

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 187,355 (2023)	20-Sep-2022

Q(β⁻)=-4908 13; S(n)=9130 26; S(p)=2467 16; Q(α)=4500 6 [2021Wa16](#)

²⁰¹Bi Levels

Cross Reference (XREF) Flags

A	²⁰¹ Po ε decay (15.50 min)	D	²⁰³ Tl(α,6nγ)
B	²⁰¹ Po ε decay (8.96 min)	E	¹⁹⁶ Pt(¹⁰ B,5nγ)
C	²⁰⁵ At α decay		

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
0 [#]	9/2 ⁻	103 min 3	ABCDE	%ε+%β ⁺ =100 μ=4.8 3 (1988Wo12,2019StZV) J ^π : Atomic beam (1960Li03); favored α-decay from ²⁰⁵ At (J ^π =9/2 ⁻ , 2018Cu02); μ. T _{1/2} : Weighted average of 110 min 10 (1950Ne77), 111 min 4 (1956St05), 94 min 3 (1966KaZY), 96 min 12 (1970Jo26) and 106.2 min 24 (1970DaZM). μ: Using static nuclear orientation with γ-ray detection technique.
846.35 [@] 18	1/2 ⁺	58.5 min 11	A	%ε+%β ⁺ ≈88.7; %IT≈11.0; %α≈0.3 %IT from ²⁰¹ Po ε decay (15.50 min), %α from α HF syst. J ^π : 846.3γ M4 to 9/2 ⁻ . T _{1/2} : Weighted average of 62 min 8 (1950Ne77), 52 min 2 (1964Si11), 59.1 min 6 (1966Ma51) and 57 min 5 (1970DaZM). E _α =5240 keV 6 (1966Ma51).
890.24 ^{&} 13	5/2 ⁻		A	J ^π : 890.1γ E2 to 9/2 ⁻ ; direct ε feeding of this level in ²⁰¹ Po ε decay (15.50 min, J ^π =3/2 ⁻).
904.23 ^{&} 12	(7/2) ⁻		A	J ^π : 904.2γ M1+E2 to 9/2 ⁻ ; observation in ²⁰¹ Po ε decay (15.50 min, J ^π =3/2 ⁻).
964.40 ^{&} 15	11/2 ⁻		B E	J ^π : 964.3γ M1(+E2) to 9/2 ⁻ .
967.49 ^{&} 17	13/2 ⁻		B DE	J ^π : 967.4γ E2 to 9/2 ⁻ .
1086.21 ^a 18	3/2 ⁺	260 ps 30	A	J ^π : 195.9γ E1 to 5/2 ⁻ ; 240.1γ M1+E2 to 1/2 ⁺ . T _{1/2} : From 188.5ce(K)-239.8ce(K)(Δt) in 1986Be07 (²⁰¹ Po ε decay (15.50 min)).
1186.59 ^c 17	(7/2) ⁻		A	J ^π : 296.1γ to 5/2 ⁻ ; 1186.7γ M1(+E2) to 9/2 ⁻ ; observation in ²⁰¹ Po ε decay (15.50 min, J ^π =3/2 ⁻).
1274.45 19	(5/2) ⁺		A	J ^π : 188.6γ M1+E2 to 3/2 ⁺ ; 428.2γ E2 to 1/2 ⁺ .
1379.34 ^b 24	15/2 ⁻		B DE	J ^π : 411.86γ M1+E2 to 13/2 ⁻ ; 414.9γ to 11/2 ⁻ .
1441.71 18	7/2 ⁻		A	J ^π : 535.5γ M1 to 7/2 ⁻ ; 551.9γ M1(+E2) to 5/2 ⁻ ; 1442.2γ M1(+E2) to 9/2 ⁻ .
1470.87 22	(5/2,7/2) ⁻		A	J ^π : 566.6γ M1(+E2) to 7/2 ⁻ , 1470.9γ to 9/2 ⁻ . Direct ε feeding of this level in ²⁰¹ Po ε decay (15.50 min, J ^π =3/2 ⁻) excludes 9/2 ⁻ .
1474.6 ^b 3	17/2 ⁻		B DE	J ^π : 96.25γ M1(+E2) to 15/2 ⁻ .
1483.54 24	(3/2) ⁻		A	J ^π : 593.3γ M1(+E2) to 5/2 ⁻ , 636.5γ to 1/2 ⁺ .
1501.89 17	(13/2) ⁺		B	J ^π : 534.2γ to 13/2 ⁻ , 537.5γ to 11/2 ⁻ , 1502.4γ (E3) to 9/2 ⁻ . Strong population of this level in ²⁰¹ Po ε decay (8.96 min, J ^π =13/2 ⁺).
1504.40 23			B	
1616.3 4	1/2 ⁺ , 3/2 ⁺ , 5/2 ⁺		A	J ^π : 530.1γ M1+E2 to 3/2 ⁺ .
1665.1 3			B	
1719.15 22	(11/2,13/2) ⁺		B E	J ^π : 754.6γ E1 to 11/2 ⁻ , 217.6γ M1+E2 to (13/2 ⁺).

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Adopted Levels, Gammas (continued)

²⁰¹Bi Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
1746.5 ^d 4	17/2 ⁺	5.1 ns 13	B DE	J ^π : 271.91γ E1 to 17/2 ⁻ . γ(θ)'s are consistent with ΔJ=0, dipole transition. T _{1/2} : From γγ(t) in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)) using the centroid shift analysis. Other: 9.6 ns 6 from γγ(t) in 1982Br21 (²⁰³ Tl(α,6nγ)) using gates on 272γ, 412γ and 967γ below the isomer (stop) and 186γ above the isomer (start). The prompt response function is obtained using γγ(t) spectrum with gates on 412γ and 967γ (start) and 272γ (stop). One should note, however, that there is a difference between the time walk for the 186γ and 272γ, and hence, this value may be not so accurate.
1762.9 3			B	
1778.92 22	(3/2 ⁻ ,5/2)		A	J ^π : 874.6γ to 7/2 ⁻ , 889.2γ to 5/2 ⁻ ; direct feeding in ²⁰¹ Po ε decay (15.50 min, J ^π =3/2 ⁻).
1817.86 22	1/2 ⁺ ,3/2,5/2 ⁺		A	J ^π : 543.4γ to 5/2 ⁺ , 731.7γ to 3/2 ⁺ , 971.4γ to 1/2 ⁺ .
1848.16 25	(5/2 ⁻)		A	J ^π : 944.2γ to 7/2 ⁻ , 1848.0γ to 9/2 ⁻ ; direct feeding in ²⁰¹ Po ε decay (J ^π =3/2 ⁻).
1858.02 24	3/2 ⁺		A	J ^π : 771.8γ E0+M1 to 3/2 ⁺ , 583.6γ M1+E2 to 5/2 ⁺ .
1927.32 19	(5/2 ⁻)		A	J ^π : 1023.0γ to 7/2 ⁻ , 1927.5γ to 9/2 ⁻ ; direct feeding in ²⁰¹ Po ε decay (J ^π =3/2 ⁻).
1932.3 ^e 4	21/2 ⁺	<40 ns	DE	J ^π : 185.77γ E2 to 17/2 ⁺ . T _{1/2} : Estimated from the 185.8γ(t) data in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)). The absence of prompt component in the time spectrum produced by gating on the 185.8γ, shown in figure 4(c) in 1985Pi05, suggests that 185.8γ depopulates an isomeric state.
1932.3+x ^f 4	(25/2 ⁺)	118 ns 28	DE	Additional information 1. J ^π : From syst (analogy to ²⁰³ Bi and ²⁰⁵ Bi) and shell-model calculations in 1985Pi05. T _{1/2} : From γγ(t) in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)) using time-difference spectra between 617.3γ with 967.4γ, 411.9γ, 271.9γ and 185.8γ. Other: 210 ns 20 from γγ(t) in 1982Br21 (²⁰³ Tl(α,6nγ)) using gates on 617γ above the isomer (start) and 186γ, 272γ, 412γ and 967γ below the isomer (stop).
1944.24 17	(5/2 ⁻)		A	J ^π : 1054.7γ to 5/2 ⁻ and 1944.2γ to 9/2 ⁻ ; direct feeding in ²⁰¹ Po ε decay (J ^π =3/2 ⁻).
1971.3+x ^f 3	(27/2 ⁺)	105 ns 75	E	J ^π : From systematics and shell-model calculations in 1985Pi05. T _{1/2} : From γγ(t) in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)) using time-difference spectra between 679.8γ with 967.4γ, 411.9γ, 271.9γ and 185.8γ.
2034.3 7			B	
2053.59 21	(5/2 ⁺)		A	J ^π : 779.4γ (M1) to 5/2 ⁺ ; 1207.1γ E2 to 1/2 ⁺ .
2065.82 17	5/2 ⁺		A	J ^π : 624.7γ to 7/2 ⁻ , 1175.3γ (E1) to 5/2 ⁻ , 1219.3γ to 1/2 ⁺ .
2299.1+x 3	(27/2 ⁺)		DE	J ^π : 366.6γ (M1) to (25/2 ⁺).
2386.7 5			A	
2422.1 3	(3/2 ⁻ ,5/2)		A	J ^π : 1518.2γ to 7/2 ⁻ , 1531.7γ to 5/2 ⁻ ; direct feeding in ²⁰¹ Po ε decay (J ^π =3/2 ⁻).
2434.9 3	1/2 ⁺ ,3/2,5/2 ⁺		A	J ^π : 1160.6γ to 5/2 ⁺ , 1588.5γ to 1/2 ⁺ .
2455.5 3	1/2 ⁺ ,3/2,5/2 ⁺		A	J ^π : 1181.3γ to 5/2 ⁺ , 1609.0γ to 1/2 ⁺ .
2484.3 3	1/2,3/2,5/2 ⁺		A	J ^π : 1398.0γ to 3/2 ⁺ , 1638.1γ to 1/2 ⁺ .
2549.50+x 19	(27/2 ⁺)		DE	J ^π : 250.2γ M1+E2 to (27/2 ⁺), 617.27γ M1+E2 to (25/2 ⁺).
2589.7+x 3			E	
2592.88 20	(3/2 ⁻ ,5/2 ⁺)		A	J ^π : 1689.3γ to 7/2 ⁻ ; 1746.8γ to 1/2 ⁺ .
2612.00+x 10	(27/2)		D	J ^π : 679.7γ D to (25/2 ⁺).
2651.13+x 24	(29/2 ⁺)		DE	J ^π : 679.8γ M1+E2 to (27/2 ⁺).
2668.31+x 21	(29/2 ⁺)		E	J ^π : 118.81γ M1+E2 to (27/2 ⁺), 736.0γ E2 to (25/2 ⁺).
2740.01+x ^g 22	(29/2 ⁻)	124 ns 4	DE	J ^π : 88.88γ to (29/2 ⁺), 190.49γ (E1) to (27/2 ⁺); proposed

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Adopted Levels, Gammas (continued)

²⁰¹Bi Levels (continued)

E(level) [†]	J ^π [‡]	XREF	Comments
			configuration.
			T _{1/2} : From 617.3γ(t) in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)). Other: 160 ns 30 from γγ(t) in 1982Br21 (²⁰³ Tl(α,6nγ)) using gates on 617γ above the isomer and 186γ, 272γ, 412γ and 967γ below the isomer.
2902.09 25	1/2 ⁺ , 3/2, 5/2 ⁺	A	J ^π : 2055.7γ to 1/2 ⁺ , 1627.7γ to (5/2) ⁺ .
2905.9 3	1/2, 3/2, 5/2 ⁺	A	J ^π : 2059.4γ to 1/2 ⁺ , 1819.8γ to 3/2 ⁺ .
2994.7+x 8		E	
3011.5+x 5		E	
3238.9+x 3	(31/2 ⁻)	DE	J ^π : 498.95γ M1+E2 to (29/2 ⁻).
3422.9+x 9		E	
3526.5+x 4	(33/2 ⁻)	DE	J ^π : 287.3γ to (31/2 ⁻), 786.3γ (E2) to (29/2 ⁻).
3592.3+x? 10		E	
3638.4+x 5		DE	
3706.7+x 5		E	
3727.61+x 24	(33/2 ⁻)	D	J ^π : 987.6γ E2 to (29/2 ⁻).
3810.8+x 4	(33/2 ⁻)	DE	J ^π : 284.19γ M1(+E2) to (33/2 ⁻), 572.4γ M1+E2 to (31/2 ⁻).
3922.9+x 6	(35/2 ⁻)	E	J ^π : 396.4γ M1+E2 to (33/2 ⁻).
4075.3+x? 7		E	
4484.5+x 9		E	
5282.3+x 10		E	

[†] From a least squares fit to Eγ.

[‡] From deduced γ-ray transition multiplicities using γ(θ) and DCO in ¹⁹⁶Pt(¹⁰B,5nγ), γ(θ) in ²⁰³Tl(α,6nγ) and α(K)exp, α(L)exp in ²⁰¹Po ε decay (15.6 min) and ²⁰¹Po ε decay (8.96 min), unless otherwise stated.

Configuration=π h_{9/2}⁺¹.

@ Configuration=π s_{1/2}⁻¹.

& Configuration=π (h_{9/2}⁺¹)⊗2⁺.

^a Configuration=π d_{3/2}⁻¹.

^b Configuration=π (h_{9/2}⁺¹)⊗4⁺.

^c Configuration=π f_{7/2}⁺¹.

^d Admixture of configuration= π (h_{9/2}⁺¹) ∨ (f_{5/2}⁻¹, i_{13/2}⁻¹)₅₋ and configuration=π (h_{9/2}⁺¹) ∨ (p_{3/2}⁻¹, i_{13/2}⁻¹)₅₋.

^e Admixture of configuration= π (h_{9/2}⁺¹) ∨ (f_{5/2}⁻¹, i_{13/2}⁻¹)₇₋ and configuration=π (h_{9/2}⁺¹) ∨ (p_{3/2}⁻¹, i_{13/2}⁻¹)₇₋.

^f Configuration=π (h_{9/2}⁺¹) ∨ (f_{5/2}⁻¹, i_{13/2}⁻¹)₉₋.

^g Configuration=π (h_{9/2}⁺¹) ∨ (i_{13/2}⁻²)₁₂₊.

Adopted Levels, Gammas (continued)

$E_i(\text{level})$	J_i^π	$\gamma(^{201}\text{Bi})$		$\gamma(^{201}\text{Bi})$		Mult.	δ	$\alpha^{\&}$	Comments
		E_γ	I_γ	E_f	J_f^π				
846.35	1/2 ⁺	846.3 [‡] 3	100 [‡]	0	9/2 ⁻	M4		0.292 4	B(M4)(W.u.)=5.7×10 ⁻⁴ 7 α(K)=0.2100 30; α(L)=0.0617 9; α(M)=0.01563 22 α(N)=0.00404 6; α(O)=0.000810 11; α(P)=8.96×10 ⁻⁵ 13 Mult.: From α(K)exp and K/Lexp in 1986Br28 (²⁰¹ Po ε decay (15.50 min)).
890.24	5/2 ⁻	890.1 [‡] 2	100 [‡]	0	9/2 ⁻	E2		0.00880 12	α(K)=0.00689 10; α(L)=0.001448 20; α(M)=0.000348 5 α(N)=8.89×10 ⁻⁵ 12; α(O)=1.774×10 ⁻⁵ 25; α(P)=1.947×10 ⁻⁶ 27 Mult.: From α(K)exp in 1986Br28 (²⁰¹ Po ε decay (15.50 min)).
904.23	(7/2) ⁻	904.2 [‡] 2	100 [‡]	0	9/2 ⁻	M1+E2	0.5 4	0.0216 31	α(K)=0.0177 26; α(L)=0.0030 4; α(M)=0.00071 9 α(N)=0.000181 23; α(O)=3.7×10 ⁻⁵ 5; α(P)=4.4×10 ⁻⁶ 6 Mult.,δ: From α(K)exp in 1986Br28 (²⁰¹ Po ε decay (15.50 min)).
964.40	11/2 ⁻	964.3 [#] 2	100 [#]	0	9/2 ⁻	M1(+E2)	-0.04 7	0.02109 33	α(K)=0.01730 27; α(L)=0.00289 4; α(M)=0.000677 10 α(N)=0.0001730 26; α(O)=3.54×10 ⁻⁵ 5; α(P)=4.23×10 ⁻⁶ 7 Mult.: From α(K)exp in 1986Br28 (²⁰¹ Po ε decay (15.50 min)); γ(θ) in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)). δ: From γ(θ) in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)).
967.49	13/2 ⁻	967.4 [#] 2	100 [#]	0	9/2 ⁻	E2		0.00746 10	α(K)=0.00590 8; α(L)=0.001190 17; α(M)=0.000285 4 α(N)=7.27×10 ⁻⁵ 10; α(O)=1.456×10 ⁻⁵ 20; α(P)=1.616×10 ⁻⁶ 23 Mult.: From α(K)exp in 1986Br28 (²⁰¹ Po ε decay (8.96 min)); γ(θ) in 1982Br21 (²⁰³ Tl(α,6nγ)) and 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)).
1086.21	3/2 ⁺	195.9 [‡] 3	0.60 [‡] 9	890.24	5/2 ⁻	E1		0.0841 12	B(E1)(W.u.)=4.6×10 ⁻⁷ +10-8 α(K)=0.0681 10; α(L)=0.01227 18; α(M)=0.00289 4 α(N)=0.000730 11; α(O)=0.0001440 21; α(P)=1.541×10 ⁻⁵ 22 Mult.: From α(K)exp in 1986Br28 (²⁰¹ Po ε decay (15.50 min)).
		240.1 [‡] 2	100 [‡] 4	846.35	1/2 ⁺	E2+M1	3.0 +4-3	0.303 13	B(M1)(W.u.)=0.00047 +12-10; B(E2)(W.u.)=26.8 +36-29 α(K)=0.169 12; α(L)=0.1004 15; α(M)=0.0259 4 α(N)=0.00659 10; α(O)=0.001250 19; α(P)=0.0001106 22 Mult.,δ: From K/L in 1986Br28 (²⁰¹ Po ε decay (15.50 min)).
1186.59	(7/2) ⁻	296.1 [‡] 3	9.3 [‡] 8	890.24	5/2 ⁻	[M1]		0.481 7	α(K)=0.392 6; α(L)=0.0678 10; α(M)=0.01592 23 α(N)=0.00407 6; α(O)=0.000832 12; α(P)=9.91×10 ⁻⁵ 14
		1186.7 [‡] 2	100 [‡] 4	0	9/2 ⁻	M1(+E2)	<0.9	0.0107 17	α(K)=0.0088 14; α(L)=0.00148 21; α(M)=0.00035 5 α(N)=8.9×10 ⁻⁵ 12; α(O)=1.81×10 ⁻⁵ 26; α(P)=2.15×10 ⁻⁶ 32;

Adopted Levels, Gammas (continued)

$\gamma(^{201}\text{Bi})$ (continued)

<u>E_i(level)</u>	<u>J_i^{π}</u>	<u>E_{γ}</u>	<u>I_{γ}</u>	<u>E_f</u>	<u>J_f^{π}</u>	<u>Mult.</u>	<u>δ</u>	<u>α&</u>	<u>Comments</u>
									$\alpha(\text{IPF})=4.7\times 10^{-6}$ 5 Mult., δ : From $\alpha(\text{K})\text{exp}$ in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)).
1274.45	(5/2) ⁺	188.6 [‡] 3	55.9 [‡] 24	1086.21	3/2 ⁺	M1+E2	0.53 8	1.43 7	$\alpha(\text{K})=1.11$ 7; $\alpha(\text{L})=0.245$ 4; $\alpha(\text{M})=0.0593$ 12 $\alpha(\text{N})=0.01514$ 31; $\alpha(\text{O})=0.00302$ 5; $\alpha(\text{P})=0.000332$ 7 Mult., δ : From $\alpha(\text{K})\text{exp}$ and K/L in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)).
		428.2 [‡] 3	100 [‡] 4	846.35	1/2 ⁺	(E2)		0.0451 6	$\alpha(\text{K})=0.0298$ 4; $\alpha(\text{L})=0.01146$ 16; $\alpha(\text{M})=0.00290$ 4 $\alpha(\text{N})=0.000738$ 10; $\alpha(\text{O})=0.0001423$ 20; $\alpha(\text{P})=1.355\times 10^{-5}$ 19 Mult.: From $\alpha(\text{K})\text{exp}$ in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)).
1379.34	15/2 ⁻	411.86 [†] 20	100 [†] 3	967.49	13/2 ⁻	M1+E2	-0.023 17	0.1966 28	$\alpha(\text{K})=0.1606$ 23; $\alpha(\text{L})=0.0275$ 4; $\alpha(\text{M})=0.00646$ 9 $\alpha(\text{N})=0.001652$ 23; $\alpha(\text{O})=0.000338$ 5; $\alpha(\text{P})=4.02\times 10^{-5}$ 6 Mult.: From $\gamma(\theta)$ and $\alpha(\text{exp})$ in 1982Br21 (²⁰³ Tl($\alpha,6n\gamma$)), $\gamma(\theta)$ and DCO in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)). δ : From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)). Other: ≈ 0.1 from $\gamma(\theta)$ in 1982Br21 (²⁰³ Tl($\alpha,6n\gamma$)).
		414.9 [†] 5	3.57 [†] 17	964.40	11/2 ⁻	[E2]		0.0489 7	$\alpha(\text{K})=0.0319$ 5; $\alpha(\text{L})=0.01274$ 19; $\alpha(\text{M})=0.00323$ 5 $\alpha(\text{N})=0.000822$ 12; $\alpha(\text{O})=0.0001582$ 23; $\alpha(\text{P})=1.496\times 10^{-5}$ 22
1441.71	7/2 ⁻	537.5 [‡] 2	58 [‡] 7	904.23	(7/2) ⁻	M1		0.0968 14	$\alpha(\text{K})=0.0792$ 11; $\alpha(\text{L})=0.01347$ 19; $\alpha(\text{M})=0.00316$ 4 $\alpha(\text{N})=0.000808$ 11; $\alpha(\text{O})=0.0001651$ 23; $\alpha(\text{P})=1.969\times 10^{-5}$ 28 Mult.: From $\alpha(\text{K})\text{exp}$ in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)).
		551.9 [‡] 3	100 [‡] 4	890.24	5/2 ⁻	M1(+E2)	<0.7	0.079 11	$\alpha(\text{K})=0.065$ 9; $\alpha(\text{L})=0.0113$ 12; $\alpha(\text{M})=0.00267$ 28 $\alpha(\text{N})=0.00068$ 7; $\alpha(\text{O})=0.000139$ 15; $\alpha(\text{P})=1.64\times 10^{-5}$ 20 Mult., δ : From $\alpha(\text{K})\text{exp}$ in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)).
		1442.2 [‡] 6	42 [‡] 4	0	9/2 ⁻	M1(+E2)	<1.4	0.0063 13	$\alpha(\text{K})=0.0051$ 11; $\alpha(\text{L})=0.00085$ 17; $\alpha(\text{M})=0.00020$ 4 $\alpha(\text{N})=5.1\times 10^{-5}$ 10; $\alpha(\text{O})=1.04\times 10^{-5}$ 21; $\alpha(\text{P})=1.23\times 10^{-6}$ 26; $\alpha(\text{IPF})=7.1\times 10^{-5}$ 12 Mult., δ : From $\alpha(\text{K})\text{exp}$ in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)).

Adopted Levels, Gammas (continued)

γ(²⁰¹Bi) (continued)

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>I_γ</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.</u>	<u>δ</u>	<u>α&</u>	<u>Comments</u>
1470.87	(5/2,7/2) ⁻	566.6 [‡] 3	32 [‡] 4	904.23	(7/2) ⁻	M1(+E2)	<0.9	0.071 14	α(K)=0.057 12; α(L)=0.0102 16; α(M)=0.00239 35 α(N)=0.00061 9; α(O)=0.000125 19; α(P)=1.46×10 ⁻⁵ 25 Mult.,δ: From α(K)exp in 1986Br28 (²⁰¹ Po ε decay (15.50 min)).
1474.6	17/2 ⁻	1470.9 [‡] 3 95.26 [†] 15	100 [‡] 7 100 [†]	0 1379.34	9/2 ⁻ 15/2 ⁻	M1(+E2)		10.0 17	α(K)=5 5; α(L)=3.8 21; α(M)=1.0 6 α(N)=0.25 15; α(O)=0.047 26; α(P)=0.0040 16 Mult.: From γ(θ) and α(exp) in 1982Br21 (²⁰³ Tl(α,6nγ)), γ(θ) in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5nγ)).
1483.54	(3/2 ⁻)	593.3 [‡] 2	100 [‡] 4	890.24	5/2 ⁻	M1(+E2)	<0.33	0.0720 28	α(K)=0.0588 24; α(L)=0.01006 33; α(M)=0.00236 8 α(N)=0.000603 19; α(O)=0.000123 4; α(P)=1.47×10 ⁻⁵ 5 Mult.,δ: From α(K)exp in 1986Br28 (²⁰¹ Po ε decay (15.50 min)).
		636.5 ^{‡a} 2	12.1 [‡] 15	846.35	1/2 ⁺	[E1]		0.00609 9	α(K)=0.00504 7; α(L)=0.000802 11; α(M)=0.0001863 26 α(N)=4.74×10 ⁻⁵ 7; α(O)=9.58×10 ⁻⁶ 13; α(P)=1.106×10 ⁻⁶ 15
1501.89	(13/2 ⁺)	534.2 [#] 3	42.5 [#] 17	967.49	13/2 ⁻	[E1]		0.00865 12	α(K)=0.00714 10; α(L)=0.001153 16; α(M)=0.000269 4 α(N)=6.83×10 ⁻⁵ 10; α(O)=1.376×10 ⁻⁵ 19; α(P)=1.576×10 ⁻⁶ 22
		537.5 [#] 2	100 [#] 6	964.40	11/2 ⁻	[E1]		0.00854 12	α(K)=0.00705 10; α(L)=0.001138 16; α(M)=0.000265 4 α(N)=6.74×10 ⁻⁵ 9; α(O)=1.359×10 ⁻⁵ 19; α(P)=1.556×10 ⁻⁶ 22
		1502.4 [#] 3	3.1 [#] 5	0	9/2 ⁻	(E3)		0.00677 9	α(K)=0.00528 7; α(L)=0.001108 16; α(M)=0.000267 4 α(N)=6.82×10 ⁻⁵ 10; α(O)=1.371×10 ⁻⁵ 19; α(P)=1.539×10 ⁻⁶ 22; α(IPF)=2.92×10 ⁻⁵ 4 Mult.: From α(K)exp in 1986Br28 (²⁰¹ Po ε decay (8.96 min)).
1504.40		540.1 [#] 3 1504.3 [#] 3	100 [#] 5 9.3 [#] 21	964.40 0	11/2 ⁻ 9/2 ⁻				

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Adopted Levels, Gammas (continued)

$\gamma(^{201}\text{Bi})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	$\alpha\&$	Comments
1616.3	$1/2^+, 3/2^+, 5/2^+$	530.1 [‡] 3	100 [‡]	1086.21	$3/2^+$	M1+E2	1.4 +5-3	0.052 9	$\alpha(\text{K})=0.040$ 8; $\alpha(\text{L})=0.0086$ 10; $\alpha(\text{M})=0.00207$ 22 $\alpha(\text{N})=0.00053$ 6; $\alpha(\text{O})=0.000106$ 12; $\alpha(\text{P})=1.17\times 10^{-5}$ 16 Mult., δ : From $\alpha(\text{K})$ exp in 1986Br28 (^{201}Po ϵ decay (15.50 min)).
1665.1		697.6 [#] 2	100 [#]	967.49	$13/2^-$				
1719.15	$(11/2, 13/2)^+$	217.6 [#] 3	8.7 [#] 14	1501.89	$(13/2^+)$	M1(+E2)	<1.7	0.83 29	$\alpha(\text{K})=0.63$ 29; $\alpha(\text{L})=0.155$ 5; $\alpha(\text{M})=0.0379$ 7 $\alpha(\text{N})=0.00967$ 16; $\alpha(\text{O})=0.00191$ 5; $\alpha(\text{P})=0.000203$ 30 Mult., δ : From $\alpha(\text{K})$ exp in 1986Br28 (^{201}Po ϵ decay (8.96 min)).
		754.6 [#] 2	100 [#] 6	964.40	$11/2^-$	E1		0.00438 6	$\alpha(\text{K})=0.00364$ 5; $\alpha(\text{L})=0.000571$ 8; $\alpha(\text{M})=0.0001324$ 19 $\alpha(\text{N})=3.37\times 10^{-5}$ 5; $\alpha(\text{O})=6.82\times 10^{-6}$ 10; $\alpha(\text{P})=7.94\times 10^{-7}$ 11 Mult.: From $\alpha(\text{K})$ exp in 1986Br28 (^{201}Po ϵ decay (8.96 min)). Note, that $\gamma(\theta)$ in 1985Pi05 ($^{196}\text{Pt}(^{10}\text{B}, 5n\gamma)$) implies M1+E2 multipolarity.
1746.5	$17/2^+$	271.91 [†] 20	100 [†]	1474.6	$17/2^-$	E1		0.0383 5	$\text{B}(\text{E}1)(\text{W.u.})=1.9\times 10^{-6}$ +6-4 $\alpha(\text{K})=0.0312$ 4; $\alpha(\text{L})=0.00540$ 8; $\alpha(\text{M})=0.001267$ 18 $\alpha(\text{N})=0.000321$ 5; $\alpha(\text{O})=6.39\times 10^{-5}$ 9; $\alpha(\text{P})=7.01\times 10^{-6}$ 10 Mult.: From $\alpha(\text{K})$ exp in 1986Br28 (^{201}Po ϵ decay (8.96 min)), $\gamma(\theta)$ and $\alpha(\text{exp})$ in 1982Br21 ($^{203}\text{Tl}(\alpha, 6n\gamma)$), $\gamma(\theta)$ and DCO in 1985Pi05 ($^{196}\text{Pt}(^{10}\text{B}, 5n\gamma)$).
1762.9		798.5 [#] 3	55 [#] 5	964.40	$11/2^-$				
		1762.9 [#] 6	100 [#] 8	0	$9/2^-$				
1778.92	$(3/2^-, 5/2)$	874.6 [‡] 2	87 [‡] 6	904.23	$(7/2^-)$				
		889.2 [‡] 5	100 [‡] 11	890.24	$5/2^-$				
1817.86	$1/2^+, 3/2, 5/2^+$	543.4 [‡] 3	63 [‡] 4	1274.45	$(5/2)^+$				
		731.7 [‡] 2	65 [‡] 6	1086.21	$3/2^+$				
		971.4 [‡] 3	100 [‡] 6	846.35	$1/2^+$				
1848.16	$(5/2^-)$	944.2 [‡] 4	54 [‡] 8	904.23	$(7/2^-)$				
		1848.0 [‡] 3	100 [‡] 10	0	$9/2^-$				

Adopted Levels, Gammas (continued)

$\gamma(^{201}\text{Bi})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	$\alpha^\&$	Comments
1858.02	3/2 ⁺	583.6 [‡] 3	100 [‡] 6	1274.45	(5/2) ⁺	M1+E2	1.0 +10-5	0.050 17	$\alpha(\text{K})=0.040$ 14; $\alpha(\text{L})=0.0076$ 19; $\alpha(\text{M})=0.0018$ 4 $\alpha(\text{N})=0.00046$ 11; $\alpha(\text{O})=9.3\times 10^{-5}$ 24; $\alpha(\text{P})=1.07\times 10^{-5}$ 31 Mult., δ : From $\alpha(\text{K})$ exp in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)). Mult., α : From ²⁰¹ Po ϵ decay (15.50 min).
1927.32	(5/2) ⁻	771.8 [‡] 2 1023.0 [‡] 2 1927.5 [‡] 3	85 [‡] 6 100 [‡] 9 97 [‡] 11	1086.21 904.23 0	3/2 ⁺ (7/2) ⁻ 9/2 ⁻	E0+M1		0.10 3	
1932.3	21/2 ⁺	185.77 [†] 20	100 [†]	1746.5	17/2 ⁺	E2		0.583 8	B(E2)(W.u.)>0.57 $\alpha(\text{K})=0.1975$ 28; $\alpha(\text{L})=0.287$ 4; $\alpha(\text{M})=0.0755$ 11 $\alpha(\text{N})=0.01922$ 28; $\alpha(\text{O})=0.00358$ 5; $\alpha(\text{P})=0.000290$ 4 Mult.: From $\gamma(\theta)$ and $\alpha(\text{exp})$ in 1982Br21 (²⁰³ Tl($\alpha,6n\gamma$)), $\gamma(\theta)$ and DCO in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
1932.3+x	(25/2 ⁺)	(<80)		1932.3	21/2 ⁺				E_γ : Anticipated in the decay of this level by analogy to ²⁰¹ Bi and ²⁰⁵ Bi, and the non-observation of low-energy E_γ in the corresponding γ -ray spectra.
1944.24	(5/2) ⁻	1039.7 [‡] 2 1054.7 [‡] 3 1944.2 [‡] 3	75 [‡] 9 100 [‡] 9 100 [‡] 10	904.23 890.24 0	(7/2) ⁻ 5/2 ⁻ 9/2 ⁻				
1971.3+x	(27/2 ⁺)	(39.0 5)	100	1932.3+x	(25/2 ⁺)	[M1]		30.1 12	$\alpha(\text{L})=22.9$ 9; $\alpha(\text{M})=5.41$ 22 $\alpha(\text{N})=1.38$ 6; $\alpha(\text{O})=0.282$ 12; $\alpha(\text{P})=0.0336$ 14 B(M1)(W.u.)=0.00011 +14-5 E_γ : From level energy difference. The transition was not observed directly and the existence is based on the $\gamma\gamma$ -coincidence relationships in ¹⁹⁶ Pt(¹⁰ B,5n γ).
2034.3		532.4 [#] 6	100 [#]	1501.89	(13/2 ⁺)				
2053.59	(5/2) ⁺	779.4 [‡] 3	35 [‡] 3	1274.45	(5/2) ⁺	(M1)		0.0366 5	$\alpha(\text{K})=0.0300$ 4; $\alpha(\text{L})=0.00505$ 7; $\alpha(\text{M})=0.001181$ 17 $\alpha(\text{N})=0.000302$ 4; $\alpha(\text{O})=6.18\times 10^{-5}$ 9; $\alpha(\text{P})=7.38\times 10^{-6}$ 10 Mult.: From ²⁰¹ Po ϵ decay (15.50 min).
		967.4 [‡] 2	28 [‡] 4	1086.21	3/2 ⁺	(E2)		0.00746 10	$\alpha(\text{K})=0.00590$ 8; $\alpha(\text{L})=0.001190$ 17; $\alpha(\text{M})=0.000285$ 4 $\alpha(\text{N})=7.27\times 10^{-5}$ 10; $\alpha(\text{O})=1.456\times 10^{-5}$ 20; $\alpha(\text{P})=1.616\times 10^{-6}$ 23 Mult.: From $\alpha(\text{K})$ exp in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)).
		1207.1 [‡] 2	100 [‡] 5	846.35	1/2 ⁺	E2		0.00488 7	$\alpha(\text{K})=0.00393$ 6; $\alpha(\text{L})=0.000726$ 10; $\alpha(\text{M})=0.0001720$ 24

Adopted Levels, Gammas (continued)

$\gamma(^{201}\text{Bi})$ (continued)									
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	$\alpha\&$	Comments
2065.82	5/2 ⁺	624.7 \ddagger 3	17.3 \ddagger 12	1441.71	7/2 ⁻	[E1]		0.00631 9	$\alpha(\text{N})=4.39\times 10^{-5}$ 6; $\alpha(\text{O})=8.85\times 10^{-6}$ 12; $\alpha(\text{P})=1.007\times 10^{-6}$ 14; $\alpha(\text{IPF})=4.36\times 10^{-6}$ 6 Mult.: From $\alpha(\text{K})$ exp in 1986Br28 (^{201}Po ε decay (15.50 min)).
		791.4 \ddagger 2	100 \ddagger 4	1274.45	(5/2) ⁺	M1(+E2)	≤ 0.4	0.0335 17	$\alpha(\text{K})=0.00523$ 7; $\alpha(\text{L})=0.000833$ 12; $\alpha(\text{M})=0.0001936$ 27 $\alpha(\text{N})=4.92\times 10^{-5}$ 7; $\alpha(\text{O})=9.95\times 10^{-6}$ 14; $\alpha(\text{P})=1.148\times 10^{-6}$ 16
		979.7 \ddagger 3	31.9 \ddagger 21	1086.21	3/2 ⁺	[M1]		0.02026 28	$\alpha(\text{K})=0.0274$ 14; $\alpha(\text{L})=0.00465$ 21; $\alpha(\text{M})=0.00109$ 5 $\alpha(\text{N})=0.000278$ 12; $\alpha(\text{O})=5.69\times 10^{-5}$ 26; $\alpha(\text{P})=6.78\times 10^{-6}$ 33 Mult., δ : From $\alpha(\text{K})$ exp in 1986Br28 (^{201}Po ε decay (15.50 min)).
		1175.3 \ddagger 2	76 \ddagger 4	890.24	5/2 ⁻	(E1)		1.97 $\times 10^{-3}$ 3	$\alpha(\text{K})=0.01663$ 23; $\alpha(\text{L})=0.00278$ 4; $\alpha(\text{M})=0.000650$ 9 $\alpha(\text{N})=0.0001662$ 23; $\alpha(\text{O})=3.40\times 10^{-5}$ 5; $\alpha(\text{P})=4.07\times 10^{-6}$ 6
		1219.3 \ddagger 3	22.7 \ddagger 21	846.35	1/2 ⁺	[E2]		0.00479 7	$\alpha(\text{K})=0.001634$ 23; $\alpha(\text{L})=0.0002490$ 35; $\alpha(\text{M})=5.75\times 10^{-5}$ 8 $\alpha(\text{N})=1.465\times 10^{-5}$ 21; $\alpha(\text{O})=2.98\times 10^{-6}$ 4; $\alpha(\text{P})=3.52\times 10^{-7}$ 5; $\alpha(\text{IPF})=8.73\times 10^{-6}$ 13 Mult.: From $\alpha(\text{K})$ exp in 1986Br28 (^{201}Po ε decay (15.50 min)).
2299.1+x	(27/2 ⁺)	366.6 \dagger 4	100 \dagger	1932.3+x	(25/2 ⁺)	(M1)		0.269 4	$\alpha(\text{K})=0.00386$ 5; $\alpha(\text{L})=0.000710$ 10; $\alpha(\text{M})=0.0001683$ 24 $\alpha(\text{N})=4.29\times 10^{-5}$ 6; $\alpha(\text{O})=8.66\times 10^{-6}$ 12; $\alpha(\text{P})=9.86\times 10^{-7}$ 14; $\alpha(\text{IPF})=5.48\times 10^{-6}$ 8 $\alpha(\text{K})=0.2196$ 31; $\alpha(\text{L})=0.0378$ 5; $\alpha(\text{M})=0.00887$ 13 $\alpha(\text{N})=0.002267$ 32; $\alpha(\text{O})=0.000463$ 7; $\alpha(\text{P})=5.52\times 10^{-5}$ 8 Mult.: From DCO in 1985Pi05 ($^{196}\text{Pt}(^{10}\text{B},5n\gamma)$) and $\gamma(\theta)$ in 1982Br21 ($^{203}\text{Tl}(\alpha,6n\gamma)$).
2386.7		1300.5 \ddagger 4	100 \ddagger	1086.21	3/2 ⁺				
2422.1	(3/2 ⁻ ,5/2)	1518.2 \ddagger 4	100 \ddagger 6	904.23	(7/2) ⁻				
		1531.7 \ddagger 3	26 \ddagger 5	890.24	5/2 ⁻				

Adopted Levels, Gammas (continued)

$\gamma(^{201}\text{Bi})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	$\alpha\&$	Comments
2434.9	1/2 ⁺ ,3/2,5/2 ⁺	1160.6 [‡] 5 1348.4 [‡] 6 1588.5 [‡] 3	64 [‡] 8 100 [‡] 10 69 [‡] 10	1274.45 1086.21 846.35	(5/2) ⁺ 3/2 ⁺ 1/2 ⁺				
2455.5	1/2 ⁺ ,3/2,5/2 ⁺	1181.3 [‡] 5 1369.3 [‡] 4	27 [‡] 5 100 [‡] 8	1274.45 1086.21	(5/2) ⁺ 3/2 ⁺			0.005 4	$\alpha(\text{K})=0.004$ 3; $\alpha(\text{L})=0.0007$ 6 Mult.: From $\alpha(\text{K})$ exp in 1986Br28 (²⁰¹ Po ϵ decay (15.50 min)).
2484.3	1/2,3/2,5/2 ⁺	1609.0 [‡] 3 1398.0 [‡] 3 1638.1 [‡] 5	98 [‡] 8 100 [‡] 6 29 [‡] 4	846.35 1086.21 846.35	1/2 ⁺ 3/2 ⁺ 1/2 ⁺				
2549.50+x	(27/2 ⁺)	250.2 [†] 4	4.37 [†] 25	2299.1+x	(27/2 ⁺)	M1+E2	>1.2	0.32 11	$\alpha(\text{K})=0.21$ 11; $\alpha(\text{L})=0.088$ 5; $\alpha(\text{M})=0.0224$ 8 $\alpha(\text{N})=0.00571$ 22; $\alpha(\text{O})=0.00110$ 6; $\alpha(\text{P})=0.000102$ 14 Mult., δ : From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
		617.27 [†] 25	100.0 [†] 9	1932.3+x	(25/2 ⁺)	M1+E2	+0.046 28	0.0671 10	$\alpha(\text{K})=0.0550$ 8; $\alpha(\text{L})=0.00931$ 13; $\alpha(\text{M})=0.002183$ 31 $\alpha(\text{N})=0.000558$ 8; $\alpha(\text{O})=0.0001141$ 16; $\alpha(\text{P})=1.362\times 10^{-5}$ 19 Mult., δ : From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
2589.7+x		657.4 [†] 3	100 [†]	1932.3+x	(25/2 ⁺)				
2592.88	(3/2 ⁻ ,5/2 ⁺)	1318.0 [‡] 5 1506.6 [‡] 3 1689.3 [‡] 3 1702.1 [‡] 3 1746.8 [‡] 5	37 [‡] 5 62 [‡] 6 54 [‡] 6 100 [‡] 6 44 [‡] 6	1274.45 1086.21 904.23 890.24 846.35	(5/2) ⁺ 3/2 ⁺ (7/2) ⁻ 5/2 ⁻ 1/2 ⁺				
2612.00+x	(27/2)	679.7 1	100	1932.3+x	(25/2 ⁺)	D			E_γ, I_γ : From ²⁰³ Tl($\alpha,6n\gamma$). Mult.: $A_2=-0.47$ 3, $A_4=-0.06$ 4 in ²⁰³ Tl($\alpha,6n\gamma$).
2651.13+x	(29/2 ⁺)	679.8 [†] 3	100 [†]	1971.3+x	(27/2 ⁺)	M1+E2	-0.15 12	0.0514 18	$\alpha(\text{K})=0.0421$ 16; $\alpha(\text{L})=0.00713$ 22; $\alpha(\text{M})=0.00167$ 5 $\alpha(\text{N})=0.000427$ 13; $\alpha(\text{O})=8.74\times 10^{-5}$ 27; $\alpha(\text{P})=1.042\times 10^{-5}$ 35 Mult., δ : From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).

Adopted Levels, Gammas (continued)

$\gamma(^{201}\text{Bi})$ (continued)

<u>E_i(level)</u>	<u>J_i^{π}</u>	<u>E_{γ}</u>	<u>I_{γ}</u>	<u>E_f</u>	<u>J_f^{π}</u>	<u>Mult.</u>	<u>δ</u>	<u>α&</u>	<u>Comments</u>
2668.31+x	(29/2 ⁺)	118.81 [†] 15	52 [†] 3	2549.50+x	(27/2 ⁺)	M1(+E2)		4.8 15	$\alpha(\text{K})=2.8$ 23; $\alpha(\text{L})=1.5$ 6; $\alpha(\text{M})=0.38$ 17 $\alpha(\text{N})=0.10$ 4; $\alpha(\text{O})=0.019$ 8; $\alpha(\text{P})=0.0017$ 4 Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
		736.0 [†] 4	100 [†] 5	1932.3+x	(25/2 ⁺)	E2		0.01296 18	$\alpha(\text{K})=0.00989$ 14; $\alpha(\text{L})=0.002324$ 33; $\alpha(\text{M})=0.000566$ 8 $\alpha(\text{N})=0.0001443$ 20; $\alpha(\text{O})=2.86\times 10^{-5}$ 4; $\alpha(\text{P})=3.04\times 10^{-6}$ 4 Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)). E _{γ} : From E(level) difference.
2740.01+x	(29/2 ⁻)	(71.7 3) 88.88 [†] 12	93 [†] 27	2668.31+x (29/2 ⁺) 2651.13+x (29/2 ⁺)		[E1]		0.1292 19	$\alpha(\text{L})=0.0987$ 14; $\alpha(\text{M})=0.02341$ 34 $\alpha(\text{N})=0.00588$ 9; $\alpha(\text{O})=0.001128$ 16; $\alpha(\text{P})=0.0001113$ 16 B(E1)(W.u.)<8.6 $\times 10^{-7}$ E _{γ} : From 1982Br21 in ²⁰³ Tl(α ,6n γ).
		128 ^a 1 150.5 [†] 6	10.9 [†] 7	2612.00+x (27/2) 2589.7+x		D			$\alpha(\text{K})=0.131$ 4; $\alpha(\text{L})=0.0245$ 8; $\alpha(\text{M})=0.00576$ 18; $\alpha(\text{N}+..)=0.00187$ 6 Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
		190.49 [†] 25	100.0 [†] 12	2549.50+x (27/2 ⁺)		(E1)		0.0901 13	B(E1)(W.u.)<9.0 $\times 10^{-8}$ $\alpha(\text{K})=0.0729$ 10; $\alpha(\text{L})=0.01318$ 19; $\alpha(\text{M})=0.00310$ 4 $\alpha(\text{N})=0.000784$ 11; $\alpha(\text{O})=0.0001546$ 22; $\alpha(\text{P})=1.651\times 10^{-5}$ 24 Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)) and 1982Br21 (²⁰³ Tl(α ,6n γ)).
		440.9 [†] 4	60.8 [†] 14	2299.1+x (27/2 ⁺)		(E1)		0.01292 18	B(E1)(W.u.) $\leq 4.4\times 10^{-9}$ $\alpha(\text{K})=0.01063$ 15; $\alpha(\text{L})=0.001749$ 25; $\alpha(\text{M})=0.000408$ 6 $\alpha(\text{N})=0.0001037$ 15; $\alpha(\text{O})=2.083\times 10^{-5}$ 29; $\alpha(\text{P})=2.360\times 10^{-6}$ 33 Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
2902.09	1/2 ⁺ ,3/2,5/2 ⁺	1627.7 [‡] 3 1815.8 [‡] 4 2055.7 [‡] 3	100 [‡] 11 50 [‡] 9 20 [‡] 6	1274.45 (5/2 ⁺) 1086.21 3/2 ⁺ 846.35 1/2 ⁺					
2905.9	1/2,3/2,5/2 ⁺	1819.8 [‡] 3 2059.4 [‡] 3	83 [‡] 20 100 [‡] 16	1086.21 3/2 ⁺ 846.35 1/2 ⁺					
2994.7+x		1062.4 [†] 8	100 [†]	1932.3+x (25/2 ⁺)					
3011.5+x		421.8 [†] 5 462.2 [†] 8	100 [†] 16 60 [†] 16	2589.7+x 2549.50+x (27/2 ⁺)					

Adopted Levels, Gammas (continued)

$\gamma(^{201}\text{Bi})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	δ	$\alpha^\&$	Comments
3238.9+x	(31/2 ⁻)	498.95 ^{†@} 25	100 [†]	2740.01+x	(29/2 ⁻)	M1+E2	-0.33 11	0.109 6	$\alpha(\text{K})=0.089$ 5; $\alpha(\text{L})=0.0155$ 6; $\alpha(\text{M})=0.00365$ 14 $\alpha(\text{N})=0.00093$ 4; $\alpha(\text{O})=0.000190$ 8; $\alpha(\text{P})=2.25 \times 10^{-5}$ 10 Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)) and 1982Br21 (²⁰³ Tl(α ,6n γ)). δ : From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
3422.9+x		428.2 [†] 4	100 [†]	2994.7+x					
3526.5+x	(33/2 ⁻)	287.3 [†] 4	26 [†] 4	3238.9+x	(31/2 ⁻)	[M1]		0.522 8	$\alpha(\text{K})=0.426$ 6; $\alpha(\text{L})=0.0736$ 11; $\alpha(\text{M})=0.01730$ 25 $\alpha(\text{N})=0.00443$ 6; $\alpha(\text{O})=0.000904$ 13; $\alpha(\text{P})=0.0001077$ 16
		786.3 ^{†@} 3	100.0 [†] 14	2740.01+x	(29/2 ⁻)	(E2)		0.01130 16	$\alpha(\text{K})=0.00871$ 12; $\alpha(\text{L})=0.001963$ 28; $\alpha(\text{M})=0.000476$ 7 $\alpha(\text{N})=0.0001214$ 17; $\alpha(\text{O})=2.411 \times 10^{-5}$ 34; $\alpha(\text{P})=2.60 \times 10^{-6}$ 4 Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
3592.3+x?		169.4 [†] 4	100 [†]	3422.9+x		M1(+E2)		1.5 7	$\alpha(\text{K})=1.0$ 8; $\alpha(\text{L})=0.38$ 5; $\alpha(\text{M})=0.094$ 19 $\alpha(\text{N})=0.024$ 5; $\alpha(\text{O})=0.0047$ 7; $\alpha(\text{P})=0.000450$ 23 Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
3638.4+x		987.3 [†] 4	100 [†]	2651.13+x	(29/2 ⁺)				
3706.7+x		180.0 [†] 5	100 [†] 6	3526.5+x	(33/2 ⁻)	D			Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
		468.0 [†] 4	98 [†] 49	3238.9+x	(31/2 ⁻)				
3727.61+x	(33/2 ⁻)	987.6 1	100	2740.01+x	(29/2 ⁻)	E2		0.00717 10	$\alpha(\text{K})=0.00568$ 8; $\alpha(\text{L})=0.001134$ 16; $\alpha(\text{M})=0.000271$ 4 $\alpha(\text{N})=6.92 \times 10^{-5}$ 10; $\alpha(\text{O})=1.387 \times 10^{-5}$ 19; $\alpha(\text{P})=1.544 \times 10^{-6}$ 22 E_γ, I_γ : From ²⁰³ Tl(α ,6n γ). Mult.: From $A_2=+0.31$ 5, $A_4=-0.01$ 5 (²⁰³ Tl(α ,6n γ)).
3810.8+x	(33/2 ⁻)	284.19 [†] 25	100.0 [†] 22	3526.5+x	(33/2 ⁻)	M1(+E2)	≤ 0.58	0.49 5	$\alpha(\text{K})=0.39$ 5; $\alpha(\text{L})=0.0727$ 34; $\alpha(\text{M})=0.0172$ 7 $\alpha(\text{N})=0.00440$ 17; $\alpha(\text{O})=0.00089$ 4; $\alpha(\text{P})=0.000104$ 7 Mult., δ : From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
		572.4 [†] 4	19.6 [†] 17	3238.9+x	(31/2 ⁻)	M1+E2	-0.41 11	0.073 4	$\alpha(\text{K})=0.060$ 4; $\alpha(\text{L})=0.0104$ 5; $\alpha(\text{M})=0.00245$ 11 $\alpha(\text{N})=0.000627$ 28; $\alpha(\text{O})=0.000128$ 6; $\alpha(\text{P})=1.51 \times 10^{-5}$ 8 Mult., δ : From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
3922.9+x	(35/2 ⁻)	396.4 [†] 4	100 [†]	3526.5+x	(33/2 ⁻)	M1+E2	-0.24 11	0.209 9	$\alpha(\text{K})=0.170$ 8; $\alpha(\text{L})=0.0297$ 10; $\alpha(\text{M})=0.00698$ 21 $\alpha(\text{N})=0.00179$ 5; $\alpha(\text{O})=0.000364$ 12;

Adopted Levels, Gammas (continued)

$\gamma(^{201}\text{Bi})$ (continued)

<u>E_i(level)</u>	<u>E_{γ}</u>	<u>I_{γ}</u>	<u>E_f</u>	<u>J_f^{π}</u>	<u>Mult.</u>	<u>Comments</u>
						$\alpha(\text{P})=4.32\times 10^{-5}$ 16
						Mult., δ : From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
4075.3+x?	152.4 [†] 4	100 [†]	3922.9+x	(35/2 ⁻)	D	Mult.: From $\gamma(\theta)$ in 1985Pi05 (¹⁹⁶ Pt(¹⁰ B,5n γ)).
4484.5+x	846.1 [†] 7	100 [†]	3638.4+x			
5282.3+x	797.8 [†] 4	100 [†]	4484.5+x			

[†] From ¹⁹⁶Pt(¹⁰B,5n γ).

[‡] From [1986Br28](#) in ²⁰¹Po ϵ decay (15.50 min).

[#] From [1986Br28](#) in ²⁰¹Po ϵ decay (8.96 min).

[@] Reported by [1985Pi05](#) to have a delayed component with T_{1/2}=14 ns 3. Similar delayed component (T_{1/2}>10 ns) is reported in [1982Br21](#) above the 3812+X keV level.

[&] [Additional information 2.](#)

^a Placement of transition in the level scheme is uncertain.

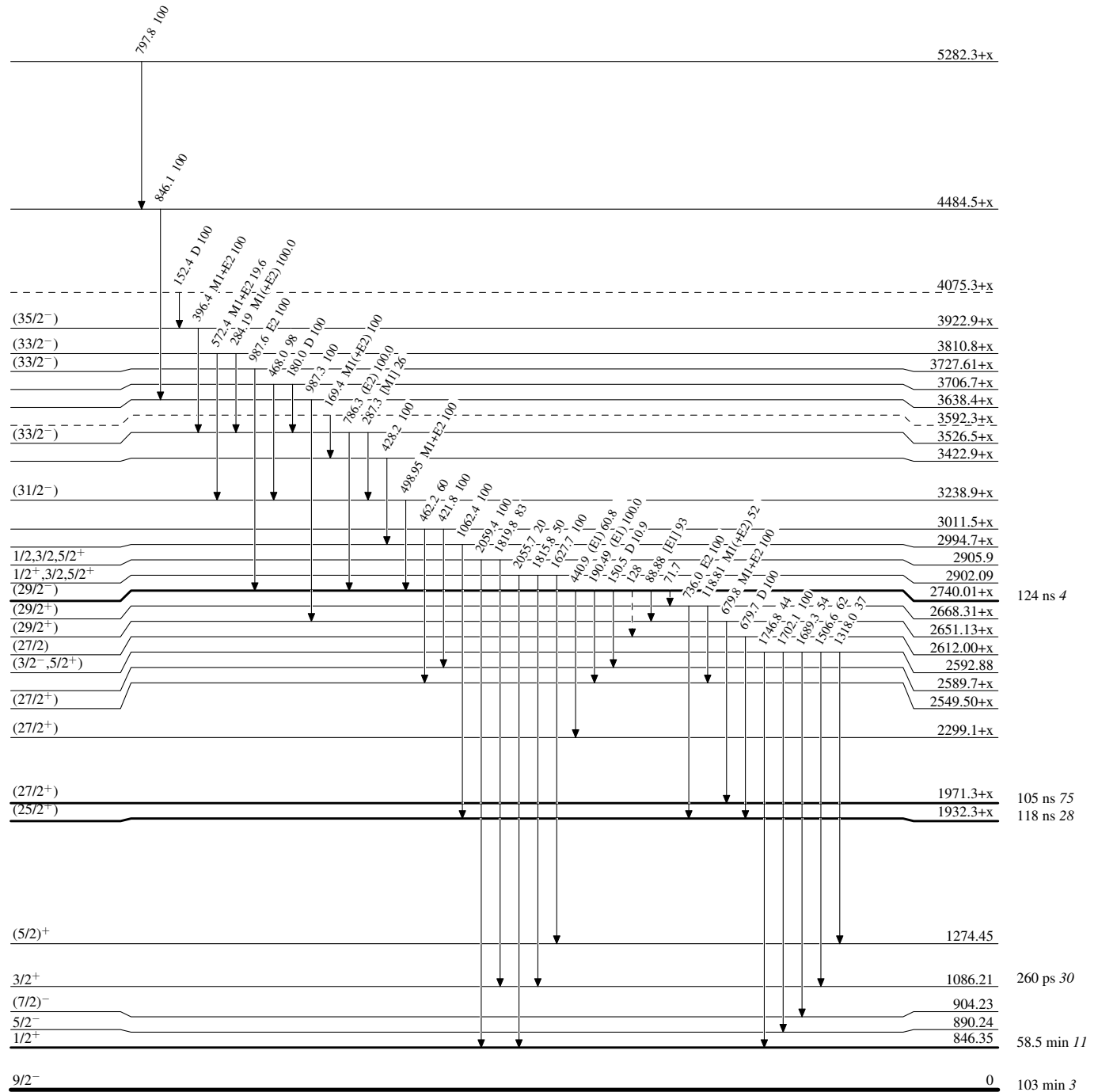
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

-----> γ Decay (Uncertain)



²⁰¹Bi₈₃¹¹⁸

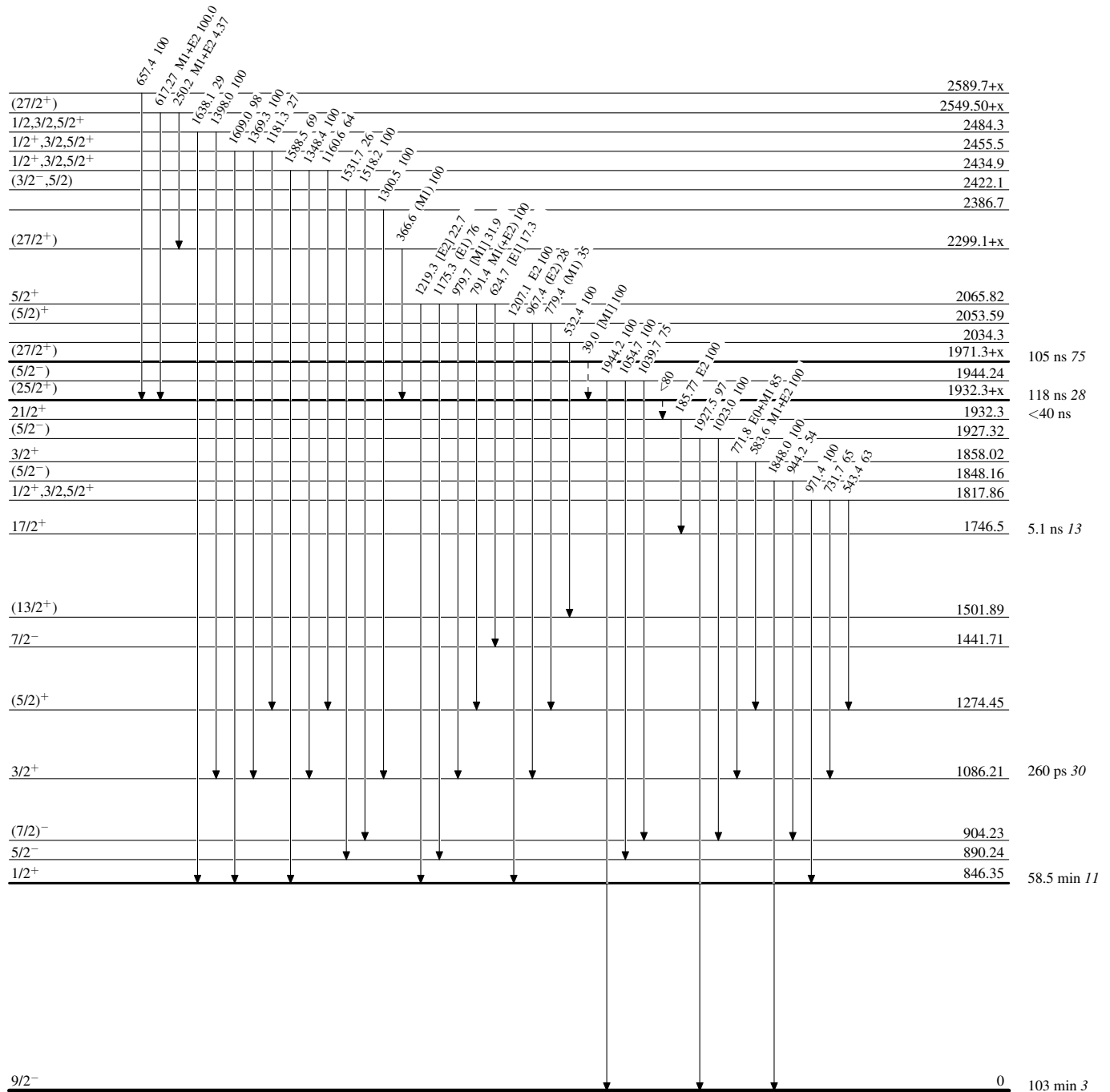
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----▶ γ Decay (Uncertain)



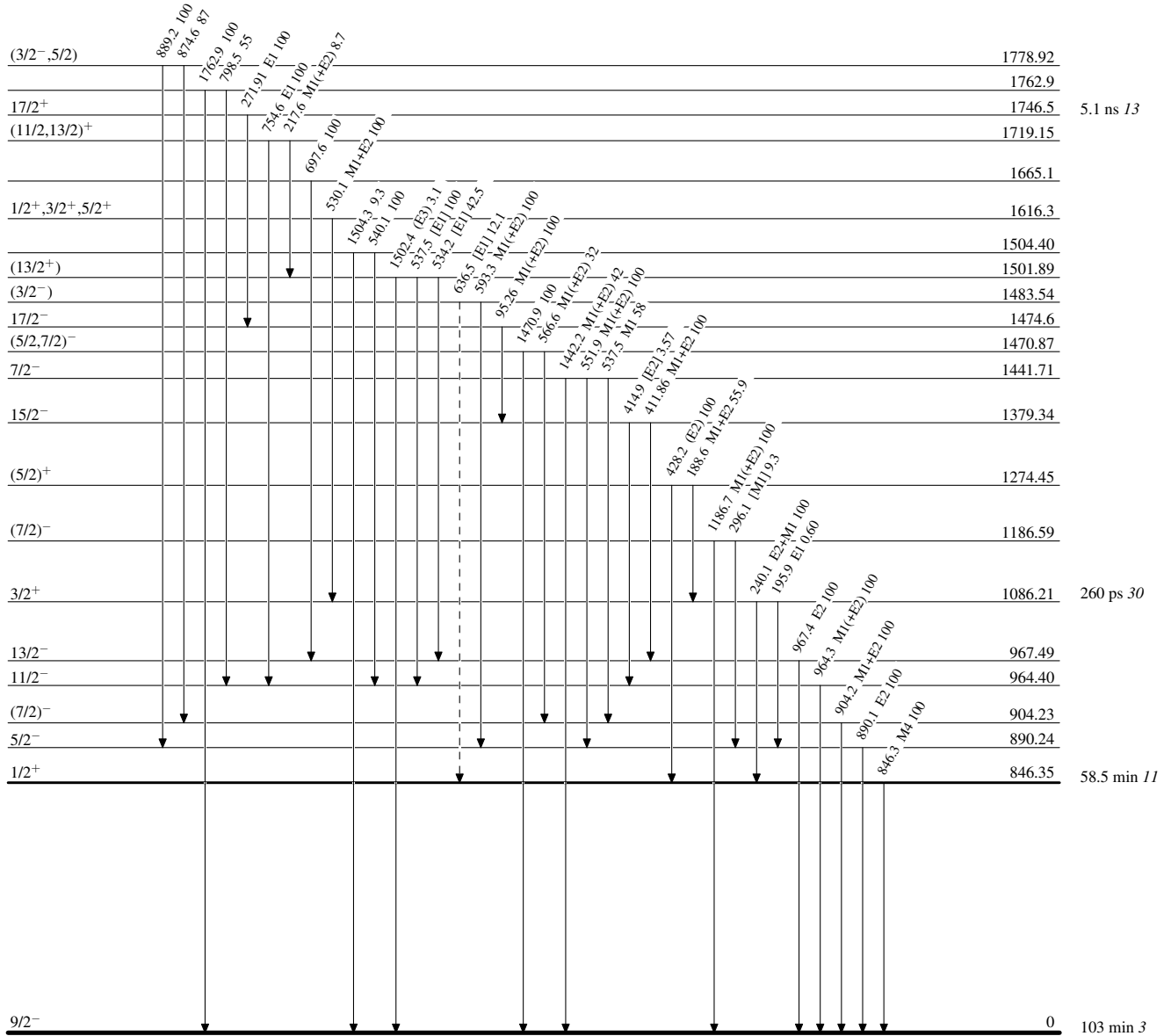
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----▶ γ Decay (Uncertain)



$^{201}_{83}\text{Bi}_{118}$