]	>1.3[f]	0.044 *15*		B(E2)(W.u.)=1.5 *5*
601.46	4^+	538.41[#] *6*	51.8[@] *11*	63.02	4^+	M1[g]	[g]	0.0964		
		601.49[#] *6*	100[@]	0.0	5^+	M1[g]	[g]	0.0720		B(M1)(W.u.)=0.008 *+6−4*
628.33	5^+	26.91 *11*	0.41 *5*	601.46	4^+					
		118.2 *2*	4.2 *12*	510.28	6^+	M1[e]				
		565.23 *8*	100 *7*	63.02	4^+					
633.14	3^+	31.7[#] *1*	2.4 *6*	601.46	4^+	M1(+E2)	<0.10	62 *7*		Mult.,δ: from Iγ/Iγ(570γ)=0.024 *6* in (p,nγ), and I(γ+ce)/Iγ(570γ)=1.23 *10* in ε decay one gets α=52 *+18−12*. This gives mult=M1(+E2) with δ<0.10 and a symmetrized α of 62 *7*.
		570.09[#] *6*	100.0 *24*	63.02	4^+	M1[g]	[g]	0.0829		
		633.0 *2*	1.3 *1*	0.0	5^+					
650.57	7^+	140.08[&] *12*	52[c] *16*	510.28	6^+	M1[e]		4.09		B(M1)(W.u.)≤0.0012 I_γ: Iγ/Iγ(651γ)=0.85 *10* in (d,tγ).
		650.60[&] *16*	100[c]	0.0	5^+	E2[f]	[f]	0.0169		B(E2)(W.u.)≤0.017
886.36	5^+	823.25 *14*	100	63.02	4^+					B(M1)(W.u.)≤0.15; B(E2)(W.u.)≤77
		886.4 *2*	96[b] *9*	0.0	5^+					B(M1)(W.u.)≤0.08; B(E2)(W.u.)≤36
924.85	2^+	291.77[#] *6*	100[a]	633.14	3^+	M1+E2[g]	0.57[g] *26*	0.41	6	
		861.83[#] *7*	28.8[a] *17*	63.02	4^+	[E2]		0.0095		
		925.11[i] *13*	<0.14	0.0	5^+					I_γ: Iγ=2.3 *11* is reported in ε decay; however, the transition is not seen in (p,nγ) where the adopted limit is reported.
936.27	3^+	303.1 *1*	1.0 *1*	633.14	3^+					
		873.3 *2*	100 *3*	63.02	4^+					
		936.3 *2*	1.7 *4*	0.0	5^+					
958.99	4^+	325.74 *9*	11.6 *7*	633.14	3^+					
		330.6 *2*	4.2 *9*	628.33	5^+					
		896.0 *2*	100 *6*	63.02	4^+					
		959.0 *2*	36[b] *3*	0.0	5^+					
1033.26	4^+	146.6 *2*	1.0 *2*	886.36	5^+	M1[e]				
		400.0 *2*	2.0 *3*	633.14	3^+					
		431.4 *2*	<0.3	601.46	4^+					I_γ: from 1971Pr02 in (p,nγ). 2006Bo08 report 1.2 *3*.
		970.25 *14*	41.5 *8*	63.02	4^+					B(M1)(W.u.)≤0.0064; B(E2)(W.u.)≤2.4
		1033.31 *14*	100.0 *25*	0.0	5^+					B(M1)(W.u.)≤0.013; B(E2)(W.u.)≤4.3

$^{208}_{83}\mathrm{Bi}_{125}$-10

$\gamma(^{208}$Bi) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	δ	α[h]	Comments
1069.11	3+	110.0 *2*	0.6 *2*	958.99	4+	M1[e]			
		435.7 *2*	9.0 *7*	633.14	3+				
		467.37 *15*	9.0 *7*	601.46	4+				I_γ: Iγ/Iγ(1006γ)=0.19 *4* is reported in ^{209}Bi(d,tγ).
		1006.23 *15*	100 *6*	63.02	4+				
		1069.3 *2*	2.8 *4*	0.0	5+				B(E2)(W.u.)=0.25 +*11*−*8*
1095.06	6+	207.8[i]		886.36	5+				E_γ: from the E(level) difference. Eγ=208 is reported in (d,tγ). I_γ: Iγ/Iγ(1095γ)=0.02 *1* is reported in (d,tγ). In (p,nγ) 1971Pr02 report a ratio of <0.06, and 2006Bo08 do not see the transition.
		1094.9 *2*		0.0	5+				B(M1)(W.u.)≤0.17; B(E2)(W.u.)≤55
1469.47	4+,5+,6+	435.9 *2*	18 *4*	1033.26	4+				
		841.0 *3*	9 *6*	628.33	5+				
		959.0 *2*	100 *14*	510.28	6+				
1529.40	3+,4+	496.1 *1*	100 *4*	1033.26	4+				
		592.9 *2*	17 *6*	936.27	3+				
		896.2 *2*	44 *8*	633.14	3+				
		927.97 *15*	98 *3*	601.46	4+				
		1466.4 *2*	59 *4*	63.02	4+				
		1529.4 *3*	28 *4*	0.0	5+				
1539.39	2+,3+	470.06 *15*	3.0 *2*	1069.11	3+				
		602.88 *15*	20.3 *12*	936.27	3+				
		614.22 *15*	7.4 *5*	924.85	2+				
		906.32 *15*	100.0 *6*	633.14	3+				
		937.8 *2*	3.0 *2*	601.46	4+				
		1476.5 *2*	12.0 *8*	63.02	4+				
1563.45	3+,4+	494.1 *3*	1.7 *10*	1069.11	3+				
		529.9 *2*	25 *8*	1033.26	4+				
		627.13 *13*	100 *20*	936.27	3+				
		677.1 *2*	3 *1*	886.36	5+				
		935.2 *2*	67 *14*	628.33	5+				
1571.1	10−	920.5[d] *3*		650.57	7+	E3(+M4)	<0.05	0.0200 *2*	B(E3)(W.u.)=3.21×10^{-4} *5* Mult.,δ: from IT decay. B(M4)(W.u.)<10 from RUL is used to deduce the limit on δ.
1624.68	6−	530.4 *4*	4.5 *8*	1095.06	6+				
		738.2 *2*	14 *1*	886.36	5+				
		973.9 *2*	59 *12*	650.57	7+				
		996.2 *2*	100 *20*	628.33	5+				
1657.47	8−	1006.9 *2*		650.57	7+				
1666.58	7−	1015.9 *2*	70 *40*	650.57	7+				
		1156.4 *2*	100 *40*	510.28	6+				

$^{208}_{83}$Bi$_{125}$-11

Adopted Levels, Gammas (continued)

$\gamma(^{208}Bi)$ (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.
1703.35	5^-	233.7 *3*	0.30 *10*	1469.47	$4^+,5^+,6^+$	
		669.9 *2*	6 *4*	1033.26	4^+	
		744.2 *2*	26 *3*	958.99	4^+	
		1074.9 *2*	9 *2*	628.33	5^+	
		1640.5 *1*	100 *4*	63.02	4^+	
		1703.2 *2*	32 *2*	0.0	5^+	
1715.66	$6^-,7^-$	1064.9 *2*	100 *50*	650.57	7^+	
		1205.8 *3*	80 *40*	510.28	6^+	
1716.17	$6^-,7^-$	621.1 *2*		1095.06	6^+	
1802.09	1^+	262.50 *15*	100 *5*	1539.39	$2^+,3^+$	
		865.84 *15*	16.3 *10*	936.27	3^+	
		877.2 *2*	17.3 *10*	924.85	2^+	
		1169.07 *15*	6.8 *4*	633.14	3^+	
1824.45		354.9 *2*	100	1469.47	$4^+,5^+,6^+$	
		1761.5 *2*	87 *11*	63.02	4^+	
1839.03	4^-	135.6 *2*	51 *13*	1703.35	5^-	M1[e]
		805.6 *2*	13 *8*	1033.26	4^+	
		879.9 *2*	18 *4*	958.99	4^+	
		902.9 *3*	44 *3*	936.27	3^+	
		952.5 *3*	6.6 *22*	886.36	5^+	
		1205.9 *2*	56 *10*	633.14	3^+	
		1210.9 *2*	10 *8*	628.33	5^+	
		1775.7 *3*	100 *6*	63.02	4^+	
1870.77	$3^+,4^+$	307.0 *2*	7.5 *18*	1563.45	$3^+,4^+$	
		331.0 *2*	5.5 *17*	1539.39	$2^+,3^+$	
		837.7 *2*	100 *7*	1033.26	4^+	
		934.7 *2*	69 *12*	936.27	3^+	
		946.0 *2*	15 *3*	924.85	2^+	
1882.14	$2^+,3,4,5^+$	412.5 *2*	25 *4*	1469.47	$4^+,5^+,6^+$	
		812.9 *2*	18.2 *11*	1069.11	3^+	
		849.0 *2*	3.6 *18*	1033.26	4^+	
		923.3 *3*	6 *2*	958.99	4^+	
		946.0 *2*	100 *10*	936.27	3^+	
1919.97	3^-	80.7 *2*	5 *2*	1839.03	4^-	M1[e]
		390.2 *2*	7.8 *7*	1529.40	$3^+,4^+$	
		886.7 *2*	<8	1033.26	4^+	
		960.8 *2*	9.9 *11*	958.99	4^+	
		983.7 *2*	50 *3*	936.27	3^+	
		995.1 *2*	100 *7*	924.85	2^+	
		1287.0 *3*	5.4 *7*	633.14	3^+	
		1318.6 *2*	31 *5*	601.46	4^+	

$^{208}_{83}Bi_{125}$-12

γ(^{208}Bi) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[h]
2077.66	$0^-,1^-,2^-$	275.26 15	100 6	1802.09	1^+	E1[e]	0.0372
		1141.4 2	1.0 2	936.27	3^+		
		1152.84 10	0.8 2	924.85	2^+		
2126.90	$2^+,3,4^+$	255.7 2	13.7 11	1870.77	$3^+,4^+$		
		597.2 2	13 2	1529.40	$3^+,4^+$		
		1057.5 3	3.5 7	1069.11	3^+		
		1093.4 8	4.4 8	1033.26	4^+		
		1190.77 12	100 3	936.27	3^+		
		1202.1 2	12.6 8	924.85	2^+		
		1493.8 2	13.8 11	633.14	3^+		
2179.42	$4^+,5,6,7^+$	1083.8 4		1095.06	6^+		
		1293.2 2		886.36	5^+		
2180.04	$4^+,5,6,7^+$	1084.9 2	32 7	1095.06	6^+		
		2180.3 4	100	0.0	5^+		
2202.89	$1^-,2^-,3^-$	125.3 2	100	2077.66	$0^-,1^-,2^-$	M1[e]	
		663.3 2	51 12	1539.39	$2^+,3^+$		
2308.08	$2^+,3,4$	388.1 1	6.2 8	1919.97	3^-		
		838.1 3	4.2 12	1469.47	$4^+,5^+,6^+$		
		1239.09 12	100 3	1069.11	3^+		
2340.1	7^+	1829.8 4		510.28	6^+		
2358.47	$2^+,3,4,5^+$	1725.2 2	100	633.14	3^+		
		1758.1 6	16 8	601.46	4^+		
2383.86	$4^+,5^+$	1750 1	53 3	633.14	3^+		
		1754.8 6	16 7	628.33	5^+		
		1782.5 2	100 48	601.46	4^+		
2385.97	$4^+,5^+$	856.7 3	5 5	1529.40	$3^+,4^+$		
		1753.0 3	50 50	633.14	3^+		
		1757.6 2	100 9	628.33	5^+		
		1784.1 4	<220	601.46	4^+		
2404.2		1771.1 5		633.14	3^+		
2409.10	6^+	1780.4 3		628.33	5^+		
		1807.5 3		601.46	4^+		
		1899.3 3		510.28	6^+		
2415.72	$1^+,2,3,4^-$	337.9 2		2077.66	$0^-,1^-,2^-$		
2426.7	11^-	855.7 2		1571.1	10^-		
2436.87		873.3 2		1563.45	$3^+,4^+$		
2457.38	3^+	918.0 2	27 2	1539.39	$2^+,3^+$		
		1388.6	6.6 17	1069.11	3^+		
		1532.6 2	50 4	924.85	2^+		
		1824.13 14	100 8	633.14	3^+		
		1856.0 2	73 6	601.46	4^+		

$^{208}_{83}$Bi$_{125}$-13

Adopted Levels, Gammas (continued)

$\gamma(^{208}Bi)$ (continued)

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
2478.49	2,3,4	275.3 *2*		2202.89	$1^-,2^-,3^-$
		558.5 *2*	100 *7*	1919.97	3^-
		1845.5 *2*	20.5 *17*	633.14	3^+
2495.53	$4,5^+$	293.5 *5*	25 *2*	2202.89	$1^-,2^-,3^-$
		656.2 *4*	62 *5*	1839.03	4^-
		792.1 *2*	60 *5*	1703.35	5^-
		1559.2 *2*	48 *4*	936.27	3^+
		1609.1 *4*	35 *12*	886.36	5^+
		1862.5 *2*	100 *8*	633.14	3^+
		1894.0 *3*	66 *6*	601.46	4^+
2501.56	2^+	1432.2 *2*	18 *6*	1069.11	3^+
		1576.7 *2*	88 *5*	924.85	2^+
		1868.3 *2*	100 *7*	633.14	3^+
2513.51	$2^+,3,4,5^+$	1444.2 *2*	47 *4*	1069.11	3^+
		1480.0 *2*	18.5 *14*	1033.26	4^+
		1554.5 *2*	100 *6*	958.99	4^+
		1577.5 *2*	13.7 *24*	936.27	3^+
		1880.5 *4*	41 *4*	633.14	3^+
		1912.2 *2*	42 *4*	601.46	4^+
2544.83		467.21 *12*		2077.66	$0^-,1^-,2^-$
2556.45	2,3,4	636.2 *2*	42 *4*	1919.97	3^-
		1487.4 *1*	100 *6*	1069.11	3^+
		1620.0 *3*	23.7 *15*	936.27	3^+
		1923.3 *2*	86 *6*	633.14	3^+
2564.79	3^+	149.4 *4*	3.9 *15*	2415.72	$1^+,2,3,4^-$
		1936.6 *2*	100 *11*	628.33	5^+
		1963.4 *3*	<17	601.46	4^+
2570.31	1,2,3	154.6 *2*	6 *5*	2415.72	$1^+,2,3,4^-$
		492.6 *2*	72 *10*	2077.66	$0^-,1^-,2^-$
		1645.6 *2*	100 *7*	924.85	2^+
2586.58	$3^+,4,5^+$	1627.4 *2*	59 *6*	958.99	4^+
		1700.5 *2*	71 *6*	886.36	5^+
		1953.4 *2*	64 *6*	633.14	3^+
		1984.9 *3*	21 *4*	601.46	4^+
		2523.5 *3*	100 *8*	63.02	4^+
2612.63	$4^+,5^+$	1653.6 *2*	45 *3*	958.99	4^+
		1676.4 *3*	13 *3*	936.27	3^+
		1979 *1*	<30	633.14	3^+
		2011.3 *3*	100 *8*	601.46	4^+
		2102.3 *3*	37 *3*	510.28	6^+
2631.02	$5,6,7^-$	928.1 *3*	60 *20*	1703.35	5^-
		1006.3 *2*		1624.68	6^-
2631.02	$5,6,7^-$	1535.8 *2*	100 *11*	1095.06	6^+
2636.34	$2^+,3,4,5^+$	1677.3 *2*	78 *9*	958.99	4^+
		2003.2 *3*	92 *8*	633.14	3^+
		2034.9 *2*	100 *8*	601.46	4^+
2657.29		454.4 *2*		2202.89	$1^-,2^-,3^-$
2660.7	8^+	2010.1 *3*		650.57	7^+
2679.42	$1^+,2,3$	601.3 *2*		2077.66	$0^-,1^-,2^-$
		1610.4 *2*	100 *5*	1069.11	3^+
		1754.8 *2*	39 *9*	924.85	2^+
		2046.4 *2*		633.14	3^+
2693.78	$2^+,3,4,5^+$	149.4 *4*		2544.83	
		1624.8 *2*	42 *3*	1069.11	3^+
		1660.9 *4*	4.6 *7*	1033.26	4^+
		1757.4 *3*	0.29 *3*	936.27	3^+
		2060.3 *3*	45 *3*	633.14	3^+
		2630.6 *2*	100 *8*	63.02	4^+
2718.55	2,3,4	798.42 *15*	100 *7*	1919.97	3^-
		848.7 *4*	42 *3*	1870.77	$3^+,4^+$
		1189.7 *3*	3.5 *9*	1529.40	$3^+,4^+$
		1649.2 *3*	11.0 *9*	1069.11	3^+
		1782.2 *2*	0.12 *2*	936.27	3^+
2733.04		254.4 *2*		2478.49	2,3,4
		530.2 *2*		2202.89	$1^-,2^-,3^-$
		1808.3 *2*		924.85	2^+
2739.52	3,4,5	1114.6 *2*	64 *7*	1624.68	6^-
		1780.4 *3*	46 *10*	958.99	4^+
		1814.9 *2*	100 *12*	924.85	2^+
		1853.2 *2*	82 *9*	886.36	5^+
2838.89	$1^+,2,3$	268.8 *3*	15.7 *14*	2570.31	1,2,3
		282.2 *2*	13.2 *12*	2556.45	2,3,4
		423.1 *1*	39 *4*	2415.72	$1^+,2,3,4^-$
		761.3 *2*	100 *4*	2077.66	$0^-,1^-,2^-$
		1914.4 *2*	20 *2*	924.85	2^+
2843.36		765.7 *2*		2077.66	$0^-,1^-,2^-$
2869.57	$3^+,4,5,6^+$	2806.50 *16*	28.0 *15*	63.02	4^+
		2869.57 *15*	100 *5*	0.0	5^+
2879.66	$2^+,3,4,5^+$	1340.1 *2*	59 *10*	1539.39	$2^+,3^+$
		1846.6 *2*	100 *13*	1033.26	4^+
2881.30	$3^+,4,5^+$	294.6 *3*		2586.58	$3^+,4,5^+$
		1812.1 *5*	100 *14*	1069.11	3^+
		1994.6 *6*	51 *7*	886.36	5^+
		2818.5 *3*		63.02	4^+

$^{208}_{83}Bi_{125}$-14

Adopted Levels, Gammas (continued)

γ(^{208}Bi) (continued)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f
2884.07	1^+	382.5 *2*	71.0 *7*	2501.56	2^+
		1815.1 *3*	100 *21*	1069.11	3^+
		1959.1 *3*	71 *29*	924.85	2^+
2886.77		330.5 *2*		2556.45	2,3,4
		578.7 *2*	99 *8*	2308.08	2^+,3,4
		2285.0 *2*	100 *8*	601.46	4^+
2888.47		2888.45 *16*		0.0	5^+
2893.76	2^-	973.8 *2*	100 *60*	1919.97	3^-
		1091.6 *2*	8 *7*	1802.09	1^+
		1364.1 *4*	8 *7*	1529.40	3^+,4^+
		1957.6 *2*	13 *13*	936.27	3^+
2903.58	0^+,1,2,3^+	1101.6 *2*	100	1802.09	1^+
		1978.9 *4*	21 *4*	924.85	2^+
2932.84	3^+,4,5^+	1996.4 *2*	36 *2*	936.27	3^+
		2046.4 *2*	100 *7*	886.36	5^+
		2331.6 *2*	19.7 *16*	601.46	4^+
2942.88	2^+	2879.84 *15*		63.02	4^+
2950.96	2^+,3	873.3 *2*		2077.66	0^-,1^-,2^-
		1411.3 *3*	32 *2*	1539.39	2^+,3^+
		1992.3 *2*	22 *2*	958.99	4^+
		2026.1 *2*	100 *8*	924.85	2^+
		2317.6 *2*	26 *8*	633.14	3^+
3069.34	2^+	632.2 *3*		2436.87	
		1267.6 *2*	100 *6*	1802.09	1^+
		1529.9 *2*	81 *11*	1539.39	2^+,3^+
		1539.7 *3*	22 *8*	1529.40	3^+,4^+
		2036.2 *3*	29 *7*	1033.26	4^+
		2132.7 *3*	0.39 *7*	936.27	3^+
3154.98		846.9 *2*		2308.08	2^+,3,4
3165.93	1^+,2,3,4^+	262.5 *2*		2903.58	0^+,1,2,3^+
		601.4 *2*		2564.79	3^+
		664.0 *2*		2501.56	2^+
		1626.4 *3*		1539.39	2^+,3^+
3201.1	(12^+)	774.4 *3*	100	2426.7	11^-
		1629.9 *3*	57	1571.1	10^-
3286.38	2^+	1159.35 *12*	77 *6*	2126.90	2^+,3,4^+
		1757.2 *2*	41 *7*	1529.40	3^+,4^+
		2217.2 *3*	14 *2*	1069.11	3^+
		2253.1 *2*	64 *6*	1033.26	4^+
		2361.5 *2*	91 *11*	924.85	2^+
		2652.8 *4*	64 *11*	633.14	3^+
		2685.2 *2*	100 *8*	601.46	4^+

$^{208}_{83}$Bi$_{125}$-15

Adopted Levels, Gammas (continued)

$\gamma(^{208}Bi)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.	α[h]	Comments
3351.34		738.8 4		2612.63	$4^+,5^+$			
		935.7 3		2415.72	$1^+,2,3,4^-$			
		1821.8 3		1529.40	$3^+,4^+$			
3390.9		440.2 6	24.0 10	2950.96	$2^+,3$			
		496 2	<10	2893.76	2^-			
		2454.6 4	100 6	936.27	3^+			
3425.08		538.2 2		2886.77				
		545.6 4		2879.66	$2^+,3,4,5^+$			
		1117.2 3		2308.08	$2^+,3,4$			
		2488.9 2		936.27	3^+			
		2791.8 2		633.14	3^+			
3427.2		862.4 3		2564.79	3^+			
3449.4	(13^+)	248.4 3		3201.1	(12^+)	M1	0.8 2	Mult.,α: from $^{208}Pb(^{48}Ca,X\gamma)$.
3499.7	(11^+)	1928.6 10		1571.1	10^-			
3600.6	(12^+)	(101)		3499.7	(11^+)			E_γ: not observed, but required by coincidence data in $^{208}Pb(^{48}Ca,X\gamma)$. The energy is from the E(level) difference.
		1173.9 4		2426.7	11^-			
4159.1	(13^+)	558.8 8	2.7	3600.6	(12^+)			
		709.7 3	100	3449.4	(13^+)			
		957.8 5	35	3201.1	(12^+)			
		2588 1	5.4	1571.1	10^-			
4291.0	(13)	690.3 4	70	3600.6	(12^+)			
		841.7 4	100	3449.4	(13^+)			
4484.3	(14^+)	325.2 3	100	4159.1	(13^+)			
		1034.9 5	14	3449.4	(13^+)			
4635.3	(15^+)	151.0 5	100	4484.3	(14^+)			
		475.9 6	100	4159.1	(13^+)			
		1185.9 4	100	3449.4	(13^+)			
4836.2	(14^-)	545.2 4	100	4291.0	(13)			
		677.2 4	38	4159.1	(13^+)			
		1336[i]	<8	3499.7	(11^+)			
		1386.7 4	62	3449.4	(13^+)			
5463.0	(15^-)	626.8 4	100	4836.2	(14^-)			
		2262.0 8	20	3201.1	(12^+)			
5626.6	(16^-)	163.7 5	100	5463.0	(15^-)			
		990.8 7	36	4635.3	(15^+)			
		2178 1	9.1	3449.4	(13^+)			

† From (p,nγ), except where noted otherwise. The values are weighted averages of data of 1971Pr02 and 2006Bo08 in cases where the correlation in the two sets of data is clear. In other cases the values of 2006Bo08 are adopted.

$^{208}_{83}Bi_{125}$-16

$\gamma(^{208}Bi)$ (continued)

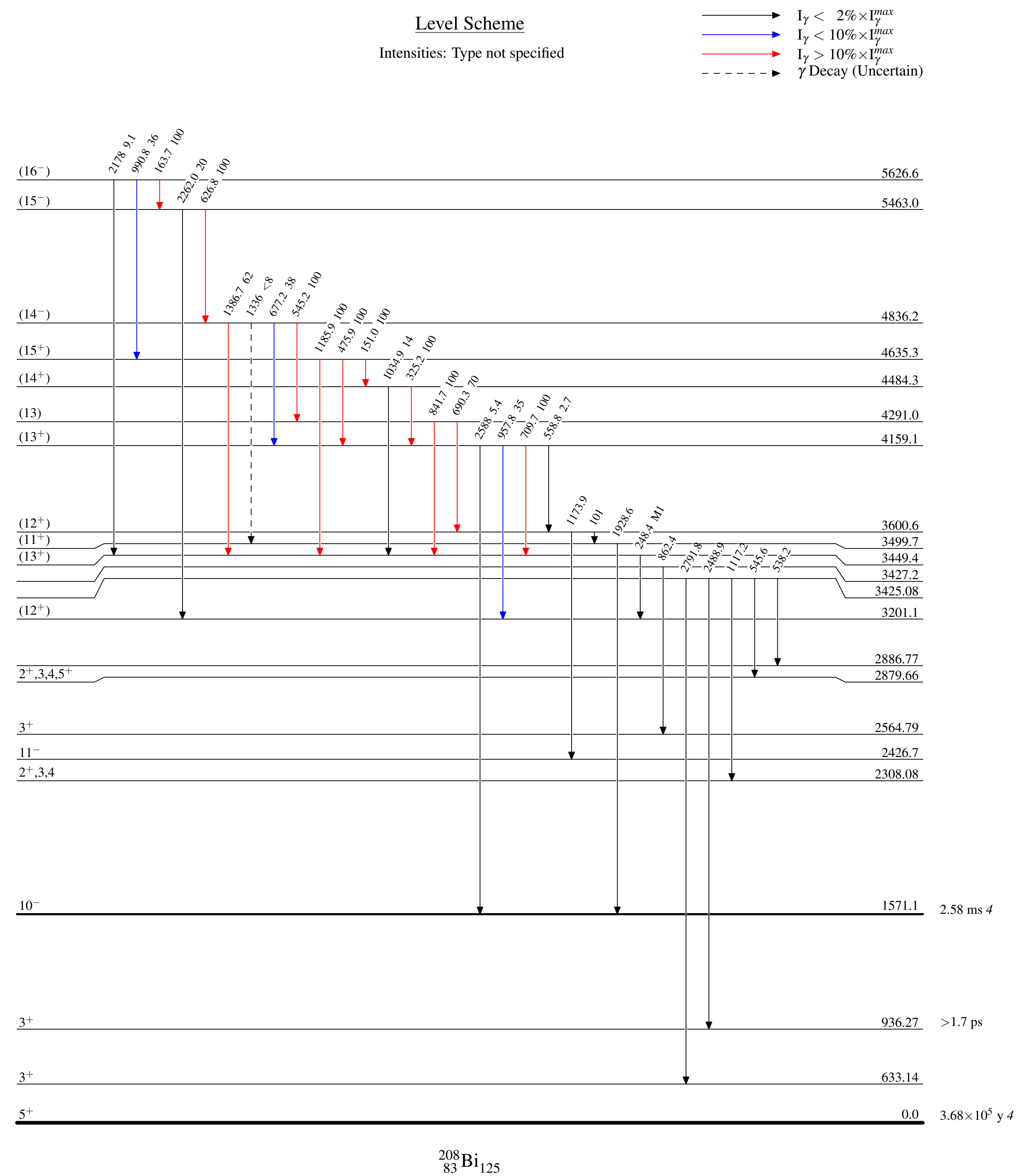
[‡] Weighted average from (p,nγ), (d,tγ), and IT decay.
[#] Weighted average from (p,nγ) and ε decay.
[@] Weighted average from (p,nγ), (d,tγ), and ε decay.
[&] Weighted average from (p,nγ) and IT decay.
[a] Weighted average from (p,nγ) and ε decay.
[b] Weighted average from (p,nγ) and (d,tγ).
[c] Weighted average from (p,nγ) and IT decay.
[d] Weighted average from (p,nγ), (n,2nγ), and IT decay.
[e] From (p,nγ).
[f] From IT decay.
[g] From ε decay.
[h] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[i] Placement of transition in the level scheme is uncertain.

$^{208}_{83}Bi_{125}$-17

Adopted Levels, Gammas

Level Scheme

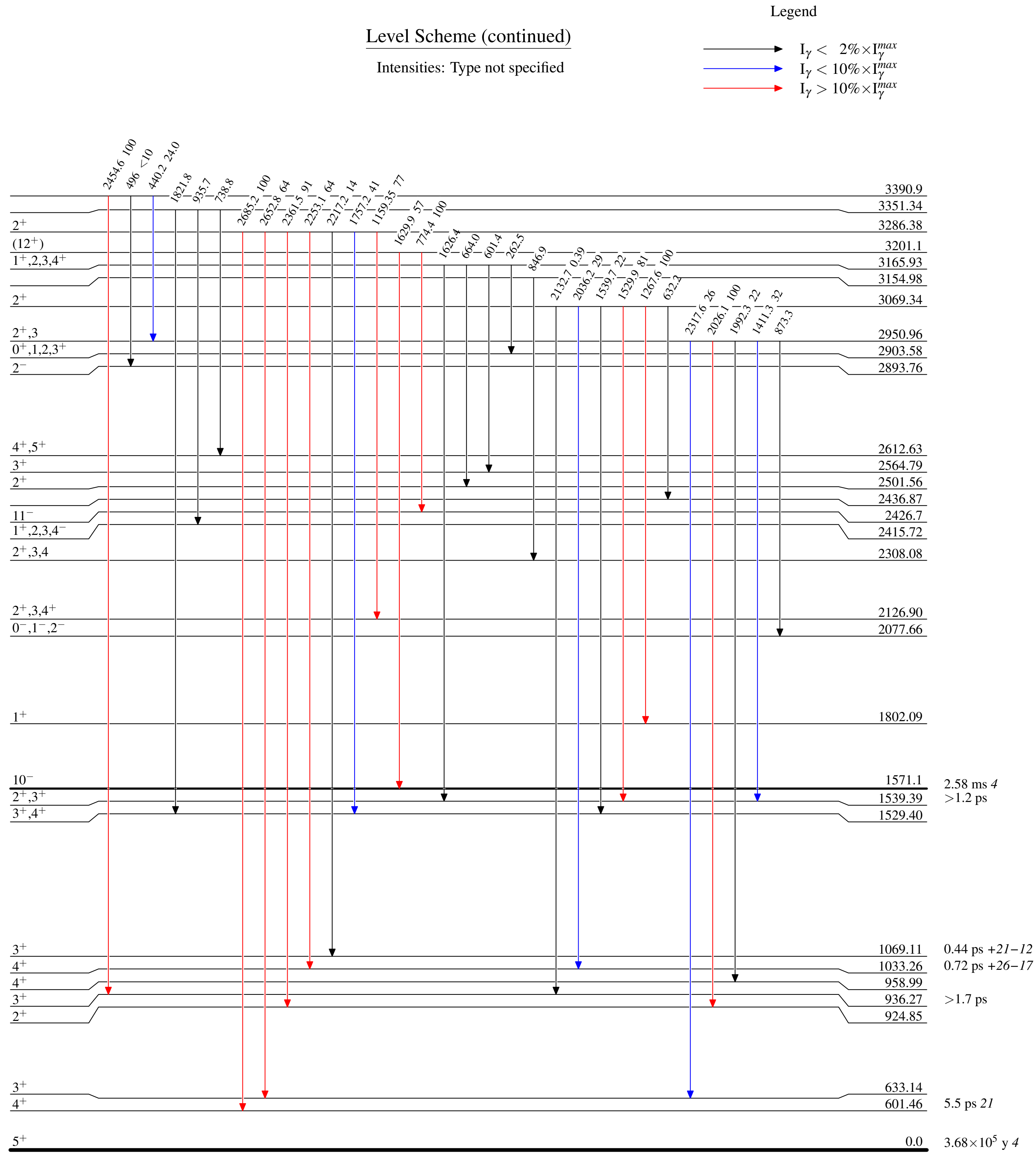
Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

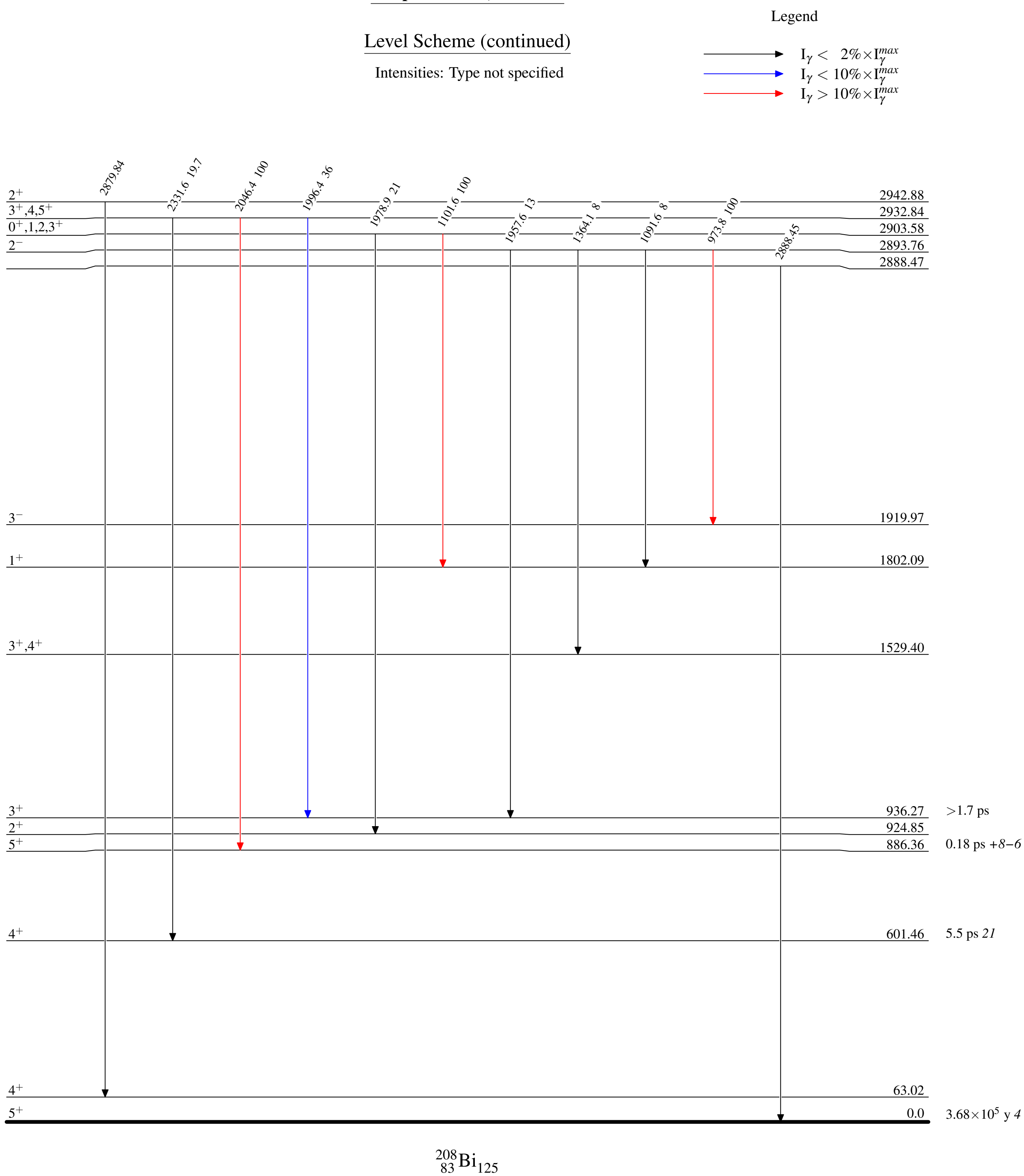


$^{208}_{83}Bi_{125}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



Adopted Levels, Gammas

Level Scheme (continued)

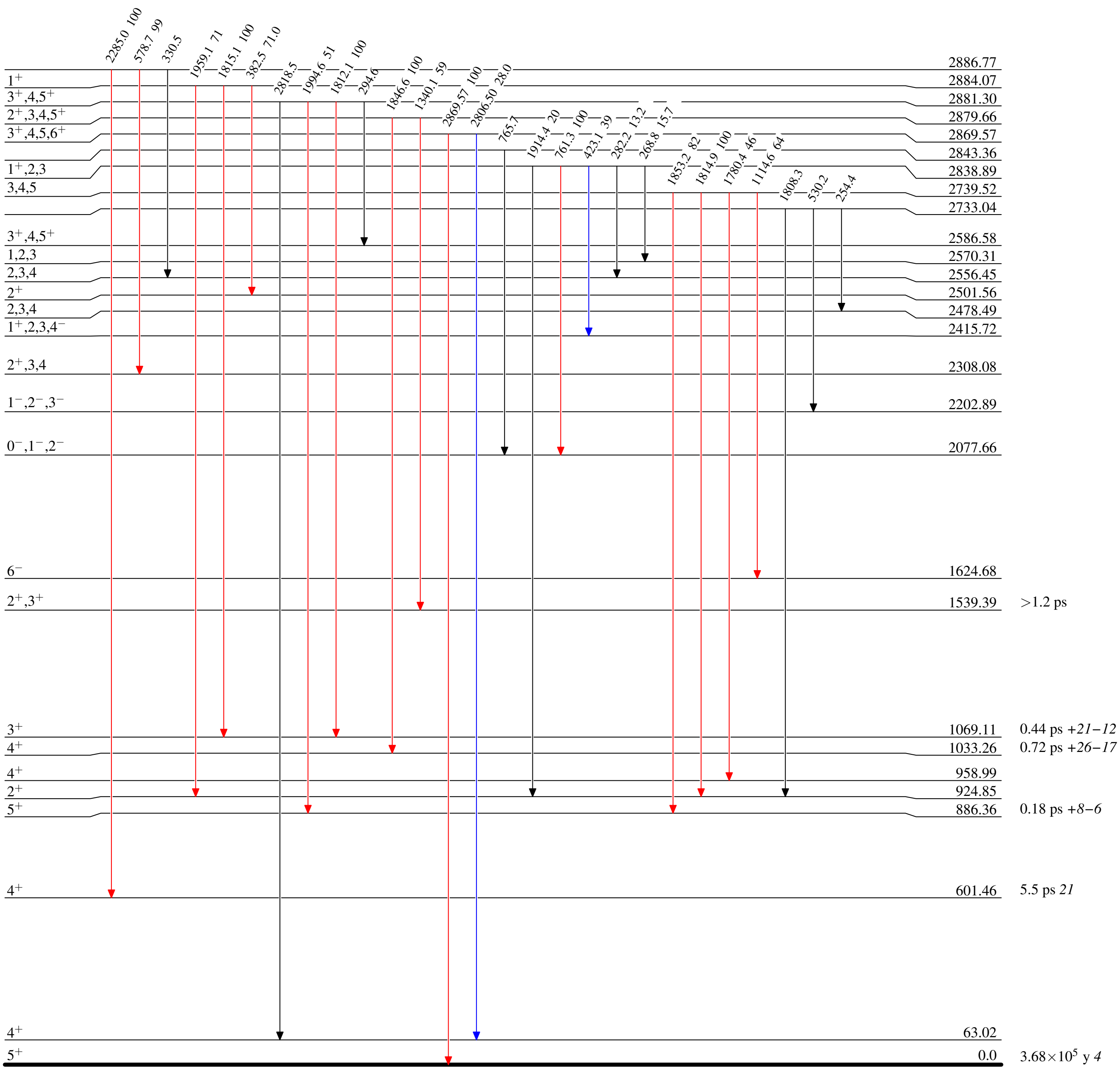
Intensities: Type not specified

Legend

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

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

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



$^{208}_{83}Bi_{125}$

Adopted Levels, Gammas

Legend

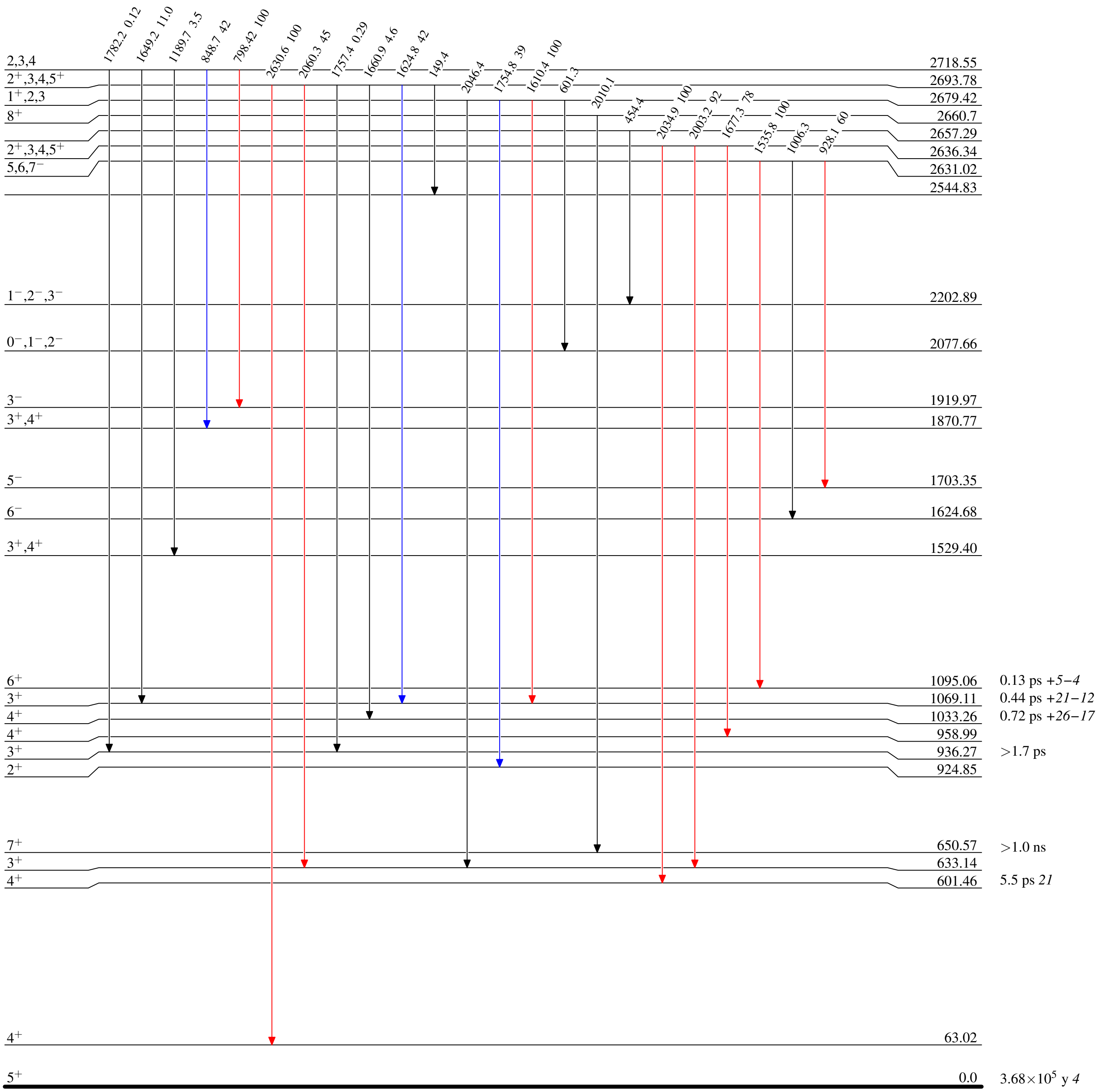
$I_\gamma < 2\% \times I_\gamma^{max}$

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

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

Level Scheme (continued)

Intensities: Type not specified

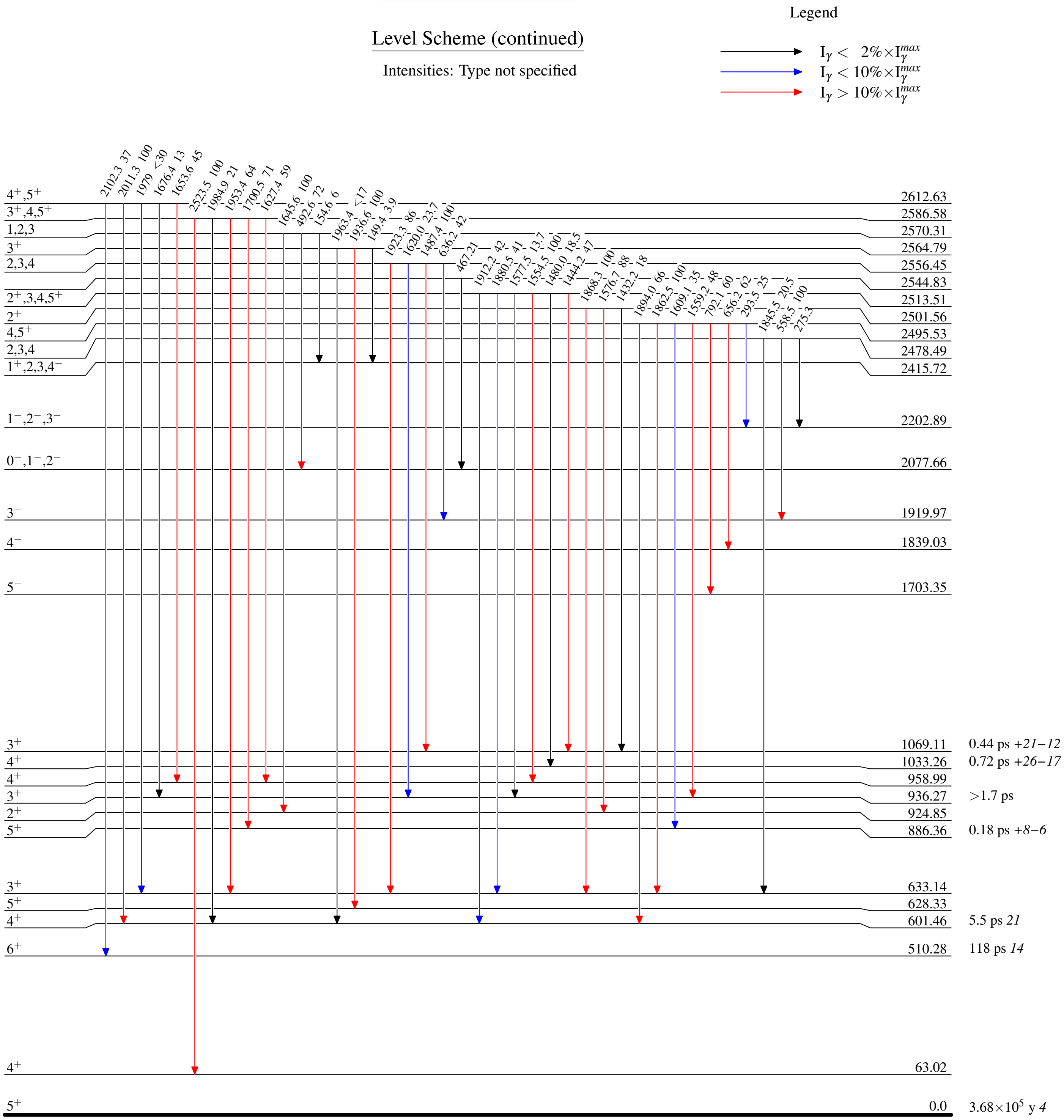


$^{208}_{83}Bi_{125}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



$^{208}_{83}Bi_{125}$

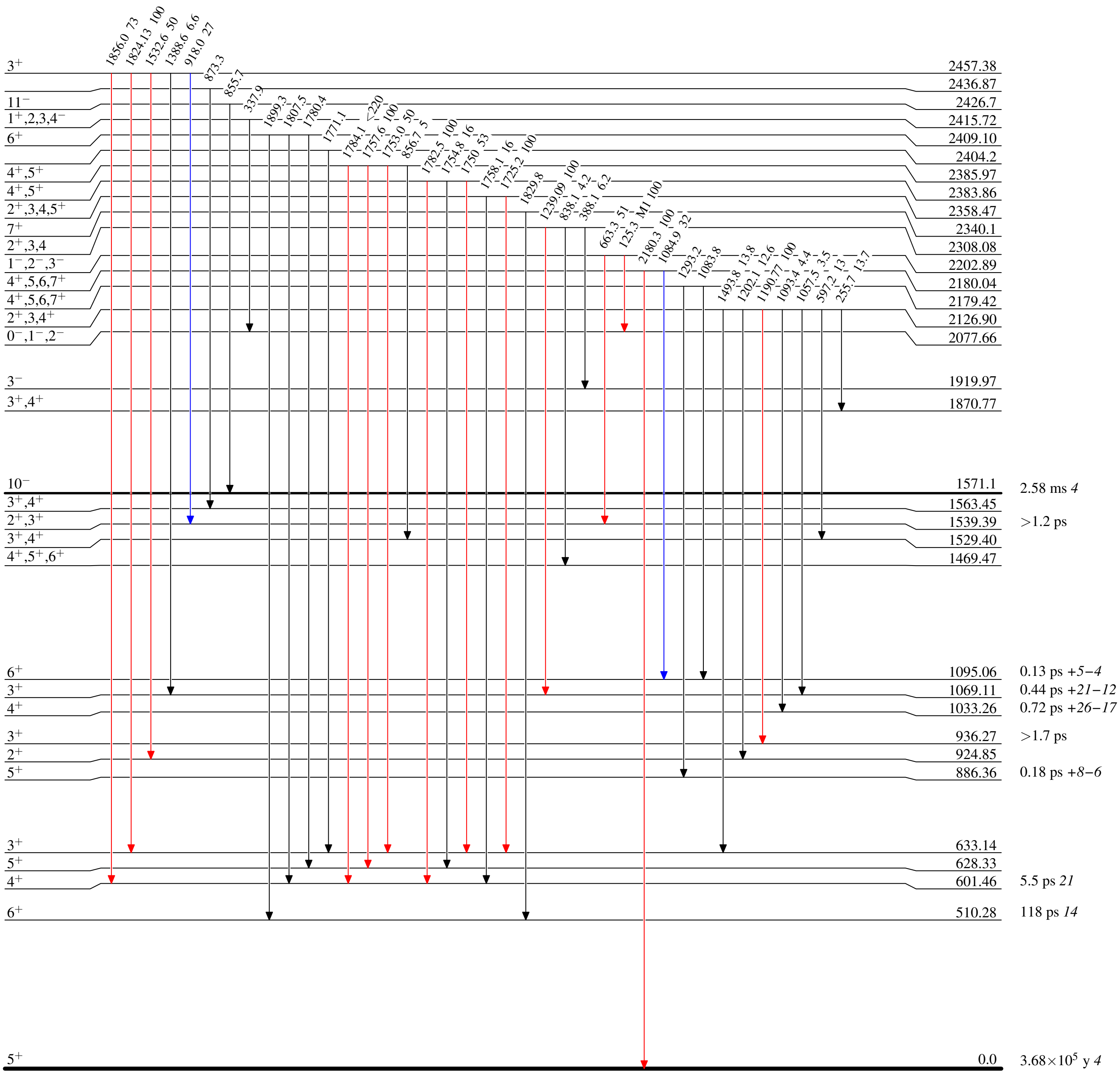
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

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

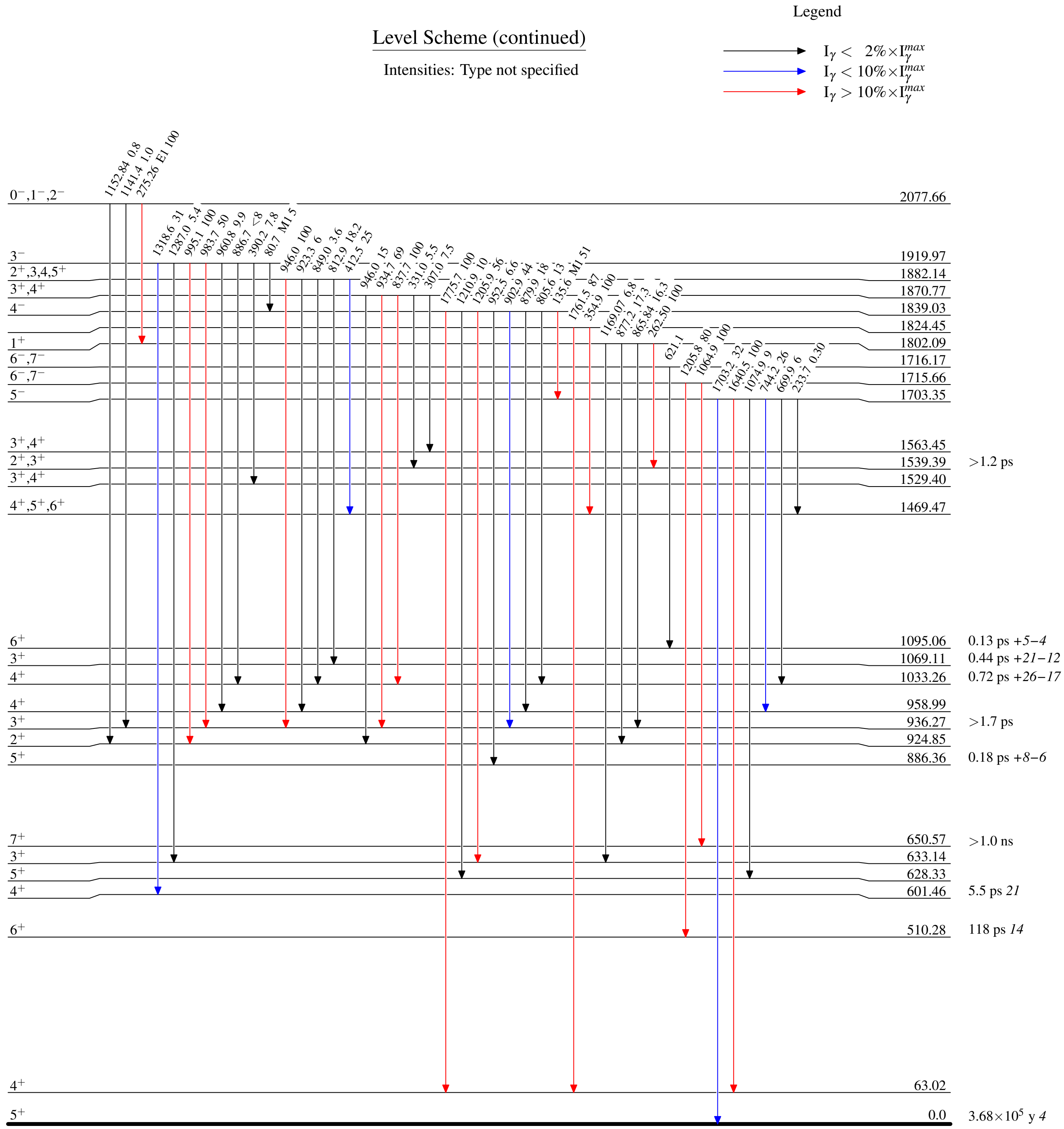


$^{208}_{83}Bi_{125}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



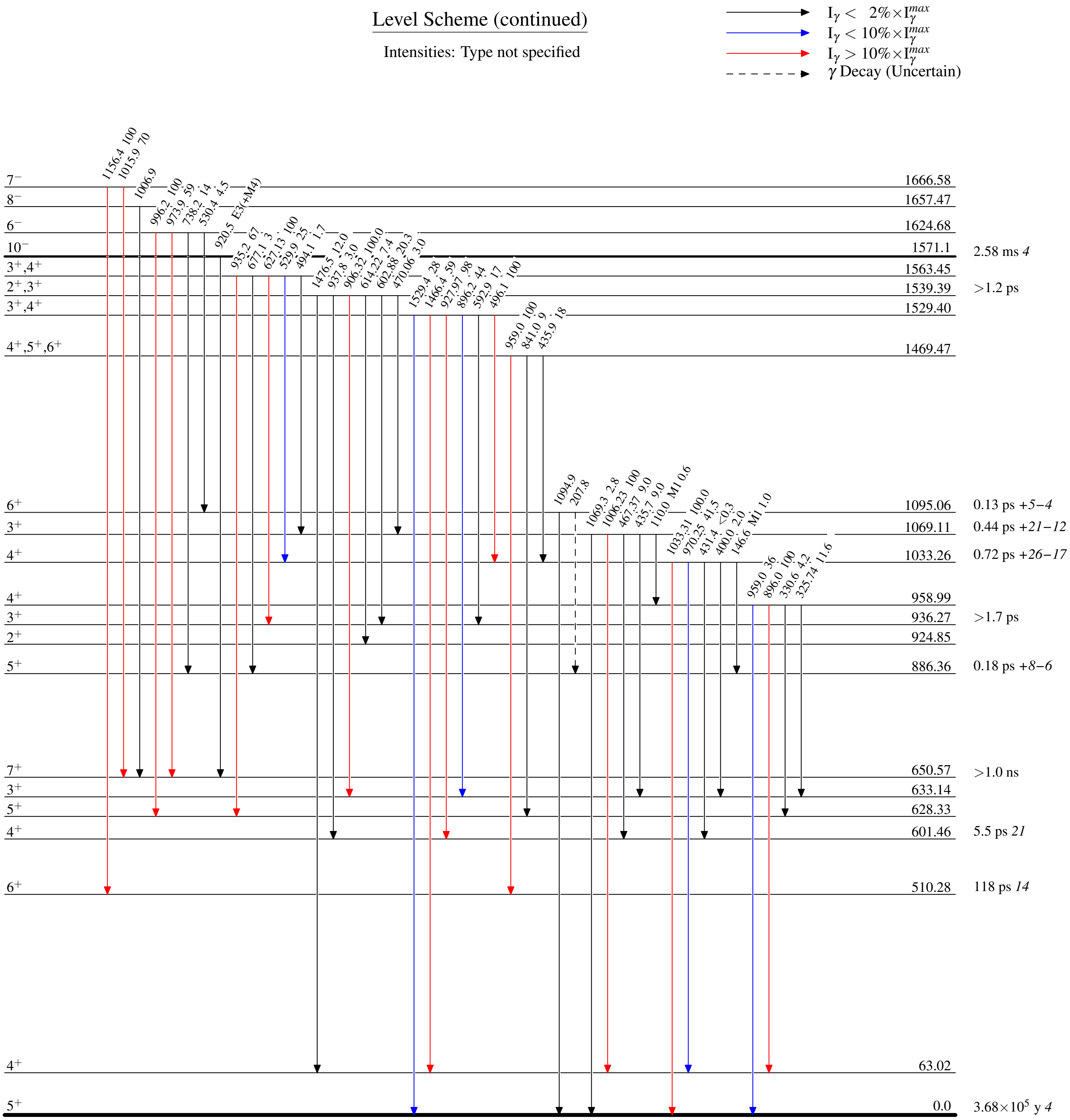
$^{208}_{83}Bi_{125}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend



$^{208}_{83}Bi_{125}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified