

Adopted Levels, Gammas

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

$Q(\beta^-) = -2878.4 \ 2I$; $S(n) = 7367.87 \ 5$; $S(p) = 8004 \ 6$; $Q(\alpha) = 517.2 \ 13$ [2012Wa38](#)

Note: Current evaluation has used the following Q record $-2878.4 \ 20 \ 7367.87 \ 5 \ 8004 \ 5 \ 516.9 \ 13$ [2003Au03](#).

Neutron and ground-state γ widths are given in the resonance reactions, (n,γ) , (n,X) , and (γ,n) .

For measurements of the neutron-skin thickness see [2004Kr02](#) and references contained therein. The rms(n)-rms(p) values, in fm, range from 0.12 7 to 0.20 4.

Adopted Levels, Gammas (continued)

[208Pb Levels](#)

The neutron-particle, neutron-hole configurations are from (d,p) and from (p,p') (via IAR). The proton-particle, proton-hole configurations are from (d, ^3He). Other configurations, especially for the high-spin states are from (e,e'). In addition to the configurations given in those source datasets, [2006He21](#) (in their reference 24) analyze (p,p') via IAR, (d,p), and (d, ^3He) data to deduce configuration amplitudes for several levels below 4500. Amplitudes for non-dominant configurations are included in their calculations but are not given here. Only the dominant neutron particle-hole and/or proton particle-hole configurations are given.
 The B(EL) values for levels above the 2614.5 level are from (e,e').

Cross Reference (XREF) Flags

A	$^{207}\text{Pb}(\text{d},\text{py}), ^{209}\text{Bi}(\text{t},\alpha\gamma)$	L	$^{208}\text{Pb}(\text{p},\text{p}'\gamma), ^{207}\text{Pb}(\text{d},\text{py})$	W	Muonic atom
B	$^{208}\text{Pb}(\alpha,\alpha'), (\alpha,\alpha'\gamma), (\alpha,\alpha'\text{n})$	M	$^{207}\text{Pb}(\text{n},\gamma)$	X	^{212}Po α decay (17.1 ns)
C	$^{208}\text{Pb}(\text{d},\text{d}'), (\text{pol d},\text{d}')$	N	$^{207}\text{Pb}(\text{n},\text{X}), (\text{n},\text{n})$	Y	^{212}Po α decay (45.1 s)
D	$^{208}\text{Pb}(\text{p},\text{p}'), (\text{pol p},\text{p}')$	O	$^{207}\text{Pb}(\text{n},\gamma)$ E=resonance	Z	^{212}Po α decay (0.299 μs)
E	$^{208}\text{Pb}(\gamma,\gamma'), (\text{pol } \gamma,\gamma')$	P	$^{208}\text{Pb}(\text{y},\text{n}), (\text{y},\text{pol n})$		Others:
F	$^{207}\text{Pb}(\text{d},\text{p}), (\text{pol d},\text{p})$	Q	$^{208}\text{Pb}(\text{x},\text{x}'), (\text{x},\text{x}'\gamma)$	AA	$^{208}\text{Pb}(\text{d},\text{t}), (\text{p},\text{d})$
G	$^{208}\text{Pb}(\text{e},\text{e}'), (\text{e},\text{e}'\text{n})$	R	Coulomb excitation	AB	$^{208}\text{Pb}(\text{e},\text{F})$
H	$^{208}\text{Pb}(\text{n},\text{n}'\gamma)$	S	^{208}Bi ε decay	AC	$^{210}\text{Pb}(\text{p},\text{t})$
I	$^{209}\text{Bi}(\text{d},^3\text{He})$	T	$^{208}\text{Pb}(\gamma,\text{p}), (\text{e},\text{e}'\text{p})$ IAR	AD	$^{209}\text{Bi}(\text{t},\alpha)$
J	$^{208}\text{Pb}(\text{x},\text{x}'\gamma)$	U	$^{204}\text{Hg}(^{16}\text{O}, ^{12}\text{C})$	AE	$^{208}\text{Pb}(^{17}\text{O}, ^{17}\text{O}'\gamma), (^{17}\text{O}, ^{17}\text{O}'\text{n}\gamma)$
K	^{208}Tl β^- decay	V	$^{206}\text{Pb}(\text{t},\text{p}), (\text{pol t},\text{p})$	AF	$^{209}\text{Bi}(\mu^-, \nu\text{n}\gamma)$

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		<u>E(level)[†]</u>	<u>J^π[‡]</u>	<u>T_{1/2}[#]</u>	XREF				Comments
0		0	0^+	stable	ABCDEF GHIJKLM	QRS	VWXYZ		XREF: Others: AA, AB, AC, AD, AE, AF
2614.522	10	2614.522	3^-	16.7 ps 3	ABCD F GHIJKLM	QRS	VW Y		XREF: Others: AA, AB, AC, AD, AE, AF $\mu=+1.9$ 2 (1973ScYX , 1969Bo12 , 2005St24) $Q=-0.34$ 15 (1984Ve07 , 1983Sp02 , 2005St24) J^π : from L=3 in (α, α'), (d,d'), (p,p'), (e,e'). $T_{1/2}$: from B(E3)=0.611 9, a weighted average of 0.611 12 (1983Sp02) in Coulomb excitation, and 0.612 13 (1980Go12) in (e,e'). The value of 32 ps 11 reported by 1962We14 in β^- decay appears to be in error. Other: 15.4 ps 12 from B(E2) in (α, α'). Isomer shift=6.25 28 from muonic atom (1977Sh07).
3197.711	10	3197.711	5^-	294 ps 15	ABCD F GHIJKL	Q	V Y		XREF: Others: AC, AD $\mu=+0.11$ 4 (1969Bo01 , 2005St24); B(E5) [†] =0.0447 30 configuration= $v2g_{9/2}v3p_{1/2}^{-1} + v2g_{9/2}v2f_{5/2}^{-1} + v2g_{9/2}v3p_{3/2}^{-1} + \pi1h_{9/2}\pi3s_{1/2}^{-1}$. J^π : L=5 in (α, α'), (d,d'), (p,p'), (e,e'). $T_{1/2}$: from β^- decay.
3475.078	11	3475.078	4^-	4 ps 3	A CD F H IJKL	Q			XREF: Others: AF $\mu=+0.11$ 4 (1969Bo01 , 2005St24); B(E5) [†] =0.0447 30 configuration= $v2g_{9/2}v3p_{1/2}^{-1}$. J^π : M1+E2 γ 's to 3^- and 5^- .

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	V	Comments
3708.451 12	5 ⁻		ABCD FGHIJKL		T _{1/2} : from β^- decay. XREF: Others: AD, AF B(E5) $\uparrow=0.0241$ 18 configuration= $\nu 2g_{9/2}\nu 2f_{5/2}^{-1} + \nu 2g_{9/2}\nu 3p_{1/2}^{-1} + \nu 1i_{11/2}\nu 3p_{1/2}^{-1} + \pi 1h_{9/2}\pi 3s_{1/2}^{-1} + \pi 1h_{9/2}\pi 2d_{3/2}^{-1}$. J ^π : L=5 in (α, α'), (d,d'), (p,p').
3919.966 13	6 ⁻	>690 fs	A D H JKL		T _{1/2} : <100 ps from β^- decay and >0.69 ps from (n,n'γ). XREF: Others: AF configuration= $\nu 2g_{9/2}\nu 2f_{5/2}^{-1}$. J ^π : M1 γ to 5 ⁻ . Not seen in (α, α'), (d,d'), (p,t) or (t,p) thus J ^π =4 ⁻ or 6 ⁻ . γ from 7 ⁻ 5542 level.
3946.578 14	4 ⁻	>430 fs	A D HIJKL		XREF: Others: AF configuration= $\pi 1h_{9/2}\pi 3s_{1/2}^{-1} + \pi 1h_{9/2}\pi 2d_{3/2}^{-1} + \nu 2g_{9/2}\nu 2f_{5/2}^{-1}$. J ^π : L(d, ³ He)=0+2 gives J ^π =4 ⁻ or 5 ⁻ . Not seen in (α, α') or (d,d'), thus J ^π =5 ⁻ is ruled out. A confirming argument is the strength in (d, ³ He) which rules out J=5, given J=5 for the 3708 and 3961 levels.
3961.162 13	5 ⁻		ABCD GHIJKL	V	XREF: Others: AC, AD, AF B(E5) $\uparrow\approx 0.0008$ configuration= $\pi 1h_{9/2}\pi 3s_{1/2}^{-1} + \nu 2g_{9/2}\nu 2f_{5/2}^{-1}$. J ^π : J=5 from $\gamma\gamma(\theta)$ and ce data in β^- decay. π=− from L=0+2 in (d, ³ He). T _{1/2} : ≤18 ps from β^- decay and >0.47 ps from (n,n'γ).
3995.438 13	4 ⁻	>690 fs	A D F HI KLM Q		XREF: Others: AF configuration= $\pi 1h_{9/2}\pi 3s_{1/2}^{-1} + \nu 2g_{9/2}\nu 2f_{5/2}^{-1}$. J ^π : L(d, ³ He)=0. Not seen in (α, α') or (d,d') thus J ^π is not 5 ⁻ . A confirming argument is the dipole component of the 1380γ to 3 ⁻ .
4037.443 14	7 ⁻	>690 fs	ABCD GH J L	V	XREF: Others: AC B(E7) $\uparrow\approx 0.0010$ configuration= $\nu 2g_{9/2}\nu 2f_{5/2}^{-1}$. J ^π : L(p,p')=7.
4051.134 13	3 ⁻	326 fs +28–21	AB D F HI LM		XREF: Others: AF J ^π : dipole γ to 3 ⁻ , γ to 4 ⁻ , and γ from 2 ⁻ allow 2 ⁻ , 3 ⁻ , 4 ⁻ . Excitation in (α, α') rules out 2 ⁻ and 4 ⁻ . Note that L=0 is given in (d, ³ He), which gives 4 ⁻ or 5 ⁻ . The level is weakly excited and no σ(θ) is shown. Also, L=(6) is reported in (d,p), suggesting J ^π =5 ⁻ or 6 ⁻ . The evaluator notes that σ(θ) in (d,p) is too forward peaked to be fit with L=2 and/or 4, required for J ^π =3 ⁻ . If the reaction L values are correct, there must be a doublet at this energy, possibly with J ^π =5 ⁻ for the second member. There is no evidence of a doublet in the high-precision γ data. Note finally that L=(3) in (p,p').
4085.52 4	2 ⁺	0.80 fs 4	ABCDE GHI LM QR V		XREF: Others: AC, AE, AF Q=−0.7 3 (1984Ve07,2005St24) configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$.

Adopted Levels, Gammas (continued) **^{208}Pb Levels (continued)**

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
4125.347 12	5 ⁻	>490 fs	AB D FGHIJKL	J^π : L=2 in (α, α') . T _{1/2} : weighted average of 0.78 fs 4 from B(E2)=0.318 16 in (e,e') and 0.87 fs 7 from Γ in (γ, γ') . Both values were deduced using $\Gamma_0/\Gamma=0.9954$ 15. XREF: Others: AD, AF configuration= $\nu 2g_{9/2}\nu 2f_{5/2}^{-1} + \nu 1i_{11/2}\nu 3p_{1/2}^{-1} + \pi 1h_{9/2}\pi 3s_{1/2}^{-1} + \pi 1h_{9/2}\pi 2d_{3/2}^{-1}$. J^π : L(d,p)=4+6. The assignment is confirmed in $^{208}\text{Pb}(p,p')$ IAR. See reference 24 of 2006He21 .
4144? 5	+		I	E(level): seen only in ($d, ^3\text{He}$) and weakly excited so level is questionable. configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$. J^π : L($d, ^3\text{He}$)=5.
4180.414 14	5 ⁻	319 fs 35	AB D FGHI KL	XREF: Others: AC, AF configuration= $\nu 2g_{9/2}\nu 3p_{3/2}^{-1} + \nu 1i_{11/2}\nu 3p_{1/2}^{-1} + \pi 1h_{9/2}\pi 3s_{1/2}^{-1} + \pi 1h_{9/2}\pi 2d_{3/2}^{-1}$. J^π : from σ and form factor in (e,e').
4206.277 14	6 ⁻	>690 fs	A D F HIJ L	XREF: Others: AF configuration= $\nu 1i_{11/2}\nu 3p_{1/2}^{-1} + \nu 2g_{9/2}\nu 2f_{5/2}^{-1} \pi 1h_{9/2}\pi 2d_{3/2}^{-1}$. J^π : L(d,p)=6. Not observed in (α, α') . Dipole component in γ to 5 ⁻ . configuration= $\nu 3d_{5/2}\nu 3p_{1/2}^{-1}$. J^π : J=2 from $\gamma(\theta)$ in (n,n'γ). L(d,p)=2.
4229.590 17	2 ⁻	333 fs 28	A D F H LM	XREF: Others: AC configuration= $\nu 3d_{5/2}\nu 3p_{1/2}^{-1}$. J^π : L(d,p)=2 for 3d _{3/2} gives 2 ⁻ or 3 ⁻ . Excitation in (α, α') rules out 2 ⁻ . Note that L=0 in ($d, ^3\text{He}$) gives 4 ⁻ or 5 ⁻ ; however, the state is weakly excited and no $\sigma(\theta)$ is shown.
4254.795 17	3 ⁻	97 fs 7	AB D FGHI LM	XREF: Others: AF configuration= $\nu 2g_{9/2}\nu 3p_{3/2}^{-1} + \pi 1h_{9/2}\pi 2d_{3/2}^{-1}$. J^π : L(d,p)=4 for configuration= $\nu 2g_{9/2}$ allows $J^\pi=4^-$ or 5^- . The 1647 γ to 3 ⁻ has a dipole component.
4261.871 13	4 ⁻	>520 fs	A D F HI KL	XREF: Others: AF configuration= $\nu 2g_{9/2}\nu 3p_{3/2}^{-1} + \pi 1h_{9/2}\pi 2d_{3/2}^{-1}$. J^π : L(d,p)=4 for configuration= $\nu 2g_{9/2}$ allows $J^\pi=4^-$ or 5^- . The 1647 γ to 3 ⁻ has a dipole component. For the neutron configuration see reference 24 of 2006He21 .
4296.560 13	5 ⁻	201 fs +49–35	AB D F HI KL	XREF: Others: AC, AF configuration= $\nu 1i_{11/2}\nu 3p_{1/2}^{-1} + \nu 2g_{9/2}\nu 3p_{3/2}^{-1} + \pi 1h_{9/2}\pi 2d_{3/2}^{-1}$. J^π : L(p,p')=5. A confirming argument is L($d, ^3\text{He}$)=0+2, allowing 4 ⁻ or 5 ⁻ . Excitation in (α, α') rules out 4 ⁻ .
4323.946 14	4 ⁺	11.7 ps +15–18	ABCD GHIJ L	XREF: Others: AC, AF configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$. J^π : L=4 in (α, α') and (d, d') . T _{1/2} : from B(E4)=0.155 11 in (e,e') and $\Gamma_0/\Gamma=0.00260$ +27–35.
4358.670 13	4 ⁻	194 fs 21	A CD F HI KL	XREF: Others: AF configuration= $\nu 2g_{9/2}\nu 3p_{3/2}^{-1} + \pi 1h_{9/2}\pi 2d_{3/2}^{-1}$. J^π : L($d, ^3\text{He}$)=0+2 allows 4 ⁻ or 5 ⁻ . The 1744 γ to 3 ⁻ has a dipole component. For the neutron configuration see reference 24 of 2006He21 .

Adopted Levels, Gammas (continued) **^{208}Pb Levels (continued)**

E(level) [†]	J ^{π‡}	T _{1/2} [#]	XREF	Comments						
			A D F G H I K L	Q	V					
4383.285 17	6 ⁻	>690 fs				XREF: Others: AF configuration= $\pi 1h_{9/2} \pi 2d_{3/2}^{-1} + \nu 1i_{11/2} \nu 3p_{1/2}^{-1} + \nu 2g_{9/2} \nu 3p_{3/2}^{-1} + \nu 2g_{9/2} \nu 2f_{5/2}^{-1}$. J^π : from σ and form factor in (e,e').				
4423.647 15	6 ⁺	>110 fs	ABCD FGH IJ L	Q	V	XREF: Others: AC AF B(E6) $\uparrow=0.067$ 7 configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J^π : L=6 in (α, α') and (p,p').				
4447? 5	-		I			E(level): seen only in (d, ³ He) and weakly excited so level is questionable. configuration= $\pi 1h_{9/2} \pi 2d_{3/2}^{-1}$. J^π : L(d, ³ He)=2.				
4480.746 16	6 ⁻	97 fs 7	ABCD FGH IJKL			XREF: Others: AF configuration= $\pi 1h_{9/2} \pi 2d_{3/2}^{-1} + \nu 2g_{9/2} \nu 3p_{3/2}^{-1} + \nu 1i_{11/2} \nu 3p_{1/2}^{-1}$. J^π : from σ and form factor in (e,e').				
4610.748 16	8 ⁺	3.2 ns 5	AB D FGH IJ L	V		BE8UP=0.0054 9 configuration= $\nu 1j_{15/2} \nu 3p_{1/2}^{-1} + \pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J^π : L(α, α')=8. L=8 also in (p,p') and (e,e'). T _{1/2} : from $\alpha\gamma(t)$ in (t, $\alpha\gamma$). configuration= $\nu 1i_{11/2} \nu 2f_{5/2}^{-1}$.				
4680.266 22	7 ^{-g}	>690 fs	AB D H J			J^π : the 474γ and 760γ to 6 ⁻ levels have dipole components and the magnitude of δ for both transitions argues against mult=E1+M2. Excitation in (α, α') rules out 6 ⁻ . L=(9) is reported in (p,p'), but the evaluator notes that L=5 or 7 seem to give as good a fit. Absence of gammas to levels with J<6 suggests 7 ⁻ rather than 5 ⁻ . configuration= $\nu 1i_{11/2} \nu 2f_{5/2}^{-1}$.				
4698.323 17	3 ^{-g}	139 fs +42-28	AB D FGH I L	V		XREF: Others: AC configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1} + \pi 1h_{9/2} \pi 2d_{3/2}^{-1} + \nu 1i_{11/2} \nu 2f_{5/2}^{-1}$. J^π : L(α, α')=3. $J^\pi=3^-$ from σ and form factor in (e,e'). L(p,p')=3.				
4708.727 21	5 ^{-g}	0.24 ps +20-9	AB D HI			configuration= $\pi 1h_{9/2} \pi 2d_{3/2}^{-1} + \nu 1i_{11/2} \nu 2f_{5/2}^{-1}$. J^π : L(d, ³ He)=2. The 1511γ and 1000γ to $J^\pi=5^-$ levels have dipole components. Excitation in (α, α') rules out 4 ⁻ or 6 ⁻ .				
4711.817 21	4 ^{-g}	>340 fs	A D F H M			configuration= $\nu 1i_{11/2} \nu 2f_{5/2}^{-1}$. J^π : dipole components in γ's to 3 ⁻ and 4 ⁻ levels. Not seen in (α, α') so J^π probably not 3 ⁻ .				
4761.956 23	6 ^{-g}	0.26 ps +18-9	A D FGH			configuration= $\nu 1i_{11/2} \nu 2f_{5/2}^{-1}$. J^π : L(p,p')=(7). Not seen in (α, α') so J^π probably 6 ⁻ or 8 ⁻ . γ's to 5 ⁻ .				
4830	(8,9,10)		G			J^π : L(e,e')=(8 to 10).				
4841.60 5	1 ⁻	0.068 fs +21-15	AB DEFGH	L		XREF: Others: AC J^π : L(α, α')=1. Confirming arguments are $J^\pi=1^-$ from σ and form factor in (e,e') and $J^\pi=1^-$ from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ').				

Adopted Levels, Gammas (continued)

 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
4860.78 6	8 ⁺	>22 fs	A B D F H I J	T _{1/2} : from (γ, γ'). Other: <9 fs from (n,n''). configuration= $\nu 4s_{1/2} \nu 3p_{1/2}^{-1} + \nu 3d_{3/2} \nu 3p_{1/2}^{-1}$. configuration= $\nu 1j_{15/2} \nu 3p_{1/2}^{-1} + \pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : L(d,p)=7 for j _{15/2} gives 7 ⁺ or 8 ⁺ . Excitation in (α, α') rules out 7 ⁺ .
4867.91 4	7 ⁺	>97 fs	A D F H	configuration= $\nu 1j_{15/2} \nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=7 for j _{15/2} allows 7 ⁺ or 8 ⁺ . The 387 γ to 6 ⁻ has a dipole dipole component.
4868.35 5	0 ⁺	>312 fs	A B H L	XREF: Others: A C J ^π : E0 transition to the g.s.
4878 2			D F	
4895.23 5	10 ⁺	0.50 μs 5	A B D G I J	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : from σ and form factor in (e,e'). T _{1/2} : from $\alpha\gamma(t)$ in (t, $\alpha\gamma$).
4909.5 3			D F	J ^π : 1997VaZT give L=(7) and propose configuration= $\nu 1j_{15/2} \nu 3p_{1/2}^{-1}$, which gives J ^π =7 ⁺ or 8 ⁺ ; however, the error bars for $\sigma(\theta)$ for this level are very large (evaluator).
4911.343 20	4	215 fs +63-42	H	J ^π : D+Q transitions to 3 ⁻ and 5 ⁻ .
4918.8 4	8 ⁻ <i>g</i>		D	configuration= $\nu 1i_{11/2} \nu 2f_{5/2}^{-1}$.
4928.1 15	2 ⁺		D	XREF: Others: A C J ^π : L(p,p')=2.
4937.19 4	3 ⁻	17.3 fs +35-28	A B D F H I L M	configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1} + \nu 2g_{7/2} \nu 3p_{1/2}^{-1}$ and $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$. J ^π : L(α, α')=3. Confirming arguments are L(p,p')=3 and L(d,p)=2+4.
4953.302 17	3 ⁻	33.3 fs 14	A B D F H	J ^π : L(p,p')=3.
4962.428 21	4 ^{(-),5⁽⁺⁾}	>440 fs	D H	J ^π : D+Q γ to 5 ⁻ . γ to 4 ⁺ . Not seen in (α, α') so level probably has unnatural parity.
4973.918 19	3 ⁻	166 fs 21	A B D F G H L	configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1}$. J ^π : L(α, α')=3. Confirming arguments are L(p,p')=3, and J ^π =3 ⁻ from σ and form factor in (e,e').
4992.5 6	(2) ⁻		F	configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1}$.
4994.7 6	≥ 7		D	J ^π : L(d,p)=2 for d5/2 allows 2 ⁻ or 3 ⁻ . Not excited in (α, α') so J ^π probably not 3 ⁻ . J ^π : L(p,p') \geq 8.
5010.43 14	9 ⁺		A D G J	configuration= $\nu 2g_{9/2} \nu 1i_{13/2}^{-1}$. J ^π : from σ and form factor in (e,e').
5037.536 18	3 ⁻	90 fs 7	A B D F H L	configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=2 for d5/2 allows 2 ⁻ or 3 ⁻ . Excitation in (α, α') rules out 2 ⁻ .
5056.1 3			D F	
5069.31 10	10 ⁺		A B D G I J	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : from σ and form factor in (e,e').
5074.81 6	<i>h</i>	69 fs +13-10	d H	J ^π : γ 's to 5 ⁻ and 6 ⁻ .
5075.78 18	<i>h</i>		A d F H	J ^π : γ to 5 ⁻ .

Adopted Levels, Gammas (continued)

 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
5079.912 20	6 ^{-g}	111 fs +28-21	D F H	configuration= $\nu 1i_{11/2}\nu 3p_{3/2}^{-1}$. J ^π : γ 's to 5 ⁻ and 6 ⁻ .
5085.470 24	7 ^{-gj}	>229 fs	A B D Hi L	configuration= $\nu 1i_{11/2}\nu 3p_{3/2}^{-1}$. J ^π : D+Q γ to 6 ⁻ .
5087.9 15	3 ^{-j}		D i	J ^π : L(p,p')=3.
5092.99 3	8 ⁺	>690 fs	A B D F HI	configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1} + \nu 1j_{15/2}\nu l j^{-1}$ with a 3p _{1/2} , 2f _{5/2} , or 3p _{3/2} neutron hole state. J ^π : γ 's to 8 ⁺ . Excitation in (α, α') gives natural parity. L(d, ³ He)=5. Strength in (t, $\alpha\gamma$) rules out 6 ⁺ or 10 ⁺ .
5103.3 15			D	
5127.356 16	2 ^{-,3⁻}	64 fs 3	A D F HI L	configuration= $\nu 3d_{5/2}\nu 3p_{1/2}^{-1} + \pi 1h_{9/2}\pi 2d_{5/2}^{-1}$. J ^π : L(d,p)=2 for d5/2 allows 2 ⁻ or 3 ⁻ . L(d, ³ He)=2. γ 's to 4 ⁻ and 0 ⁺ . Non-observation in (α, α') is a weak argument against 3 ⁻ . J ^π =2 ⁻ is given in ²⁰⁷ Pb(pol p,p') IAR.
5162.05 5	9 ⁺		A D F IJ	configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$. J ^π : γ 's to 8 ⁺ and 10 ⁺ . L(d, ³ He)=5. From strength in (t, $\alpha\gamma$), given the strength observed for the (d, ³ He) L=5 states with J ^π =8 ⁺ and 10 ⁺ .
5193.428 25	5 ⁺ⁱ	>319 fs	A HI	J ^π : γ 's to 4 ⁺ and 6 ⁺ . configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$.
5195.054 23	3 ^{-,4⁻}	187 fs +42-35	D F H	configuration= $\nu 2g_{7/2}\nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=4 for g7/2 allows 3 ⁻ or 4 ⁻ .
5195.37 10	7 ⁺ⁱ	>690 fs	A HIJ	J ^π : γ 's to 6 ⁺ , 6 ⁻ , 8 ⁺ . configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1} + \nu 1j_{15/2}\nu l j^{-1}$ with a 3p _{1/2} , 2f _{5/2} , or 3p _{3/2} neutron hole state.
5213.007 21	6 ⁺ⁱ	76 fs +21-14	A D HIJ	configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$. J ^π : γ 's to 5 ⁻ and 6 ⁺ .
5213.98 3	(5 ⁻)	14 fs 3	FGH	J ^π : from σ and form factor in (e,e'). configuration= $\nu 2d_{5/2}\nu l j^{-1}$.
5216.214 18	4 ⁺ⁱ	32 fs 3	A B D HIJ	configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$. J ^π : γ to 3 ⁻ has a dipole component.
5234 5	+		I	configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$. J ^π : L(d, ³ He)=5.
5235.37 11	(11 ⁺) [@]		D J	J ^π : γ from 12 ⁺ . γ to 10 ⁺ . No transition to levels with J<10. 1993Sc08 propose configuration= $\nu 2g_{9/2}\nu 1i_{13/2}^{-1}$.
5239.3 4	4 ^{-g}		A D F H	configuration= $\pi 2f_{7/2}\pi 2d_{3/2}^{-1} + \nu 1i_{11/2}\nu 3p_{3/2}^{-1}$. J ^π : γ to 3 ⁻ .
5241.1 3	0 ⁺	>690 fs	A H L V	XREF: Others: AC configuration: 1996Ye01 propose that this state is the lowest-spin member of the expected quartet of two-phonon octupole states at an energy about twice that of the

Adopted Levels, Gammas (continued)

 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
5245.246 21	3 ⁻	17 fs +7-6	A B D F G H L	3 ⁻ 2614 state. J ^π : from E0 to 0 ⁺ . configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1}$.
5254.12 15			A F H J	J ^π : from σ and form factor in (e,e'). T _{1/2} : other: 5.3 fs +19-15 from B(E3)=0.13 3 in (e,e') and $\Gamma_{\gamma 0}/\Gamma=0.0088$ 18.
5260	9 ⁺		G	J ^π : γ to 4 ⁻ . configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : from σ and form factor in (e,e').
5261.2 8			F	
5266.6 9			F	
5270	(11 ⁺)		G	J ^π : from σ and form factor in (e,e').
5276.418 24	4 ⁻ g	44 fs +6-5	D F H I	configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1} + \nu 1i_{11/2} \nu 3p_{3/2}^{-1}$. J ^π : γ 's to 3 ⁻ and 6 ⁻ allow 4 ⁻ or 5 ⁻ .
5280.47 4	0 ⁻	>319 fs	A D F H L	configuration= $\nu 4s_{1/2} \nu 3p_{1/2}^{-1}$ with a small admixture of configuration= $\nu 3d_{5/2} \nu 2f_{5/2}^{-1}$. J ^π : L(d,p)=0 gives 0 ⁻ or 1 ⁻ . S for the 5280 and 5292 L(d,p)=0 levels rules out $J^{\pi}(5280)=1^-$ given $J^{\pi}(5292)=1^-$.
5286.484 17	2,3 ⁻	76 fs 7	D F H	J ^π : dipole γ to 3 ⁻ allows J=2,3, or 4. γ to 0 ⁺ and T _{1/2} rule out J=4 and $J^{\pi}=3^+$. For $J^{\pi}=2^-$, the g.s. transition would have B(M2)(W.u.)=0.48 7 and for $J^{\pi}=3^-$ would have B(E3)(W.u.)=9.3 14.
5291 6	11 ⁺		G	configuration= $\nu 2g_{9/2} \nu 1i_{13/2}^{-1}$. J ^π : from σ and form factor in (e,e').
5291.90 12	1 ⁻	0.049 fs +28-18	A B D E F H L	configuration= $\nu 4s_{1/2} \nu 3p_{1/2}^{-1}$. J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ'). T _{1/2} : from (γ, γ'). Other: <2.1 fs from (n,n'γ).
5307.6 15			F	
5317.041 18	(3) ^{+k}	>690 fs	A d F H I	XREF: F(1513). J ^π : γ 's to 3 ⁻ and 4 ⁺ . L(d, ³ He)=5. On the basis of these decay modes, and the strength in (t,αγ), 1997Sc21 propose $J^{\pi}=(3^+)$. configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : γ to 5 ⁻ .
5317.2 6	k		A d F	
5326.6 2	+ k		D F	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1} + \nu 1j_{15/2} \nu 1j^{-1}$ with a 3p _{1/2} , 2f _{5/2} , or 3p _{3/2} neutron hole state.
5339.46 6	8 ⁺	32 fs +37-18	A D F H I	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1} + \nu 1j_{15/2} \nu 1j^{-1}$, with a 3p _{1/2} , 2f _{5/2} , or 3p _{3/2} neutron hole state. J ^π : γ 's to 8 ⁺ and 7 ⁻ . L(d, ³ He)=5. Strength in (t,αγ).
5347.270 18	3 ⁻	28.4 fs 14	A B C D F G H	configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1} + \nu 2g_{7/2} \nu 3p_{1/2}^{-1}$. J ^π : from σ and form factor in (e,e'). Confirming arguments are L(α, α')=3 and L(d,p)=2+4.
5352 6	+		I	J ^π : L(d, ³ He)=5.

Adopted Levels, Gammas (continued)

 ^{208}Pb Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
5364 3			D	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ .
5373.8 8	(6) ⁺		B D Fg	J ^π : excitation function resonates at ν1j _{15/2} IAR in (p,p'), so π=+, inconsistent with L(p,p')=5. The evaluator notes that from the σ(θ) of 1975Wa18 L=5 gives the best fit; however, the fit for L=6 is also reasonable.
5380.6 ^{&} 8	-		A g I	J ^π : γ to 3 ⁻ . L(d, ³ He)=2.
5382.82 ^{&} 3	3 ^{+,4^{+,5⁺}}	37 fs +7-6	A gHI	configuration=π1h _{9/2} π2d _{5/2} ⁻¹ .
5384.59 3	3 ⁻	76 fs 14	AB D FgH LM	J ^π : γ to 4 ⁻ . L(d, ³ He)=5. The 1387γ to 4 ⁻ cannot Be M2 (RUL). configuration=π1h _{9/2} π1h _{11/2} ⁻¹ .
5401 2			D	configuration=ν3d _{5/2} ν3p _{1/2} ⁻¹ .
5418.6 5	(6) ⁺		D	J ^π : L(d,p)=2 for d5/2 gives 2 ⁻ or 3 ⁻ . Excitation in (α,α') rules out 2 ⁻ . J ^π : excitation function resonates at ν1j _{15/2} IAR in (p,p'), so π=+, given the available neutron hole states. L(p,p')=(6,7).
5473 6	+		I	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ .
5481.87 ^q 3	5 ⁻	90 fs 14	AB D FGH L Q	J ^π : L(α,α')=5. L(p,p')=5.
5490? ^a 2	^a		B	
5490.34 ^a 5	(4 ⁻ ,6 ⁻) ^a		A f Hi	J ^π : γ's to 5 ⁻ and 6 ⁻ .
5491.53 ^a 3	(4 ⁻ ,6 ⁻) ^a	125 fs +35-21	A D f Hi L	J ^π : γ's to 5 ⁻ and 6 ⁻ .
5502 3			D g	
5511.78 14	1 ⁻	0.0194 fs +12-18	AB DEFgH L	configuration=ν3d _{3/2} ν3p _{1/2} ⁻¹ . J ^π : from γ(θ) and γ(pol) in (γ,γ'). T _{1/2} : from (γ,γ'). Other: <3.5 fs from (n,n'γ).
5516.714 23	3 ⁻	40.9 fs 21	AB D FGH	configuration=ν2g _{7/2} ν3p _{1/2} ⁻¹ . J ^π : L(α,α')=3.
5524 3	+		D I	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ . J ^π : L(d, ³ He)=5.
5531 3			D F	
5536.58 19	10 ⁺		A D G	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ + ν1j _{15/2} ν2f _{5/2} ⁻¹ . J ^π : from σ and form factor in (e,e').
5543.01 14	7 ⁻		Ab d G I	configuration=π1h _{9/2} π2d _{5/2} ⁻¹ . J ^π : from σ and form factor in (e,e').
5545.46 4	(5 ⁻)	37 fs +8-6	Ab d H	J ^π : γ's to 5 ⁻ and 4 ⁻ . 1997Sc21 propose J ^π =5 ⁻ on the basis of the observed γ decay and the strength of the level in their (t,αγ) work.
5548.113 23	2 ⁻	83 fs 7	A D F H L	configuration=ν3d _{3/2} ν3p _{1/2} ⁻¹ + ν3d _{5/2} ν3p _{1/2} ⁻¹ . J ^π : L(d,p)=2 with both d3/2 and d5/2 components.
5554 2			D	
5557.2 10			F	
5561.31 5	2 ⁺	38 fs 4	B D H	J ^π : L(α,α')=2. L(p,p')=2.

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
5563.73 4	3 ⁻	44 fs +9-7	A F H L	configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1} + \nu 2g_{7/2} \nu 3p_{1/2}^{-1}$. J ^π : from L(d,p)=2+4.
5565.2 5	(4 ⁺)		A G J	J ^π : from σ and form factor in (e,e').
5572.0 8			F	
5576.6 15	<i>l</i>		D i	
5579.0 9	<i>l</i>		F i	
5587.7 5	<i>l</i>		D F i	
5599.48 6	0 ⁻	>159 fs	A D F H L	configuration= $\nu 3d_{5/2} \nu 2f_{5/2}^{-1}$ with a small admixture of configuration= $\nu 4s_{1/2} \nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=0. Strength in (d,p) rules out 1 ⁻ given J ^π =1 ⁻ for the 4842, 5292, and 5512 L=0 levels.
5615.4 4	7 ⁺		D FG	J ^π : excitation function resonates at $\nu 1j_{15/2}$ IAR in (p,p'). configuration= $\nu 1j_{15/2} \nu 3p_{3/2}^{-1}$ with J ^π =7 ⁺ from $\sigma(\theta)$ in (p,p') IAR.
5627 5	+		I	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : L(d, ³ He)=5.
5639.55 9	1 ⁻	0.13 ps +12-5	Ab D F H L	J ^π : γ 's to 0 ⁺ and 3 ⁻ . RUL for the transition to g.s. rules out 2 ⁻ . (p,p') via IAR rules out J ^π =2 ⁺ (2007He01). configuration= $\nu 3d_{3/2} \nu 3p_{1/2}^{-1}$. J ^π : γ to 0 ⁺ . RUL rules out 2 ⁻ or J>2.
5641.98 20	1,2 ⁺	<5.5 fs	b D H	configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$. J ^π : L(d, ³ He)=2.
5643 4	2 to 7 ⁻		b I	configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$. J ^π : L(d, ³ He)=2.
5649.01 6	3 ⁻ ,4 ⁻	37 fs +13-10	A D FgH	J ^π : D+Q γ to 3 ⁻ . γ to 5 ⁻ is not M2 or E3 (RUL)E3. Resonates at the $\nu 2g_{9/2}$ IAR in (p,p'). configuration= $\nu 2g_{9/2} \nu 2f_{7/2}^{-1}$ from $\sigma(\theta)$ in (p,p') IAR (2007HeZW). J ^π : excitation function resonates at $\nu 1j_{15/2}$ IAR in (p,p'). configuration= $\nu 1j_{15/2} \nu 3p_{3/2}^{-1}$ from $\sigma(\theta)$ in (p,p') IAR.
5649.5 4	6 to 9 ⁺		D	J ^π : L(α, α')=5. L(p,p')=5.
5658.51 4	5 ^{-m}	31 fs +7-6	B D FgHi	J ^π : D+Q γ to 3 ⁻ allows J=2, 3, or 4. RUL for γ 's to 4 ⁻ rule out 2 ⁺ L(p,p')=(3). J ^π : γ 's to 5 ⁻ and 6 ⁻ . configuration= $\nu 2g_{9/2} \nu 2f_{7/2}^{-1}$.
5665.7 11	<i>m</i>		B D i	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ') .
5675.366 23	2 ⁻ ,3,4 ⁿ	13 fs +6-5	A D F Hi	J ^π : from σ and form factor in (e,e'). Confirming assignments are L(α, α')=4 and L(p,p')=4. configuration= $\nu 2g_{9/2} \nu 2f_{7/2}^{-1}$.
5686.5 7	6 ^{-gn}		A D F Hi	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : from σ and form factor in (e,e'). Confirming assignments are L(α, α')=4 and L(p,p')=4. configuration= $\nu 2g_{9/2} \nu 2f_{7/2}^{-1}$.
5690.117 23	4 ⁺	46 fs 4	ABCD GHI	J ^π : from σ and form factor in (e,e'). Confirming assignments are L(α, α')=4 and L(p,p')=4. configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1} + \nu 2g_{9/2} \nu 2f_{7/2}^{-1}$. J ^π : γ to 6 ⁻ . L(d, ³ He)=2.
5694.22 12	7 ^{-g}	58 fs +84-30	A D HI	configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1} + \nu 2g_{9/2} \nu 2f_{7/2}^{-1}$. J ^π : γ to 6 ⁻ . L(d, ³ He)=2.
5715.53 9	2 ⁺	3.7 fs 11	A DE GHI	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ') .
5721.51 4	7 ⁻	28 fs +9-7	B D F H	T _{1/2} : unweighted average of 4.8 fs 9 from (n,n'γ) and 2.6 fs +5-3 from (γ,γ'). J ^π : L(α, α')=7.

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

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E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
5727.6	+		I	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ . J ^π : L(d, ³ He)=5.
5737.9 3			D L	
5741.1 4	6 to 9 ⁺		D F	J ^π : excitation function resonates at ν1j _{15/2} IAR in (p,p'). configuration=ν1j _{15/2} ν3p _{3/2} ⁻¹ from σ(θ) in (p,p') IAR.
5749.67 14	(11 ⁺) [@]		J	
5763.7 8	6 ⁺		D I	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ + ν1j _{15/2} ν3p _{3/2} ⁻¹ .
5777.96 3	2 ⁻ ,3 ⁻	15.9 fs I4	A D FGHI L	J ^π : L(p,p')=6. L(d, ³ He)=5. configuration=ν2g _{7/2} ν3p _{1/2} ⁻¹ + ν3d _{5/2} ν3p _{1/2} ⁻¹ or ν3d _{3/2} ν3p _{1/2} ⁻¹ + ν3d _{5/2} ν3p _{1/2} ⁻¹ + π1h _{9/2} π2d _{5/2} ⁻¹ . J ^π : L(d,p)=2+4, or L=2 with both d3/2 and d5/2.
5783.22 7		41 fs +22-14	A H	J ^π : γ to 6 ⁻ .
5789.34 4	2 ^{+,3^{+,4⁺}}	40 fs +4-3	HI	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ . J ^π : L(d, ³ He)=5. γ to 3 ⁻ rules out 1 ⁺ and J ^π >4 ⁺ .
5799.41 9		>690 fs	A D H	J ^π : γ to 4 ⁻ .
5805.0 3	1	5.1 fs +11-10	A D H L	J ^π : from γ(θ) in (n,n'γ).
5813.27 4	3 ⁻	22 fs +4-3	ABCD FGH L	configuration=ν2g _{7/2} ν3p _{1/2} ⁻¹ . J ^π : L(α,α')=3. L(p,p')=3.
5819.49 20	1 ^{+,2⁺}	222 fs +42-35	F HI	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ . J ^π : L(d, ³ He)=5. γ to 0 ⁺ .
5825.3 5			A D F	J ^π : γ to 8 ⁺ .
5835.2			B	E(level): excited in (α,α') so this level must Be different from the 5835.8 level which has unnatural parity.
5835.8 6	8 ⁻		D F	configuration=ν2g _{9/2} ν2f _{7/2} ⁻¹ . J ^π : excitation function resonates at ν2g _{9/2} IAR in (p,p'). J ^π =8 ⁻ from σ(θ) in (p,p') IAR.
5844.49 20	1 ⁺	≤0.31 fs	A CDE GHI M	configuration=π1h _{9/2} π1h _{11/2} ⁻¹ . J ^π : from γ(θ) and γ(pol) in (γ,γ'). T _{1/2} : from (γ,γ'). Γ data in (γ,γ') gives T _{1/2} =0.283Γ _{γ0/Γ} fs +27-23. B(M1)=1.01 +43-13 in (e,e') gives T _{1/2} =0.59Γ _{γ0/Γ} fs +9-17. T _{1/2} <2.1 fs is reported in (n,n'γ). The uncertainties in the (e,e') work do not include a systematic component.
5860.6	11 ⁺		G	configuration=ν1i _{11/2} ν1i _{13/2} ⁻¹ .
5867.4	+		I	J ^π : from σ and form factor in (e,e'). configuration=π1h _{9/2} π1h _{11/2} ⁻¹ . J ^π : L(d, ³ He)=5.
5873.573 23	3 ⁻	13.2 fs +21-14	AB D F H J L	configuration=ν2g _{7/2} ν3p _{1/2} ⁻¹ . J ^π : L(α,α')=3.
5885.55 4	3 ⁻	13.9 fs I4	AB D F HI L	configuration=ν3d _{5/2} ν3p _{1/2} ⁻¹ + ν2g _{7/2} ν3p _{1/2} ⁻¹ + π1h _{9/2} π2d _{5/2} ⁻¹ .

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

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E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
5901 3	(8) ⁺		D I	$J^\pi: L(d,p)=2+4.$ configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$.
5918.28 4	3 ⁻ ,4,5 ⁻	173 fs +56-42	D H	$J^\pi: L(p,p')=(8); L(d,{}^3\text{He})=5.$
5923.67 3	2 ⁻	104 fs +90-42	A D F H L	$J^\pi: \gamma$'s to 3 ⁻ and 5 ⁻ are not M2 or E3 (RUL). configuration= $\nu 3d_{3/2} \nu 3p_{1/2}^{-1}$.
5928.0 3	10 ⁺		A G I	$J^\pi: L(d,p)=2$ for d3/2 gives 1 ⁻ or 2 ⁻ . Strength in (d,p) rules out 1 ⁻ given $J^\pi=1^-$ for the 5947 level. $J^\pi: \text{from } \sigma \text{ and form factor in (e,e').}$ configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$.
5944 5	+		I	$J^\pi: L(d,{}^3\text{He})=5.$
5946.77 20	1 ⁻	≤ 0.48 fs	A DEF H L	configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$. configuration= $\nu 3d_{3/2} \nu 3p_{1/2}^{-1}$. $J^\pi: \text{from } \gamma(\theta) \text{ and } \gamma(\text{pol}) \text{ in } (\gamma,\gamma').$ $T_{1/2}: \text{from } (\gamma,\gamma'). \text{ Other: } < 1.4 \text{ fs from } (n,n'\gamma).$
5954 6	9 ⁺		G	configuration= $\nu 1i_{11/2} \nu 1i_{13/2}^{-1} + \pi 2f_{7/2} \pi 1h_{11/2}^{-1}$. $J^\pi: \text{from } \sigma \text{ and form factor in (e,e').}$
5957.3 6			D	
5965.8 4			A	$J^\pi: \gamma \text{ to } 4^+.$
5967.8 8	≈ 9		D	$J^\pi: L(p,p') \approx 9.$
5968.55 6	4 ⁻	7.6 fs +42-35	A D F H L	configuration= $\nu 2g_{7/2} \nu 3p_{1/2}^{-1}$. $J^\pi: L(d,p)=4$ for 2g7/2 gives 3 ⁻ or 4 ⁻ . Mult(1762 γ) to 6 ⁻ cannot Be M3 (RUL). $J^\pi: \gamma$'s to 4 ⁺ and 0 ⁺ .
5973.0 4	2 ⁺		AB	
5981 2			D	
5989.1 12			D F	
5992.67 25	6 ⁺		ABCD FG	$J^\pi: \text{from } \sigma \text{ and form factor in (e,e'). Confirming arguments are } L(\alpha,\alpha')=6 \text{ and } L(p,p')=6.$
5996 5	-		I	configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$. $J^\pi: L(d,{}^3\text{He})=2.$
6009.75 4	3 ⁻	11 fs +5-4	ABCD FGH L	configuration= $\nu 2g_{7/2} \nu 3p_{1/2}^{-1}$. $J^\pi: L(\alpha,\alpha')=3. L(p,p')=3.$
6011.64 6		57 fs +13-11	H	$J^\pi: \gamma \text{ to } 3^-.$
6020.4 20			D	
6025.8 6			A D F	$J^\pi: \gamma \text{ to } 4^-.$
6033 2			D	
6037.5 12	(5 ^{+,} 6 ⁺)		D F	configuration= $\nu 2h_{11/2} \nu 3p_{1/2}^{-1}?$ $J^\pi: \text{probable configuration for } L(d,p)=(5).$
6053.7 6	4 ⁺		B D G	$J^\pi: L(p,p')=4.$ Excited in (α,α') .
6068.2 12	(5 ^{+,} 6 ⁺)		D F	configuration= $\nu 2h_{11/2} \nu 3p_{1/2}^{-1}?$ $J^\pi: \text{probable configuration for } L(d,p)=(5).$
6071 5	-		I	configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$.

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
6076.4 13	0 ⁻ ,1 ⁻		D F	J ^π : L(d, ³ He)=2. configuration= $\nu 4s_{1/2}\nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=0.
6086.56 4	1 ⁻	37 fs +25-15	A B D F H L	configuration= $\nu 3d_{3/2}\nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=2 for d3/2. γ 's to 0 ⁺ and 3 ⁻ . Excited in (α, α') so 2 ⁻ is ruled out.
6099.8 4			A D	J ^π : γ to 5 ⁻ and to the 5239 level that deexcites to 3 ⁻ .
6100.69 14	12 ⁺		D G J	configuration= $\nu 1i_{11/2}\nu 1i_{13/2}^{-1}$. J ^π : from σ and form factor in (e,e').
6101.1 10	(5 ⁺)	>690 fs	D F H	configuration= $\nu 2h_{11/2}\nu 3p_{1/2}^{-1}$? J ^π : probable configuration for L(d,p)=(5) allows 5 ⁺ or 6 ⁺ . γ to 4 ⁻ is not M2 (RUL).
6103.5 5			A	J ^π : γ to 5 ⁻ and to the 5566 level that deexcites to 4 ⁻ .
6147.8 8			A H	J ^π : γ to 4 ⁻ .
6179 5	2 ⁺		D I	configuration= $\pi 1h_{9/2}\pi 1h_{11/2}^{-1}$. J ^π : L(p,p')=2.
6191.0 15	3 ⁻		D F	J ^π : L(p,p')=3. Note that L=(5) is reported in (d,p); however, the assignment is tentative.
6193.1 4	2 ⁺	0.62 fs 5	B DE G	XREF: B(6195.6). J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ'). A confirming argument is from σ and form factor in (e,e'). T _{1/2} : from B(E2)=0.0505 37 in (e,e'). Other: 0.75 fs +20-13 from (γ, γ'), both deduced for $\Gamma_{\gamma 0}/\Gamma=1$.
6216.8 15			D	
6223.9 15			D	
6234.9 6			D g	
6242.4 9	^o		AB D FgHi	J ^π : γ to 3 ⁻ .
6250.6 15	^o		D G i	
6255.68 6	2 ⁺	≤ 0.91 fs	A DEF H	J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ'). T _{1/2} : from (γ, γ').
6263.7 1	1 ⁻	≤ 0.21 fs	AB DEFG L	configuration= $\nu 4s_{1/2}\nu 3p_{1/2}^{-1} + \nu 3d_{3/2}\nu 3p_{1/2}^{-1}$. J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ'). Confirming arguments are L(α, α')=1 and L(d,p)=0+2. T _{1/2} : from (γ, γ').
6274.55 22	3 ⁻	12 fs +16-10	AB D F H	configuration= $\nu 3d_{5/2}\nu 3p_{1/2}^{-1} + \nu 2g_{7/2}\nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=2+4. A confirming argument is L(p,p')=3.
6283 6	10 ⁻		G	J ^π : from σ and form factor in (e,e').
6313.9 1	1 ⁻	≤ 0.17 fs	AB DEF L	configuration= $\nu 4s_{1/2}\nu 3p_{1/2}^{-1}$. J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ'). T _{1/2} : from (γ, γ').
6317.6 15			D	
6327.2 15			D	
6332.9 15	^b		D g	

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

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E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
6340.5	1 ⁻ ,2,3 ⁻ <i>b</i>		A D Fg M	J ^π : γ to 3 ⁻ . Fed from 0 ⁻ ,1 ⁻ capturing state.
6348.3 15	<i>b</i>		D g	
6354.4 4			A D F	J ^π : γ to 3 ⁻ .
6361.6 1	1 ⁻	≤0.30 fs	AB DEF L	configuration= $\nu 3d_{3/2} \nu 3p_{1/2}^{-1}$. J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ') . A confirming argument is L(α, α')=1. T _{1/2} : from (γ, γ') .
6371.8 15	2 ^{+,3-}		D G	J ^π : from σ and form factor in (e,e'). 2 ⁺ is preferred by the authors, but 3 ⁻ cannot be ruled out.
6378.8 6			D	
6389.6 5	- <i>p</i>		D Fg L	configuration= $\nu 3d_{3/2} \nu 3p_{1/2}^{-1}$ or $\nu 2g_{7/2} \nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=2 or 4.
6397.1 15	<i>p</i>		D g L	XREF: D(6418.8)F(6421.6).
6420.2 14	(5 ^{+,6⁺)}		D F	configuration= $\nu 2h_{11/2} \nu 3p_{1/2}^{-1}$? E(level): the energy agreement between (d,p) and (p,p') is poor, but 1997VaZT assign these as the same level. J ^π : probable configuration for L(d,p)=(5) allows 5 ⁺ or 6 ⁺ .
6427.6 15			D G	
6428.10	2 ⁻		G	B(M2)≈2.4 E(level),J ^π : from σ and form factor in (e,e'). The evaluator assumes that this level is distinct from that at 6427.6 since (α, α') is not expected to excite an unnatural parity level.
6435.57 23	12 ⁻		D G J	configuration= $\nu 1j_{15/2} \nu 1i_{13/2}^{-1}$. J ^π : from σ and form factor in (e,e').
6444.4 2	3 ⁻		D F L	configuration= $\nu 3d_{5/2} \nu 3p_{1/2}^{-1}$ + $\nu 2g_{7/2} \nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=2+4. A confirming argument is L(p,p')=3.
6448.40 14	(13 ⁻) [@]		D J	
6452.0 5			B D	
6462.7 4	-		D F I	configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$. J ^π : L(d, ³ He)=2.
6472.6 15			D	
6482.0 15	2 ⁻		D G	J ^π : from σ and form factor in (e,e'). B(M2)≈8 from (e,e').
6486.5 2	1 ⁻	0.78 fs +37-23	AB DEF L	configuration= $\nu 4s_{1/2} \nu 3p_{1/2}^{-1}$ + $\nu 3d_{3/2} \nu 3p_{1/2}^{-1}$. J ^π : from $\gamma(\theta)$ and $\gamma(\text{pol})$ in (γ, γ') . A confirming argument is L(d,p)=0+2. T _{1/2} : from (γ, γ') .
6505.6 22	1	≤1.0 fs	DE	J ^π : from $\gamma(\theta)$ in (γ, γ') . T _{1/2} : from (γ, γ') .
6512.8 6	1	≤4.2 fs	DE g	J ^π : from $\gamma(\theta)$ in (γ, γ') . T _{1/2} : from (γ, γ') .

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
6529.0 ^c 15	-		a D g I	configuration=π1h _{9/2} π2d _{5/2} ⁻¹ . J ^π : L(d, ³ He)=2.
6531.7 ^c 15			a D	
6541.6 6			B D	
6545.2 11			A	
6551.93 16	1 ⁻ ,2,3 ⁻		A L	J ^π : γ's to 0 ⁺ and 3 ⁻ .
6561.0 15			D	
6573.2 15			D F	
6579.0			D	
6588 10	2 ⁻		G	E(level): this level may correspond to one of the adjacent levels seen in (p,p') or (d,p). J ^π : from σ and form factor in (e,e'). B(M2)≈3 from (e,e').
6589.0 15			D F	
6609.2 15			D	
6617.0 3	3 ⁻		AB D FG I L	configuration=ν2g _{7/2} ν3p _{1/2} ⁻¹ + π1h _{9/2} π2d _{5/2} ⁻¹ . J ^π : from σ and form factor in (e,e').
6631.5 6			B D	
6655.3 15			D F	
6657.8 5	4 ⁺		AB D G L	J ^π : L(p,p')=4.
6682.46 14	(5 ⁻)		A D F L	configuration=ν2h _{11/2} ν3p _{1/2} ⁻¹ ? J ^π : probable configuration for L(d,p)=(5). γ to 3 ⁻ rules out 6 ⁻ . XREF: L(6692.0). J ^π : L(p,p')=5.
6687.8 7	5 ⁻		B D L	
6699.60 23	(3 ⁻) ^d		AB D Fg	J ^π : γ's to 2 ⁻ and 5 ⁻ . Excited in (α,α') so level probably has natural parity. From σ and form factor in (e,e') one has J ^π =1 ⁻ ,(2 ⁻ ,3 ⁻) for a level at 6701 9.
6708.9 15	d		D g	
6719.8 5	1 ⁻	0.052 fs +6-12	AB DEF	L
				XREF: L(6718.4). E(level),J ^π : J ^π =1 ⁻ from γ(θ) and γ(pol) for Eγ=6719.7 5. L=(1) in (p,p') for E=6719.7 7. E(d,p)=6720.8 15. Although the energy agreement is not good, E(p,p'γ)=6718.5 3 with J determined as 1 from γ(θ), and Eγ=6716.3 4 in (d,pγ) and E(α,α')=6717 2 probably correspond to the same 1 ⁻ level. T _{1/2} : from (γ,γ').
6728 2			D	
6734.4 11			D FG	
6739.6 7			D L	XREF: L(6740.1).
6743.42 16	14 ⁻		D G J	configuration=ν1j _{15/2} ν1i _{13/2} ⁻¹ . J ^π : from σ and form factor in (e,e').
6756.4 7			D g	
6766.6 10			A D Fg	
6773.4 15	1,2,3 ⁻		A D Fg	XREF: D(6777.0)F(6774.7). J ^π : γ to 0 ⁺ .

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
6789.1 6	(2 ⁻ ,3 ⁺)		A D FG	J ^π : J ^π =3 ⁺ or, less likely, 2 ⁻ , from σ and form factor in (e,e').
6794.1 15			D	
6800.8 20			D F L	J ^π : γ to 5 ⁻ .
6820.0 4	(2 ⁻ ,3 ⁻)		A D F	J ^π : γ's to 1 ⁻ and 4 ⁻ .
6825.6 7			D F	
6831.5 15	(8 ⁻)		D G	configuration=ν1j _{15/2} ν1i _{13/2} ⁻¹ . J ^π : from σ and form factor in (e,e') for E=6833.
6845.7 6	(8 ⁺)		D	J ^π : L(p,p')=(8).
6861.4 ^e 6	9 ^{-e}		D G	configuration=π1i _{13/2} π1h _{11/2} ⁻¹ . J ^π : from σ and form factor in (e,e').
6868.0 ^e 6	10 ^{-e}		D G	J ^π : from σ and form factor in (e,e').
6877.7 5			D F	J ^π : from σ and form factor in (e,e').
6879 6	7 ⁻		G	configuration=π1i _{13/2} π1h _{11/2} ⁻¹ . J ^π : from σ and form factor in (e,e').
6884 6	10 ⁻		G	configuration=π1i _{13/2} π1h _{11/2} ⁻¹ . J ^π : from σ and form factor in (e,e').
6897.3 4			A D	E(level): from (d,py). Other:6897.2 6 from (p,p').
6913 4	2 ⁺	≤0.85 fs	E	J ^π : J=2 from γ(θ). B(M2)(W.u.)>82 rules out J ^π =2 ⁻ . T _{1/2} : from (γ,γ').
6917.5 6			D	
6920.7 8			A	
6929.6 5	2 ⁻		A D FG	B(M2)↑≈20 configuration=ν3d _{3/2} ν3p _{1/2} ⁻¹ + ν3d _{5/2} ν3p _{1/2} ⁻¹ . E(level): from (d,py). Others:6929.1 6 from (p,p') and 6927.5 6 from (d,p). J ^π : from σ and form factor in (e,e'γ). A confirming argument is L(d,p)=2 with both d _{3/2} and d _{5/2} configurations. J ^π : L(p,p')=3.
6939.9 15	3 ⁻		D	
6947 2			D	
6969.3 5	2 ⁻		A D FG	configuration=ν3d _{3/2} ν3p _{1/2} ⁻¹ + ν3d _{5/2} ν3p _{1/2} ⁻¹ . E(level): from (d,py). Others:6969.5 6 from (p,p') and 1968.9 6 from (d,p). J ^π : L(d,p)=2 with both d _{3/2} and d _{5/2} configurations. Note that L(p,p')=(1). J ^π : seen in (γ,γ'). T _{1/2} : from (γ,γ').
6980 40	1,2 ⁺	≈1.8 fs	E	
6988.7 15			D g	
6995.1 15			D g	
7000	(9 ⁺)		G	J ^π : from σ and form factor in (e,e').
7001.0 4			A D F	J ^π : γ to 5 ⁻ .
7020.2 6	1 ⁻		FG	configuration=ν4s _{1/2} ν3p _{1/2} ⁻¹ + ν3d _{3/2} ν3p _{1/2} ⁻¹ . J ^π : L(d,p)=0+2.
7020.2 4	(3 ⁻)		A D	J ^π : L(p,p')=(3). γ's to 4 ⁺ and 4 ⁻ .
7034 2			D	

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
7057.9 15			D	
7061.5	12 ⁻		D G	configuration=π1i _{13/2} π1h _{11/2} ⁻¹ . J ^π : from σ and form factor in (e,e'). A confirming argument is from 1990Fu07 in (p,p') based on comparison of σ(θ) with DWBA calculations for the indicated pure particle-hole configuration, and agreement of excitation energy with the calculated value. The J ^π and configuration agree with the earlier (p,p') work of 1980Ba46 .
7063.53 20	1 ⁻	0.025 fs +I-3	AB DEFG	XREF: L(7062.1). configuration=ν4s _{1/2} ν3p _{1/2} ⁻¹ . J ^π : from γ(θ) and γ(pol) in (γ,γ'). T _{1/2} : from (γ,γ').
7083.2 3	1 ⁻	0.050 fs 4	A DEF	XREF: L(7062.1). configuration=ν3d _{3/2} ν3p _{1/2} ⁻¹ . J ^π : from γ(θ) and γ(pol) in (γ,γ'). T _{1/2} : from (γ,γ').
7086.6	12 ⁻		G	configuration=π1i _{13/2} π1h _{11/2} ⁻¹ . J ^π : from σ and form factor in (e,e').
7095.6 3			D	
7108.10	(1 ⁻ ,3 ⁻)		G	J ^π : from σ and form factor in (e,e'). J ^π =1 ⁻ is most probable, but 3 ⁻ cannot be ruled out.
7117.0 3	(3 ⁻)		D F	J ^π : L(p,p')=(3).
7137.3 4	3 ⁻ ,4 ⁻		A D F	configuration=ν2g _{7/2} ν3p _{1/2} ⁻¹ . J ^π : L(d,p)=4 for g _{7/2} allows 3 ⁻ or 4 ⁻ .
7143.10	(3 ⁺ ,2 ⁻)		G	J ^π : from σ and form factor in (e,e'). J ^π =3 ⁺ is the authors' preferred value, but 2 ⁻ cannot be ruled out. configuration=ν2h _{11/2} ν3p _{1/2} ⁻¹ ? J ^π : probable configuration for L(d,p)=(5).
7146.1 15	(5 ⁻ ,6 ⁻)		D F	
7157.2			D	
7167.2			D F	
7177.0 3	1	≤0.57 fs	DE	J ^π : from γ(θ) in (γ,γ'). T _{1/2} : from (γ,γ').
7191.6 15			D	
7196.6 10			Ab D Fg	J ^π : γ to 3 ⁻ .
7206.9 5	1	≤0.51 fs	Ab E g	J ^π : from γ(θ) in (γ,γ'). T _{1/2} : from (γ,γ').
7218.6 14			A D F	
7232.2 15			D F	
7240.2	1 ⁻	≤0.24 fs	A D F	E(level): the data are inconsistent. The values are 7238.7 6 (d,py), 7239.6 15 (d,p), 7241.4 1 (p,p'γ), 7237.9 15 (p,p') and 7243.3 (γ,γ'). The evaluator assumes that all these reactions are exciting the same level. configuration=ν4s _{1/2} ν3p _{1/2} ⁻¹ + ν3d _{3/2} ν3p _{1/2} ⁻¹ . J ^π : L(d,p)=0+2. T _{1/2} : from (γ,γ').
7255.3 15			D FG	

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
7264.4 10	2 ⁺		A g	J ^π : γ to 5 ⁻ .
7265.9 15	2 ⁺		D g	J ^π : L(p,p')=2.
7278.68 20	1 ⁺	0.585 fs 15	DEFg	J ^π : from γ(θ) and γ(pol) in (γ,γ'). T _{1/2} : from (γ,γ').
7280			B	E(level): this level is excited in (α, α') and thus is probably distinct from the 7278.68 level which has unnatural parity.
7291.4 23			D F	
7301.2 17			D F	
7311 2			F	
7313 4	(2 ⁻ ,3 ⁺)		G	J ^π : from σ and form factor in (e,e'). 3 ⁺ is the authors' preferred value; however, 2 ⁻ cannot Be ruled out.
7315.4 20	2 ⁺		A D L	J ^π : L(p,p')=2.
7332.4 8	1 ⁻	0.016 fs +2-4	A DEF	XREF: D(7326.5)F(7329.2).
7334.8 15	3 ⁻		D	J ^π : from γ(θ) and γ(pol) in (γ,γ'). T _{1/2} : from (γ,γ').
7335.4 15	(5 ⁻ ,6 ⁻)		F	J ^π : L(p,p')=3. E(level): L is tentative, so this may Be the same as the 7334.8 level. configuration= $\nu 2h_{11/2} \nu 3p_{1/2}^{-1}$? J ^π : probable configuration for L(d,p)=(5).
7346 3			D G	
7360 f 50	2 ⁺		D	XREF: Others: AE J ^π : L(p,p')=2. Γ=400 keV 50. %EWSR=6.5 10.
7360.1 15	(5 ⁻ ,6 ⁻)		D F	configuration= $\nu 2h_{11/2} \nu 3p_{1/2}^{-1}$? J ^π : probable configuration for L(d,p)=(5).
7370.92 5	2 ⁺		NOP	
7371.6 17			D F	
7378.01 5	2 ⁺		NOP	
7380.17 5			N	
7382 9	(4 ⁺)		D	J ^π : L(p,p')=(4).
7383.96 6	2 ⁺		OP	
7384.55 5	1 ⁺		N P	
7389.0 10	3 ⁻		A D G	J ^π : J ^π =3 ⁻ or 1 ⁻ from σ and form factor in (e,e'). 3 ⁻ is the authors' preferred value, but 1 ⁻ cannot Be ruled out. γ to 4 ⁻ rules out the 1 ⁻ alternative.
7397.12 6	(2) ⁺		NO	
7398.21 3	1		OP	
7399.4 11	4 ⁺		BCD F	J ^π : L=4 in (α, α') and (d,d').
7400.68 6	2 ⁺		O	
7405.41 6	1 ⁺		NOP	
7408.5 f 11			D F	
7408.94 5	1 ⁻		NOP	

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
7415.3	1 ⁻	≤0.17 fs	E G	J ^π : J=1 from $\gamma(\theta)$ in (γ, γ'). J ^π =1 ⁻ or possibly 3 ⁻ from σ and form factor in (e,e'). T _{1/2} : from (γ, γ').
7416.04 7	2 ⁺		OP	
7420.9 11			D F	
7428.9 11			D F	E(level): possibly the same level as that seen at 7430.38 in resonance work.
7430.38 7	2 ⁺		O	
7435.34 9			O	
7435.90 5	2 ⁺		NO	
7440.53 5	1 ⁺		NO	
7449.4 12	(5 ⁻ ,6 ⁻)		D F	configuration= $\nu 2h_{11/2} \nu 3p_{1/2}^{-1}$? J ^π : probable configuration for L(d,p)=(5).
7449.55 5	0 ⁺		N	
7450.45 5	2 ⁺		NO	
7455.19 5	2 ⁺		NO	
7459.2	2 ⁻		D FG	J ^π : from σ and form factor in (e,e'). B(M2)≈11 from (e,e').
7465.79 5	1 ⁺		NOP	
7465.79 6	2 ⁺		NO	
7468.6 6	1 ⁻		D F	E(level): possibly the same level as that seen at 7469.18 in resonance work. configuration= $\nu 4s_{1/2} \nu 3p_{1/2}^{-1} + \nu 3d_{3/2} \nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=0+2.
7469.18 6	1 ⁻		NOP	
7470.94 6	0 ⁺		N	
7479.38 6	(2 ⁺)		NO	
7482.10	(1 ⁻ ,3 ⁻)		G	J ^π : from σ and form factor in (e,e'). The authors' preferred assignment is 3 ⁻ , but 1 ⁻ cannot be ruled out.
7482.49 6	1 ⁺		NOP	
7491	2 ⁺		D	E(level): possibly the same level as that seen at 7494.92 in resonance work. J ^π : L(p,p')=2.
7494.92 8	2 ⁺		NOP	
7495.17 8	1 ⁺		NO	
7497.47 6	1 ⁺		NOP	
7499.41 7	1 ⁽⁺⁾		NO	
7502.47 7	0 ⁺		N	
7503.70 7	(2 ⁺)		NO	
7505.0 3	1 ⁻		D F	configuration= $\nu 4s_{1/2} \nu 3p_{1/2}^{-1} + \nu 3d_{3/2} \nu 3p_{1/2}^{-1}$. J ^π : L(d,p)=0+2.
7506.89 7	2 ⁺		NO	
7508.12 15	(2 ⁺)		O	
7509.4	2 ⁻		G	J ^π : from σ and form factor in (e,e'). B(M2)≈10 from (e,e').

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	L	XREF	Comments
7512.58 7	1 ⁺			N	
7515.38 7	(1 ⁺)			N	
7516.29 7	(1 ⁺)			N	
7517	3 ⁻		D		J ^π : L(p,p')=3.
7517 2	0 ⁻ ,1 ⁻		F		J ^π : L(d,p)=0.
7520.90 7	2 ⁺			N	
7522.89 7	1 ⁺			N	
7523.84 7	(0 ^{+,1⁺)}			N P	
7526.01 10	2 ⁺			N	
7528.79 17			J		
7535.57 7	1 ⁺			N	
7537.60 18	(2 ⁺)			O	
7538.18 7	2 ⁺			N	
7546.02 10	1 ⁺			N	
7546.24 11	0 ⁺			N	
7547.98 10	1 ⁺			N	
7548.18 7	2 ⁺			N	
7548.49 11	1 ⁻			NOP	
7548.6 6	1 ⁻	≤0.35 fs	DEFG		configuration= $\nu 4s_{1/2} \nu 3p_{1/2}^{-1} + \nu 3d_{3/2} \nu 3p_{1/2}^{-1}$. E(level): possibly the same level as that seen at 7548.49 in resonance work. J ^π : L(d,p)=0+2. Confirming arguments are J=1 from $\gamma(\theta)$ in (γ, γ'), and $J^\pi=1^-$ or possibly 2 ⁻ or 3 ⁺ from σ and form factor in (e,e'). T _{1/2} : from (γ, γ').
7549.09 11	(0 ⁺)			N	
7553.29 10	(0 ⁺)		(1)	N	E(level): possible multiplet.
7563.94 11	(2 ⁺)			NO	
7566.43 10	(0 ⁺)			N	
7567.89 11	(⁺)			N	
7568.00 8				N	
7573 ^f 7			D		
7574.49 10	0 ⁺			N	
7576.31 10	2 ⁻			N	
7577.41 11	1 ⁺			NO	
7578.62 11	(2) ⁻			N	
7580.71 11				N	
7585.27 10	1 ⁺			NO	
7586.85 23	(1)			O	
7587.04 10	2 ⁺			NO	
7590.79 10	(2) ⁺			NO	
7594 ^f 7			D		
7595.26 11	0 ⁻			N	

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
7596.53 <i>I0</i>	1 ⁺		NO	
7598.07 <i>II</i>			N	
7600.01 <i>II</i>	(1 ⁺)		NO	
7607.38 <i>II</i>	2 ⁺		NO	
7610.21 <i>II</i>	(1 ⁺)		N	
7610.64 <i>II</i>	(2 ⁺)		NO	
7616.16 <i>I0</i>	2 ⁺		NOP	
7616.55 <i>II</i>	1 ⁺		NO	
7621.09 <i>I0</i>	3 ⁻		N	
7623.07 <i>26</i>	1 ⁻		NOP	
7627.20 <i>II</i>			N	
7628.77 <i>I6</i>	(1 ⁺)		NO	
7631 4	1 ⁻	≤0.57 fs	E G	J ^π : J=1 from $\gamma(\theta)$ in (γ, γ'). J ^π =1 ⁻ or possibly 2 ⁻ or 3 ⁻ from σ and form factor in (e,e'). T _{1/2} : from (γ, γ').
7632.03 <i>I0</i>	1 ⁺		NO	
7636.02 <i>2I</i>	(2 ⁺)		NO	
7636.4 3	2 ⁺		O	
7640.01 <i>II</i>	(2 ⁺)		NO	
7642.98 <i>2I</i>	(0 ⁺)		N	
7644.5 2			N	
7650.2			P	
7651.18 <i>II</i>	1 ⁺		NO	
7651.52 <i>I0</i>	(2 ⁺)		N	
7653.93 <i>II</i>	(1 ⁺)		NO	
7655.3 3	(2 ⁺)		O	
7656 8	(10 ⁺)		D G	J ^π : L(p,p')=(10).
7656.66 <i>II</i>	0 ⁺		N	
7662.91 <i>II</i>	1 ⁽⁺⁾		NO	
7664.41 <i>I0</i>	1 ⁺		NOP	
7666.32 <i>II</i>	(1 ⁺)		NO	
7667.81 <i>II</i>	(0 ⁺)		N	
7670.83 <i>II</i>			N	
7672.51 <i>II</i>	(1 ⁺)		NO	
7676.35 <i>II</i>	(2) ⁻		N	
7676.59 <i>I0</i>	(1 ⁻)		N	
7680.18 <i>II</i>			N	
7680.44 <i>II</i>	1 ⁺		NO	
7683.31 <i>II</i>	1 ⁻		NOP	
7683.7 2	(0 ⁺)		N	
7685.4 5	1,2 ⁺		DE	J ^π : excited in (γ, γ').
7685.89 <i>II</i>	2 ⁻		N	
7689.63 <i>II</i>	2 ⁺		NO	

Adopted Levels, Gammas (continued) **^{208}Pb Levels (continued)**

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
7696.02 <i>11</i>	3 ⁻		N	
7696.5 <i>3</i>	1 ⁻		N	
7698.68 <i>10</i>	(2) ⁺		NO	
7700 <i>f</i> <i>10</i>			G	
7701.87 <i>10</i>	1 ⁺		NO	
7702.80 <i>10</i>	(2) ⁺		N	
7706.62 <i>11</i>			N	
7712.68 <i>10</i>	(2 ⁺)		N	
7715.95 <i>11</i>			N	
7721.52 <i>11</i>	2 ⁻		N	
7722.6 <i>24</i>	1	≤0.62 fs	DE	J ^π : from $\gamma(\theta)$ in (γ, γ'). T _{1/2} : from (γ, γ').
7725.92 <i>11</i>	2 ⁺		N	
7734.87 <i>11</i>	2 ⁺		N	
7736.17 <i>11</i>	1 ⁺		NO	
7738.94 <i>11</i>	(0 ⁺)		N	
7740 <i>f</i> <i>10</i>			N	
7743.03 <i>11</i>	(0 ⁺)		N	
7743.09 <i>12</i>			N	
7744.65 <i>11</i>	2 ⁺		NO	
7745.33 <i>11</i>	(1 ⁺)		NO	
7748.55 <i>11</i>	2 ⁺		NO	
7749.60 <i>11</i>	(0 ⁺)		N	
7751.92 <i>21</i>	(1 ⁺)		NO	
7757.55 <i>13</i>			N	
7761.1 <i>2</i>	2 ⁺		g	NO
7762.1 <i>2</i>	(0) ⁺			N
7767.5 <i>2</i>	2 ⁺		g	NO
7768.3 <i>2</i>	2 ⁺		g	NO
7771.6 <i>2</i>	0 ⁺			N
7777.09 <i>14</i>				N
7777.9 <i>2</i>	(2) ⁺			NO
7780.8 <i>1</i>	3 ⁻			N
7785.78 <i>14</i>	(2 ⁺)			NO
7786.4 <i>2</i>	2 ⁺			NO
7790.0 <i>2</i>	1 ⁺			NO
7790.8 <i>2</i>				N
7791.56 <i>14</i>				N
7792.9 <i>2</i>	1 ⁺			NO
7794.2 <i>2</i>	2 ⁻			N
7795.9 <i>2</i>	(2) ⁺			N

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	T _{1/2} [#]	XREF	Comments
7798.23 <i>I4</i>			N	
7802.1 2	0 ⁺		N	
7803.40 <i>I4</i>			N	
7807 6	(1 ⁻ ,2 ^{+,3⁻)}		G	J ^π : from σ and form factor in (e,e'). The authors' preferred assignment is 3 ⁻ ; however, 1 ⁻ and 2 ⁺ cannot Be ruled out.
7808.13 <i>I4</i>			N	
7808.76 <i>I4</i>			N	
7811.13 <i>I4</i>			N	
7812.0 2	2 ⁺		NO	
7812.9 2	1 ⁻		N	
7817.75 <i>I5</i>	2 ⁺		NO	
7818.21 <i>I5</i>			N	
7823.15 <i>I5</i>			N	
7825 8	(10 ⁻)		D	configuration= $\nu 1i_{11/2} \nu 2h_{9/2}^{-1}$. J ^π : from a comparison of $\sigma(\theta)$ with DWBA calculations for the indicated pure particle-hole configuration, and agreement of the excitation energy with the calculated value (1990Fu07).
7828.3 2	3 ⁻		N	
7829.5 2	1 ⁻		N	
7830.04 <i>I5</i>			N	
7830.61 <i>I5</i>			N	
7831.9 2	(1) ⁺		N	
7832.5 2			N	
7837.1 2	(2) ⁻		N	
7838.1 2	3 ⁻		N	
7839.9 2			N	
7840.9 2			N	
7844.5 2			N	
7845 ^f 10	2 ⁺		D G	XREF: Others: AE XREF: D(7840). J ^π : L(p,p')=2. $\Gamma=400$ keV 50 from (p,p'). %EWSR=4.2 6 from (p,p').
7846.8 2			N	
7852			P	
7858			P	
7869			P	
7872 6	(1 ⁻ ,2)		G	J ^π : from σ and form factor in (e,e'). The authors preferred assignment is 2 ⁺ ; however, 1 ⁻ and 2 ⁻ cannot Be ruled out.
7901.9 6	2 ⁺		O	
7904.3 6	2 ⁺		O	
7907.2 6	1 ⁻		OP	
7913 3	1 ⁽⁻⁾	≤0.48 fs	DE	XREF: D(7920). J ^π : J=1 from $\gamma(\theta)$ in (γ,γ') . L(p,p')=(1).

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

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E(level) [†]	J [‡]	XREF	Comments
7913.8 6	2 ⁺	OP	T _{1/2} : from (γ, γ').
7918		P	
7924 3	2 ⁻	G	J ^π : from σ and form factor in (e,e'). B(M2)~20 in (e,e').
7961 3	(1 ⁻ ,3 ⁻)	G	J ^π : from σ and form factor in (e,e'). The authors preferred assignment is 3 ⁻ ; however, 1 ⁻ cannot be ruled out.
7965		P	
7967.5 2	3 ⁻	N	
7968.5 2	0 ⁺	N	
7970.0 2	(2) ⁺	N	
7971.2 2	1 ⁻	N P	
7974.04 19	(15 ⁻) [@]	J	
7974.2 2	1 ⁺	N	
7977.7 2	2 ⁻	N	
7978.8 2	(0 ⁺ ,1 ⁺ ,2 ⁺)	N	
7980.9 2	1 ⁻	NOP	
7981.7 2	(1,2) ⁺	N	
7982.6 2	(1,2) ⁺	N	
7987.3 2	2 ⁻	N	
8001		P	
8008 3	2 ⁻	D G	J ^π : from σ and form factor in (e,e'). B(M2)~11 in (e,e').
8008.2 7	2 ⁺	OP	
8018	1 ⁻	P	
8026.95 17	(14 ⁻) [@]	J	
8051.1 7	2 ⁺	O	
8065		P	
8071.9 7	2 ⁺	N	
8092		P	
8102	1 ⁻	P	
8109.1 8	2 ⁺	O	
8110 50	4 ⁺	BCD	XREF: B(8100)C(8100). J ^π : L=4 in (α, α'), (d,d') and (p,p'). $\Gamma=400$ keV 50 in (p,p'). %EWSR=3.0 15 in (p,p'), 2.5 in (α, α').
8144.5 8	2 ⁺	OP	
8166 8	3 ⁻	D	J ^π : L(p,p')=3.
8167.0 8	2 ⁺	O	
8185		P	
8202		P	
8206		P	

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

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E(level) [†]	J ^π [‡]	XREF	Comments
8212	1 ⁻	P	
8219.9 9	1	OP	
8220 ^f	(1 ⁻)	D	J ^π : L(p,p')=(1).
8252		P	
8264		P	
8264.38 23		J	J ^π : γ to (14 ⁻).
8274	1 ⁻	P	
8293		P	
8310		P	
8319	1 ⁻	P	
8338		P	
8343		P	
8350 50	3 ⁻	D	J ^π : L(p,p')=3. Γ=400 keV 50. %EWSR=4.0 12.
8350.79 19	(15 ⁻) [@]	J	
8358		P	
8365	1 ⁻	P	
8369 8	12 ⁺	D	configuration=ν1j _{15/2} ν2h _{9/2} ⁻¹ . J ^π : from a comparison of σ(θ)with DWBA calculations for the indicated pure particle-hole configuration, and agreement of the excitation energy with the calculated value (1990Fu07).
8400 ^f		G	
8470	3 ⁻	D	J ^π : L(p,p')=3. E(level): possibly corresponds to the 8470 level.
8493 20		V	
8520 20		V	
8562.94 24	(16 ⁻) [@]	J	
8620	2 ⁺	D	J ^π : L(p,p')=2.
8723.50 23		J	J ^π : γ to 14 ⁻ .
8750	2 ⁺	D	J ^π : L(p,p')=2.
8812.70 23	(14 ⁻ ,15,16 ⁻)	J	J ^π : γ's to (14 ⁻) and (16 ⁻).
8860 50	2 ⁺	D g	J ^π : L(p,p')=2. Γ=400 keV 50 in (p,p'). %EWSR=5.0 8 in (p,p').
8950	2 ⁺	D g	J ^π : L(p,p')=2.
9061.2 3	(17 ⁺) [@]	J	
9103.1 3		J	J ^π : γ to (17 ⁺).
9180	3 ⁻	D	J ^π : L(p,p')=3.
9340 50	2 ⁺	D	J ^π : L(p,p')=2. Γ=400 keV 50. %EWSR=5.0 8.
9380	3 ⁻	DE	XREF: E(9400). J ^π : L(p,p')=3.
9394.4 4		J	J ^π : γ to 9103 which has a γ to (17 ⁺).
9520	2 ⁺	D G	XREF: G(9600).

Adopted Levels, Gammas (continued)
 ^{208}Pb Levels (continued)

E(level) [†]	J [‡]	XREF	Comments
10070 30	(1,2)	E G	$J^\pi: L(p,p')=2.$ $J^\pi:$ from $\gamma(\theta)$ in (γ,γ') dipole excitation is dominant, but an $L=2$ contribution as large as 25% cannot Be excluded. XREF: E(10040).
10136.8 5	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
10196.1 11	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
10342.0 11	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
10357.4 11	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
10372.2 11	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
10552.4 15	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
10600 40	(1,2)	CDE G	$J^\pi: L=2$ in (d,d') and (p,p') ; however, $\gamma(\theta)$ in (γ,γ') shows a dominant dipole contribution, but an $L=2$ contribution as large as 20% cannot Be ruled out. XREF: Others: AE
10.9×10^3 3	2^+	BCD	configuration: isoscalar giant quadrupole resonance. $J^\pi: L=2$ in (α,α') , (d,d') , and (p,p') . E(level): from (α,α') . Others: 10500 200 (d,d'), 10600 200 (p,p'). $\Gamma=3.0$ 3 MeV, %EWSR=100 13 (2004Yo02). See (α,α') for other values and a discussion of possible higher L components. $\Gamma=2.0$ MeV 2 in (p,p') .
11270	(1,2)	E	$J^\pi: \gamma(\theta)$ gives a dominant dipole contribution, but an $L=2$ contribution as large as 25% cannot Be ruled out.
11361.0 15	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
11450	(1,2)	E	$J^\pi: \gamma(\theta)$ gives a dominant dipole contribution, but an $L=2$ contribution as large as 15% cannot Be ruled out. $\Gamma<70$ keV.
11.60 $\times 10^3$ 10	E		$\Gamma=2.1$ MeV if E1. %EWSR=11.
11958.1 17	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
12250	4^+	B D	XREF: B(12500)D(12000). $J^\pi: L=4$ in (α,α') and (p,p') . $\Gamma=2.4$ MeV 2 in (p,p') , 3.6 MeV in (α,α') . %EWSR=10 3 in (p,p') and 14 in (α,α') .
12949.6 17	J		$J^\pi:$ high spin, above the (17^+) 9061 level.
13.5×10^3 1	1^-	B DE G	E(level): weighted average of 13300 300 (2004Yo02 in (α,α')), 13500 100 in (γ,γ') , and 13600 200 (e,e'). Others: 13000 100 (2004Uc01 in (α,α')), 13600 (p,p'), and 13420 (γ,n). configuration: low-energy component of the isoscalar giant dipole resonance (see (α,α')). $J^\pi:$ from σ and form factor in (e,e') . Confirming arguments are $L=1$ in (α,α') and (p,p') , and $J=1$ from $\gamma(\theta)$ in (γ,γ') . $\Gamma=7.7$ 5 MeV (2004Yo02 in (α,α')), 4.05 MeV (1970Ve03 in (γ,n)) and 3.7 MeV in (γ,γ') .
13675.0 20	BCD G	J	$J^\pi:$ high spin, above the (17^+) 9061 level. E(level): from 2004Yo02 in (α,α') . See (α,α') for other values ranging from 13000 to 13900. E=13500 300 in (d,d') , 13900 in (p,p') , and 14000 in (e,e') . configuration: isoscalar giant monopole resonance. $L=0$ is dominant; however, other components are required. See (α,α') for a discussion. From observation of a g.s. γ branch in $(\alpha,\alpha'\gamma)$, 1989Po01 determine that not more than 12% 4 of the observed singles resonance σ can Be due to isovector dipole
13.96×10^3 20	0^+		

Adopted Levels, Gammas (continued)

 ^{208}Pb Levels (continued)

E(level) [†]	J ^π [‡]	S	XREF	Comments
16000	6 ⁺	B		excitation. Strong feeding of the 13/2 ⁺ level in ^{207}Pb from their (α, α') work, 1984Ey01 conclude that there must be an L=6 component. This is corroborated by the ($^{17}\text{O}, ^{17}\text{O}'n$) work of 1989Br03 . J ^π : L=0 in (α, α'), (d,d'), and (p,p'). See comment on configuration. $\Gamma = 2.88 \text{ MeV}$ 20 (2004Yo02 in (α, α')). See (α, α') for other values. %EWSR=99 15 (2004Yo02 in (α, α')). See (α, α') for other values.
19.6×10^3 5	3 ⁻	B D	Q	E(level): from 2004Yo02 in (α, α'). E=20500 1000 in ($^3\text{He}, ^3\text{He}'$). See (α, α') for other values. configuration: high-energy giant octupole resonance (2004Yo02 , 1997Da11). $\Gamma = 7.4 \text{ MeV}$ 6 (2004Yo02 in (α, α')). Others: 78 15 in ($^3\text{He}, ^3\text{He}'$). See also (α, α') for more values. %EWSR=70 14 (2004Yo02 in (α, α')). See (α, α') for other values.
22.1×10^3 3	1 ⁻	B	Q	J ^π : L(α, α')=1. configuration: high-energy component of the isoscalar giant dipole resonance (2004Yo02 and other references in (α, α')). E≈21500 reported by 1983SeZX in inelastic pion scattering (see (x,x')). They report that the forward angle strength is consistent with an isoscalar dipole resonance, but not with a quadrupole or octupole resonance. E(level): from 2004Hu04 in (α, α'). See (α, α') for other values. $\Gamma = 3.8 \text{ MeV}$ 8 (2004Hu04 in (α, α')). See (α, α') for other values. EWSR=158 43 (2004Hu04 in (α, α')). See (α, α') for other values. From α -proton and α -neutron coincidence work, 2004Hu04 determine branching for direct proton decay to the 2s1/2 + 2d3/2 states and 1h11/2 + 2d5/2 final states in ^{207}Tl of 2.3% 11 and 1.2% 7, respectively. The value for direct neutron decay to final states in ^{207}Pb with excitation energies from O to 6 MeV is 23% 5.
23.94×10^3 20	120 40	N T		$\Gamma = 190 \text{ keV}$ 40, $(2J+1)\Gamma_{n0}/\Gamma = 0.6$ 2. Data are from 1980Be52 in (n,X) who suggest that the resonance is the IAR of a possible 1 ⁻ level in ^{208}Tl predicted at ≈1500 by 1970Do03 . See also (γ, p), (e,e'p) where E=24400 and the same interpretation is given.
24.48×10^3 20	120 40	N T		$\Gamma = 190 \text{ keV}$ 40, $(2J+1)\Gamma_{n0}/\Gamma = 0.6$ 2. Data are from 1980Be52 in (n,X) who suggest that the resonance is the IAR of a possible 1 ⁻ level in ^{208}Tl predicted at ≈2000 by 1970Do03 . See also (γ, p), (e,e'p) where E=25000 and the same interpretation is given.
26.9×10^3 2	2 ⁺	B		J ^π : L(α, α')=2. $\Gamma = 6.0$ 13 MeV (2004Hu04 , 2003Hu13 in (α, α')). configuration: suggested as an overtone of the isoscalar giant quadrupole resonance (2004Hu04 , 2003Hu13).
27200		T		Interpreted by 1975Sh12 , 1975Sh13 as the IAR of a possible 2 ⁺ level in ^{208}Tl predicted at ≈2800 by 1970Do03 .

Adopted Levels, Gammas (continued) **^{208}Pb Levels (continued)**

[†] From a least-squares fit to the adopted $E\gamma$ values. For levels with no observed deexciting gammas, the energies are weighted averages of values from all reactions. For levels above the neutron separation energy, the energies from the resonance data in (n,γ) E=resonance, (n,X) , and (γ,n) , have been calculated using $S(n)=7367.87$ 5. In addition to the levels shown, a level at 9300 has been reported in $^{204}\text{Hg}(^{16}\text{O},^{12}\text{C})$. Levels in (t,p) are reported up to 8520; however, the resolution and the quoted uncertainties are such that it is not possible to make a unique correspondence with the Adopted Levels above 5000, except for the 0^+ level at 5241, and for the two highest levels at 8493 20 and 8520 20 which are not reported in other reactions. The same holds for the (p,t) reaction, which reports levels up to 6726, and the (t,α) reaction for levels above 4200.

[‡] Assignments for levels above $S(n)$, except where the argument is explicitly given, are from $^{207}\text{Pb}(n,X)$ based on transmission measurements, from $^{207}\text{Pb}(n,\gamma)$ E=resonance based on Γ_{γ}/Γ , or from $^{208}\text{Pb}(\gamma,n)$ based on neutron polarization measurements. See the source datasets for details. For some levels, where a single deexciting transition is known, this fact is stated in a J^π comment even though the resulting J^π range is too large to be useful in the J^π field.

[#] From $(n,n'\gamma)$, except where noted otherwise.

[@] Based on γ decay pattern, available shell-model states, and shell-model calculations involving two-particle two-hole excitations using semi-empirical effective interactions (2004Br19, 2001Wr02, 1993Sc08).

[&] In the $^{207}\text{Pb}(d,p\gamma), ^{209}\text{Bi}(t,\alpha\gamma)$ dataset, based on data from $(t,\alpha\gamma)$, two levels are proposed at around 5380, one at 5380.6 8 deexciting via a 2766.1 8 transition, and one at 5383.7 11 deexciting via a 1387.8 10 transition. In $(n,n'\gamma)$ a single level is proposed deexciting via 1387.37 3 and 2768.31 5 transitions, giving $E(\text{level})=5382.81$ 3 and 5382.83 5, respectively. There are two levels at about this energy in $(d,^3\text{He})$, so the evaluator adopts the two-level proposal from the $(t,\alpha\gamma)$ work. The discrepancy in the energy of the 2766 γ should be noted, and it is of course possible that the $(n,n'\gamma)$ 2768 γ is a different transition and that the 5380.6 level is not populated in $(n,n'\gamma)$.

^a There is a single level at 5491 proposed in $(d,p\gamma)$, $(n,n'\gamma)$, and $(p,p'\gamma)$; however, the branchings are not consistent. $I\gamma(1571\gamma)/I\gamma(2293\gamma)$ in $(d,p\gamma)$ and $(n,n'\gamma)$ agree, but $I\gamma(1107\gamma)/I\gamma(2293\gamma)$ and $I\gamma(1781\gamma)/I\gamma(2293\gamma)$ are both a factor of 4-5 higher in $(d,p\gamma)$ than in $(n,n'\gamma)$, and only the 2293 γ is reported in $(p,p'\gamma)$. The branchings from all three reactions can be reconciled if two levels are proposed. The evaluator has thus proposed a doublet with transitions divided as shown in adopted gammas. For the 5491.53 level one has $I\gamma(1571\gamma)/I\gamma(2293\gamma)=0.38$ 4 in $(n,n'\gamma)$ and 0.48 +19–14 in $(d,p\gamma)$. For the 5490.34 level one has $I\gamma(1107\gamma)/I\gamma(1529\gamma)/I\gamma(1781\gamma)=100$ 12:85 9:94 9 in $(n,n'\gamma)$, and 100 16:91 16:84 18 in $(d,p\gamma)$. The 1193, 1283, and 1365 γ 's are multiplets in $(n,n'\gamma)$ and the intensity of each of these transitions can be divided such that the branchings for each placement are consistent with the $(d,p\gamma)$ results. Both levels deexcite to levels with $J^\pi=5^-$ and 6^- , suggesting $J^\pi=4^-, 5, 6,$ or 7^- . In addition to the γ reactions, the (d,p) reaction reports $E=5491.9$ 6 with a $\gamma_{7/2}$ transfer, giving $J^\pi=4^-$ for one or both levels, the 3^- alternative being ruled out by the γ decay modes. In $(d,^3\text{He})$ a level at 5487 2 is reported, with $L=2$. The authors state that the strength requires $J^\pi=6^-$ given $J^\pi=7^-$ for their 5541 2 level. A 5490 2 level is reported in (α,α') so there must also be a natural parity level in the region of $E=5490$.

^b $J^\pi=3^-$ from σ and form factor in (e,e') for $E=6343$ 10.

^c In $(d,p\gamma)$ there is a level with $E=6534$ 5 deexciting via a single transition with $E\gamma=3920$ 5 to a 3^- level.

^d $J^\pi=1^-$ or, less likely, 2^- or 3^- for a peak at 6701 9 in (e,e') .

^e Levels with $E=6861.4$ 6 and 6868.0 6 are reported in (p,p') with no spectroscopic information, and levels with $E=6859$, $J^\pi=9^-$ and 6865, $J^\pi=10^-$ are reported in (e,e') . The evaluator assigns two levels; however, it is possible that the two reactions are exciting different levels.

^f This level may correspond to one or more of the close-lying levels determined in the higher-resolution resonance work.

^g From 2006He21 in (p,p') from a study of excitations via IAR in ^{209}Bi . The assignments are based on a comparison of the experimental $\sigma(\theta)$ values and cross-sections with calculations based on the schematic shell model. The cross-sections are averaged values for the members of the $\nu 1i_{11/2}\nu 2f_{5/2}^{-1}$ multiplet and for members of the $\nu 1i_{11/2}\nu 3p_{3/2}^{-1}$ multiplet. The same arguments hold for the 5686, 5695 and 5835 levels which have configuration= $\nu 2g_{9/2}\nu 2f_{7/2}^{-1}$. Additional arguments are given.

^h From a comparison of the branchings in $(n,n'\gamma)$ and $(d,p\gamma)$, the evaluator proposes two levels at 5074. The 5074.803 is seen in $(n,n'\gamma)$ and the 5075.78 in $(n,n'\gamma)$ and $(d,p\gamma)$. The (d,p) level at 5074.8 4 presumably corresponds to the $(d,p\gamma)$ level. The (p,p') level at 5074.7 5 could correspond to either or both members of the

Adopted Levels, Gammas (continued) ^{208}Pb Levels (continued)

doublet. [2006He21](#) determine $J^\pi=5^-$ with configuration= $\nu 1i_{11/2} \nu 3p_{3/2}^{-1}$ for the (p,p') level. See the comment on, for example, the 5080 level, for the J^π assignment.

ⁱ L(d,³He)=5 for E=5191 5 gives configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$ for the 5193.4 and 5195.37 levels. L(d,³He)=5 for E=5210 5 gives configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$ for the 5213.007 and 5216.214 levels. A comparison of the spectroscopic factor for these (d,³He) peaks with those for the resolved (t, $\alpha\gamma$) peaks shows that in each case both levels are being populated in (d,³He). From the observed γ decay modes and the spectroscopic factors in (t, $\alpha\gamma$), [1997Sc21](#) assign the J^π values as shown. The evaluator adopts these assignments.

^j L(d,³He)=5 for E=5084 2 gives configuration= $\pi 1h_{9/2} \pi 1h_{11/2}^{-1}$ for the 5085.47 and/or 5087.9 levels.

^k L(p,p')=3, with E=5321 4, suggesting $J^\pi=3^-$ for the 5317.041, 5317.2, or 5326.7 levels. L(d,³He)=5 for 5314 3 gives $\pi=+$ for one or both members of the 5317 doublet. In the (d,py),(t, $\alpha\gamma$) work, the 5317.041 level is seen only in (t, $\alpha\gamma$) and the 5317.2 level only in (d,py). The evaluator assumes that the (t, $\alpha\gamma$) and (d,³He) works are populating the same level, thus $\pi=+$ for the 5317.041 level. The 5326.7 level resonates strongly at the $\nu 1j_{15/2}$ resonance in (p,p') and thus has $\pi=+$, given the available negative parity neutron hole states. This leaves the 5317.7 level as the possible candidate for $J^\pi=3^-$.

^l L(d,³He)=2 and thus configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$ for E=5581 6.

^m L(d,³He)=2 and thus configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$ for E=5665 5.

ⁿ L(d,³He)=2 and thus configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$ for E=5680 6.

^o L(d,³He)=2 and thus configuration= $\pi 1h_{9/2} \pi 2d_{5/2}^{-1}$ for E=6249 7.

^p E(p,p' γ)=6394.5 30 deexciting via E γ =2432.8 30, and E(e,e')=6403 10 with $J^\pi=3^-$, established by σ and form factor, could correspond to either the 6389.6 5 or 6397.1 15 levels.

^q A level at 5481 is proposed in (n,n' γ) deexciting via a 1356 γ and a 2867 γ . The 2867 γ is seen in (d,py) but the 1356 γ is not reported. The 1356 γ is seen in (p,p' γ) but the 2867 γ is not reported. It is possible that there are two levels, one seen in (n,n' γ) and (p,p' γ), and the other in (n,n' γ) and (d,py).

Adopted Levels, Gammas (continued)

$\gamma(^{208}\text{Pb})$									
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [#]	$\delta^{\#}$	$\alpha^{\@}$	Comments
2614.522	3 ⁻	2614.511 10		0	0 ⁺	E3		0.00247	B(E3)(W.u.)=33.8 6 α : value shown is made up of $\alpha=0.00210$ and $\alpha(\text{IPF})=0.00037$.
3197.711	5 ⁻	583.187 2		2614.522 3 ⁻	E2			0.0205	B(E2)(W.u.)=0.382 20
3475.078	4 ⁻	277.371 5	50.8 8	3197.711 5 ⁻	M1+E2	+0.017 11		0.533	Mult.: from $\gamma\gamma(\theta)$ in β^- decay and $T_{1/2}$. B(M1)(W.u.)=0.07 +22-3; B(E2)(W.u.)=0.10 +35-10 E_γ : from $E_\gamma(860\gamma)=E_\gamma(277\gamma)+E_\gamma(583\gamma)$, with recoil corrections taken into account.
									Mult.: from β^- decay.
									δ : weighted average of +0.008 11 from β^- decay, and +0.052 45 and +0.038 20 from $(n,n'\gamma)$ +0.038 20 (1990Go33) in $(n,n'\gamma)$.
		860.557 4	100	2614.522 3 ⁻	M1+E2	+0.014 8		0.0264	B(M1)(W.u.)=0.005 +33-2; B(E2)(W.u.)=0.0005 +15-4
									Mult.: from β^- decay.
									δ : from β^- decay. Others: -0.021 21 (2005YaZW) and +0.015 18 (1990Go33) in $(n,n'\gamma)$.
3708.451	5 ⁻	233.33 6	1.36 9	3475.078 4 ⁻	M1+E2	≈ 0.6		≈ 0.70	Mult., δ : from β^- decay.
		510.74 5	100.0 13	3197.711 5 ⁻	M1+E2	-0.052 45		0.1027 16	Mult., δ : from β^- decay. See discussion in β^- decay of the alternate δ solution of ≈ -0.6 .
3919.966	6 ⁻	1093.95 24	1.75 13	2614.522 3 ⁻	[E2]				$\delta(O/Q)=-0.01$ 13.
		211.51 2	82.5	3708.451 5 ⁻	M1(+E2)	+0.04 +7-6		1.126 16	B(M1)(W.u.)<1.0; B(E2)(W.u.)<94
		722.252 8	100	3197.711 5 ⁻	M1+E2	+0.31 7		0.0390 12	Mult.: from β^- decay.
									B(M1)(W.u.)<0.029; B(E2)(W.u.)<2.5
									Mult.: from β^- decay.
3946.578	4 ⁻	238.22 3	25.3 18	3708.451 5 ⁻	[M1+E2]	-0.06 6			δ : from β^- decay. Other:+0.61 +7-6 and +0.65 9 from $(n,n'\gamma)$.
									B(M1)(W.u.)<0.61; B(E2)(W.u.)<40
									δ : from 1990Go33 in $(n,n'\gamma)$. Other: +0.05 14 (2005YaZW) in $(n,n'\gamma)$.
3961.162	5 ⁻	471.498 14	26.3 19	3475.078 4 ⁻	[M1+E2]			0.125 2	δ : -0.06 +17-14 or +0.9 +3-12.
		748.845 12	100.7	3197.711 5 ⁻	[M1+E2]	+0.072 25		0.0377 1	B(M1)(W.u.)<0.077; B(E2)(W.u.)<0.42
		252.755 12	38.3 22	3708.451 5 ⁻	M1+E2	-0.35 10		0.633 27	Mult.: from β^- decay.
		485.95 15	2.5 3	3475.078 4 ⁻					
		763.429 9	100.3	3197.711 5 ⁻	M1+E2	-0.12 5		0.0356 6	Mult.: from β^- decay.
									δ : weighted average of -0.01 6 and -0.16 +9-8 from β^- decay, and -0.13 7 and -0.21 +5-6 from $(n,n'\gamma)$.
3995.438	4 ⁻	797.741 10	29.7 12	3197.711 5 ⁻	[M1+E2]	+0.34 5		0.0299 5	B(M1)(W.u.)<0.013; B(E2)(W.u.)<1.0
		1380.889 12	100	2614.522 3 ⁻	[M1(+E2)]	+0.000 +31-21		0.0079	δ : the large solution is +4.4 9, an unlikely alternative. B(M1)(W.u.)<0.0092
									δ : the large solution is -6.7 +8-12, an unlikely alternative. Other: +0.057 16 (1990Go33).
4037.443	7 ⁻	117.53 13	11.3	3919.966 6 ⁻	[M1,E2]			4.6 13	

Adopted Levels, Gammas (continued)
 $\gamma(^{208}\text{Pb})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [#]	$\delta^{\#}$	$\alpha^{\text{@}}$	Comments
4037.443	7 ⁻	839.734 9	100	3197.711	5 ⁻	[E2]		0.0094	B(E2)(W.u.)<17 Mult.: $\delta(M3/E2)=+0.010$ +21–31.
4051.134	3 ⁻	576.057 13	17.2 17	3475.078	4 ⁻				
		1436.602 12	100	2614.522	3 ⁻	[M1+E2]			
4085.52	2 ⁺	1471.5 4	0.46 15	2614.522	3 ⁻	[E1]		0.00143	δ : +1.7 +3–2 or –0.12 +7–6. Other: –0.05 5 (1990Go33).
		4085.47 4	100	0	0 ⁺	[E2]		0.00165	B(E1)(W.u.)=0.00035 12
4125.347	5 ⁻	164.34 20	4.9 7	3961.162	5 ⁻	[M1,E2]		1.6 7	B(E2)(W.u.)=8.4 5
		179.5 6	0.92 26	3946.578	4 ⁻	[M1,E2]		1.2 6	
		416.79 6	5.0 9	3708.451	5 ⁻	[M1+E2]	+0.1 +8–4	0.15 3	B(M1)(W.u.)<0.025; B(E2)(W.u.)<7.2
		650.207 14	25.3 13	3475.078	4 ⁻	[M1+E2]		0.035 20	δ : –0.05 3 or –5.5 +8–12. Other: –0.04 4 or –6.0 +18–11 (1990Go33).
		927.650 8	100.0 25	3197.711	5 ⁻	[M1+E2]		0.018 3	δ : –0.15 5 or +0.90 +10–14. Other: –0.06 6 or +0.90 13 (1990Go33).
4180.414	5 ⁻	705.33 2	10.7 20	3475.078	4 ⁻	[M1+E2]			δ : –0.04 7 or –6.3 +16–37.
		982.709 10	100	3197.711	5 ⁻	[M1+E2]			δ : –0.13 +6–5 or +0.86 +14–13. Other: +0.15 15 (1990Go33).
4206.277	6 ⁻	497.90 4	20.6 24	3708.451	5 ⁻	[M1+E2]			δ : +0.03 10 or –9 +4–85.
		1008.558 10	100	3197.711	5 ⁻	[M1+E2]			δ : +0.18 +2–1 or +8.6 +14–7. Other: +0.195 15 (1990Go33).
4229.590	2 ⁻	1615.068 15	100	2614.522	3 ⁻	[M1+E2]	+0.18 +9–10	0.00536 8	B(M1)(W.u.)=0.0125 12; B(E2)(W.u.)=0.05 6
		4229.49 9	21.4 21	0	0 ⁺	M2			Mult.: the large solution is <–11, >+10, an unlikely alternative.
								0.00235	δ : +0.04 3 or –7.8 +29–16 (1990Go33). B(M2)(W.u.)=0.34 5
									Mult.: from (d,p γ).
4254.795	3 ⁻	779.2 ^{&} 4	5.50 6	3475.078	4 ⁻				δ : –0.21 +5–6 or +2.2 +4–3. Other: –0.11 5 (1990Go33).
4261.871	4 ⁻	1640.267 15	100	2614.522	3 ⁻	[M1+E2]			δ : +0.03 4 or –15 +5–32. Other: +0.02 6 (1990Go33).
		553.414 8	49 4	3708.451	5 ⁻	[M1+E2]			δ : –0.17 8 or +1.3 +3–2.
		786.79 ^{&}	58 2	3475.078	4 ⁻	[M1+E2]			E_γ : rounded-off value from the level energies. The level energy difference gives E_γ =786.791 17 (recoil corrected). The value of 786.891 10 given in the source dataset, and placed from this level, may be a misprint.
		1064.15 2	4.4 6	3197.711	5 ⁻	[M1+E2]			δ : –0.40 +10–14 or –1.9 +5–4. Other: +0.02 3 (1990Go33).
		1647.38 2	100 4	2614.522	3 ⁻	[M1+E2]			δ : +0.021 +21–31 or –7.2 +13–14.
4296.560	5 ⁻	171.00 20	5.3 14	4125.347	5 ⁻	[M1,E2]		1.4 6	B(M1)(W.u.)=0.268 9; B(E2)(W.u.)=9 9
		588.096 6	100 3	3708.451	5 ⁻	[M1+E2]	–0.18 +9–8	0.0694 19	δ : other: –0.02 18 or +0.8 +3–6 (1990Go33).
		821.540 13	63 3	3475.078	4 ⁻	[M1+E2]		0.020 10	δ : –0.10 4 or –4.2 7. Other: –0.11 4 (1990Go33).
4323.946	4 ⁺	1098.85 4	10.8 21	3197.711	5 ⁻	[M1,E2]		0.010 4	
		362.81 7	14.8 12	3961.162	5 ⁻	[E1]		0.0191	B(E1)(W.u.)=4.2×10 ^{–5} +8–7
		848.88 4	2.42 4	3475.078	4 ⁻	[E1]		0.00338	B(E1)(W.u.)=5.4×10 ^{–7} +9–8
		1126.236 13	100 3	3197.711	5 ⁻	[E1+M2]	+0.042 21	0.02077 6	B(E1)(W.u.)=9.558×10 ^{–6} 17; B(M2)(W.u.)=0.06 6
									δ : other: +0.003 18 (1990Go33).

Adopted Levels, Gammas (continued)
 $\gamma(^{208}\text{Pb})$ (continued)

E_i (level)	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult. [#]	$\delta^{\#}$	$\alpha^{\@}$	Comments
4323.946	4 ⁺	1709.6 2	0.51 8	2614.522	3 ⁻	[E2]		0.00258	B(E2)(W.u.)=0.00019 +5-4
		4324.3 4	0.31 4	0	0 ⁺	[E4]		0.00121	B(E4)(W.u.)=18 1
4358.670	4 ⁻	178.5 5	2.1 11	4180.414	5 ⁻				
		362.8 5	2.8 7	3995.438	4 ⁻				
4383.285	6 ⁻	883.605 9	100 5	3475.078	4 ⁻	[M1+E2]			δ : -0.22 +6-7 or +1.4 +3-2.
		1160.90 2	38 3	3197.711	5 ⁻	[M1+E2]			δ : +0.19 +6-5 or +10 +13-3. Other: +0.30 10 or +5.2 +46-20 (1990Go33).
4423.647	6 ⁺	1744.12 2	15.5 13	2614.522	3 ⁻	[M1+E2]			δ : +0.04 +7-6 or -9 +3-10.
		176.8 5	0.85 25	4206.277	6 ⁻				
4480.746	6 ⁻	257.7 5	0.67 25	4125.347	5 ⁻				
		463.30 10	4.1 7	3919.966	6 ⁻	[M1+E2]	-0.69 +15-19		B(M1)(W.u.)<0.0096; B(E2)(W.u.)<8.5
4610.748	8 ⁺	1185.571 13	100 11	3197.711	5 ⁻	[M1+E2]			δ : +0.031 +22-10 or -15 +4-8. Other: +0.063 24 (1990Go33).
		715.23 2	8.6 11	3708.451	5 ⁻	[E1+E2]			δ : -0.05 7.
4680.266	7 ⁻	1225.916 13	100	3197.711	5 ⁻	[E1+E2]			δ : -0.010 +20-11. Other: +0.030 17 (1990Go33).
		771.6 4	8.7 18	3708.451	5 ⁻	[M1+E2]			δ : +0.22 +7-6 or +5.2 +34-14.
4698.323	3 ⁻	1283.031 12	100	3197.711	5 ⁻	[M1+E2]			δ : +0.031 +11-21 or -19 +6-12. Other: +0.05 3 (1990Go33).
		573.41 8	3.1 6	4037.443	7 ⁻	[E1+E2]	+0.15 +30-26	0.024 17	B(E1)(W.u.)= 9.3×10^{-9} 25; B(M2)(W.u.)=0.003 +12-3
4708.727	5 ⁻	1413.026 13	100	3197.711	5 ⁻	[E3]		0.00728	B(E3)(W.u.)=12.6 20
		473.98 5	40 11	4206.277	6 ⁻	[M1+E2]			δ : +0.27 +10-9 or +5.2 +43-19.
4711.817	4 ⁻	760.30 2	100	3919.966	6 ⁻	[M1+E2]			δ : +0.19 +4-3 or +5.2 +15-12.
		436.41 10	7.9 13	4261.871	4 ⁻	[M1,E2]			
4761.956	6 ⁻	443.57 8	41.2 20	4254.795	3 ⁻	[M1+E2]	-0.13 +16-14	0.10 6	B(M1)(W.u.)=0.297 13; B(E2)(W.u.)=9 +22-9
		468.76 7	10.0 9	4229.590	2 ⁻	[M1,E2]			0.08 4
4841.60	1 ⁻	612.88 15	1.7 5	4085.52	2 ⁺	[E1]			0.00632 B(E1)(W.u.)= 4.1×10^{-5} +15-18
		647.25 9	4.3 9	4051.134	3 ⁻	[M1,E2]			0.036 20
4841.60	1 ⁻	702.86 14	4.1 6	3995.438	4 ⁻	[M1,E2]			0.029 15
		1223.27 2	100 5	3475.078	4 ⁻	[M1+E2]			0.008 3 δ : +0.07 +7-6 or <-8.6, >+47. Other: 0.00 9 (1990Go33).
4841.60	1 ⁻	1500.49 3	38 4	3197.711	5 ⁻	[E2]			0.00316 B(E2)(W.u.)=1.1 +3-4
		2083.90 4	27 3	2614.522	3 ⁻	[M1,E2]			0.0026 6
4841.60	1 ⁻	4697.88 14	4.4 6	0	0 ⁺	[E3]			0.00174 B(E3)(W.u.)=1.2 +3-5
		412.17 4	21 5	4296.560	5 ⁻	[M1,E2]			0.12 7
4841.60	1 ⁻	714.0 10	12 6	3995.438	4 ⁻	[M1,E2]			0.028 15
		748.3 5	67 8	3961.162	5 ⁻	[M1,E2]			0.025 13
4841.60	1 ⁻	1000.51 12	100 7	3708.451	5 ⁻	[M1+E2]	-0.19 +7-8	0.0175 3	B(M1)(W.u.)=0.0332 9; B(E2)(W.u.)=0.4 3
		1511.00 2	60 4	3197.711	5 ⁻	[M1+E2]			δ : -0.32 +10-11 or +1.2 +4-2.
4841.60	1 ⁻	1236.79 4	29 4	3475.078	4 ⁻	[M1+E2]			δ : -0.41 15 or -1.9 +11-6.
		2097.27 2	100	2614.522	3 ⁻	[M1+E2]			δ : +0.11 +3-4 or -23 +10-71.
4841.60	1 ⁻	555.63 6	15 4	4206.277	6 ⁻				
		636.57 3	25 5	4125.347	5 ⁻				
4841.60	1 ⁻	1564.29 3	100 9	3197.711	5 ⁻				
		4841.46 12		0	0 ⁺	[E1]			B(E1)(W.u.)=0.021 3 $I_\gamma: \Gamma_{\gamma0}/\Gamma=0.85 +139$ from (γ, γ') .

Adopted Levels, Gammas (continued)
 $\gamma(^{208}\text{Pb})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [#]	$\delta^{\#}$	$\alpha^{\@}$	Comments
4860.78	8 ⁺	250.00 9	100	4610.748	8 ⁺				
		823.28 11	34 6	4037.443	7 ⁻				
4867.91	7 ⁺	257.06 5	100 15	4610.748	8 ⁺				
		386.7 3	26 13	4480.746	6 ⁻	[M1+E2]			$\delta: +0.13 +5-6$ or $+11 +20-4$.
		444.15 10	73 15	4423.647	6 ⁺				
		484.6 3	14 5	4383.285	6 ⁻				
		830.55 4	38 6	4037.443	7 ⁻	[M1+E2]			$\delta: -0.40 +36-29$ or $+1.0 5$.
4868.35	0 ⁺	782.83 2		4085.52	2 ⁺				
		4870 3	0	0	0 ⁺	E0			Mult.: from (p,p'γ).
4895.23	10 ⁺	34.4	0.041 14	4860.78	8 ⁺	[E2]		1003	B(E2)(W.u.)=0.08 3
									E_γ : not observed. E_γ is rounded-off from the level energies. See (x,x'γ) for a discussion of this transition.
		284.49 5	100 8	4610.748	8 ⁺	[E2]	0.136		B(E2)(W.u.)=0.0047 8
		857.71 10	20 4	4037.443	7 ⁻	[E3]	0.0223		B(E3)(W.u.)=0.32 8
4911.343	4	964.56 6	11.7 17	3946.578	4 ⁻				$\delta: -0.29 +10-5$ or $-2.7 +6-10$.
		1713.62 4	32.8 24	3197.711	5 ⁻	[M1+E2]			$\delta: -0.08 +4-5$ or $-4.7 +9-12$.
		2296.83 2	100 5	2614.522	3 ⁻	[M1+E2]			$\delta: -0.2 1$ or $+2.1 +7-6$. Other: $+0.3 +10-3$ (1990Go33).
4937.19	3 ⁻	2322.65 3	100	2614.522	3 ⁻	[M1+E2]			
		4937.19 ^{&} 4	7 1	0	0 ⁺	[E3]			B(E3)(W.u.)=25 +6-25
									E_γ : from the level energies. Reported only in (p,p'γ) where the energies for the two transitions from this level are given as 2320.6 2 and 4934.7 1.
4953.302	3 ⁻	2338.765 14		2614.522	3 ⁻	[M1+E2]			$\delta: -0.13 11$ or $+2.0 +7-5$ (1990Go33).
4962.428	4 ^{(-),5⁽⁺⁾}	638.48 2	43 8	4323.946	4 ⁺				
		1764.71 3	100	3197.711	5 ⁻	[M1+E2]	+0.78 +22-32		B(M1)(W.u.)<0.0048; B(E2)(W.u.)<0.37
4973.918	3 ⁻	275.72 24	1.4 6	4698.323	3 ⁻	[M1,E2]	0.34 20		
		615.7 5	1.6 5	4358.670	4 ⁻	[M1,E2]	0.041 22		
		712.13 25	2.9 6	4261.871	4 ⁻	[M1,E2]	0.028 15		
		719.19 4	17.0 10	4254.795	3 ⁻	[M1,E2]	0.028 14		
		1265.0 6	3.2 11	3708.451	5 ⁻	[E2]	0.00427		B(E2)(W.u.)=0.19 7
		1499.10 10	18.0 10	3475.078	4 ⁻	[M1,E2]	0.0048 17		
		1776.10 5	98 3	3197.711	5 ⁻	[E2]	0.00244		B(E2)(W.u.)=1.05 14
		2359.39 2	100 4	2614.522	3 ⁻	[M1+E2]	0.0022 5		$\delta: -0.13 +10-8$ or $+1.8 +5-4$.
		4974.1 6	1.1 4	0	0 ⁺	[E3]	0.00060		B(E3)(W.u.)=0.17 7
5010.43	9 ⁺	399.60 17		4610.748	8 ⁺				
5037.536	3 ⁻	808.04 6	4.8 9	4229.590	2 ⁻				
		986.39 7	4.0 5	4051.134	3 ⁻				
		1562.32 10	7.5 5	3475.078	4 ⁻				

Adopted Levels, Gammas (continued)
 $\gamma(^{208}\text{Pb})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [#]	$\delta^{\#}$	$\alpha^{\@}$	Comments
5037.536	3 ⁻	2422.997 15	100 4	2614.522	3 ⁻	[M1+E2]			$\delta: +0.9 +20-3 \text{ or } +1.8 +10-12.$ $B(E3)(\text{W.u.})=0.65 10$
		5037.4 7	1.20 15	0	0 ⁺	[E3]			
5069.31	10 ⁺	174.13 9		4895.23	10 ⁺	M1(+E2)	<0.6	1.78 17	
5074.81		868.53 6	57 7	4206.277	6 ⁻				$E_\gamma: \text{from the level energies.}$
		894.45 3	79 11	4180.414	5 ⁻				
		1113.57 3	100 14	3961.162	5 ⁻				
5075.78		1367.0 10		3708.451	5 ⁻				
5079.912	6 ⁻	873.635 15	100	4206.277	6 ⁻				
		1882.09 10	14.7 22	3197.711	5 ⁻				
5085.470	7 ⁻	702.1 10	13 5	4206.277	6 ⁻	[M1+E2]			$\delta: +0.03 +4-3 \text{ or } -19 +9-75.$
		879.19 2	100	4206.277	6 ⁻				
5092.99	8 ⁺	232.2 3	7.6 18	4860.78	8 ⁺				
		482.24 2	100	4610.748	8 ⁺				
5127.356	2 ^{-,3⁻}	1652.18 17	6.6 8	3475.078	4 ⁻	[M1+E2]	+1.3 +9-6		$B(M1)(\text{W.u.})=0.007 7; B(E2)(\text{W.u.})=0.7 4$ $I_\gamma: \text{from (d,p}\gamma). \text{ Note, however, that } I_\gamma/I_\gamma(2513\gamma)=0.177 13 \text{ in } (n,n'\gamma) \text{ and } 0.14 1 \text{ in (d,p}\gamma).$ $B(M2)(\text{W.u.})=0.26 3 \text{ if } J^\pi=2^-, \text{ and } B(E3)(\text{W.u.})=5.2 6 \text{ if } J^\pi=3^-.$
		2512.818 12	100 4	2614.522	3 ⁻				
		5127.5 2	7.5 8	0	0 ⁺	[M2,E3]			
5162.05	9 ⁺	151.50 20	47 5	5010.43	9 ⁺				
		266.70 20	17 3	4895.23	10 ⁺				
		301.25 10	22 3	4860.78	8 ⁺				
		551.32 5	100 8	4610.748	8 ⁺				
5193.428	5 ⁺	769.78 2	100 13	4423.647	6 ⁺				
		869.43 20	96 10	4323.946	4 ⁺				
		1995.5 & 5	29.2 23	3197.711	5 ⁻				
5195.054	3 ^{-,4⁻}	1199.62 2	100	3995.438	4 ⁻				
		2580.41 7	42 5	2614.522	3 ⁻				
5195.37	7 ⁺	327.44 20	18.7 22	4867.91	7 ⁺				
		334.5 4	2.6 9	4860.78	8 ⁺				
		584.62 15	36 6	4610.748	8 ⁺				
		715.0 6	2.20 22	4480.746	6 ⁻				
		771.73 20	100 14	4423.647	6 ⁺				
		1275.5 5	7.5 31	3919.966	6 ⁻				
5213.007	6 ⁺	789.358 15	100	4423.647	6 ⁺				
		2015.5 5	65 8	3197.711	5 ⁻	[E1]			$B(E1)(\text{W.u.})=0.00012 +3-4$
5213.98	(5 ⁻)	1252.98 4	28.2 26	3961.162	5 ⁻				
		1505.43 3	26.9 26	3708.451	5 ⁻				
		2016.14 & 3	100 7	3197.711	5 ⁻				$E_\gamma: \text{from the level energies. The transition is a multiplet in the source dataset.}$
5216.214	4 ⁺	892.25 2	31 4	4323.946	4 ⁺				

Adopted Levels, Gammas (continued)
 $\gamma(^{208}\text{Pb})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	$\delta^\#$	$I_{(\gamma+ce)}$	Comments
						#	#		
5216.214	4^+	2601.69 2	100	2614.522	3^-	[E1+M2]	+0.095 +45-43		B(E1)(W.u.)=0.00026 3; B(M2)(W.u.)=1.6 15
5235.37	(11^+)	340.16 10		4895.23	10^+				
5239.3	4^-	2625.2 5		2614.522	3^-				
5241.1	0^+	2626.6 3		2614.522	3^-	[E3]		<400	B(E3)(W.u.)<635 I _(γ+ce) : I(γ+ce)/I(γ+ce)(5241 E0 transition)<4 from (p,p'γ) (2005Or02). Mult.: from (p,p'γ).
5245.246	3^-	5241 3 307.80 20 921.5 2 1193.9 4 1770.20 8 2630.71 2 5245.0 7	0 1.4 5 1.9 4 1.9 6 6.7 5 100.0 25 1.0 2	4937.19 4323.946 4051.134 3475.078 2614.522 0	3^- 4^+ 3^- 3^- 4^- 3^- 0^+	E0 [E1] [E3]		100	B(E1)(W.u.)=0.00025 9 δ: +0.04 17 or <-4.2, >11. δ: -0.19 8 or +2.1 5. B(E3)(W.u.)=2.3 8
5254.12		178.34 10 1779.04 15	19 6 100	5075.78 3475.078	4^-				
5276.418	4^-	1070.13 3	18.4 23	4206.277	6^-	[E2]			E_γ : from the level energies. The measured value from (n,n'γ) is 1069.72 4. Not included in the least-squares fit.
5280.47	0^-	1567.97 4 2078.64 3 2662.02 5	43 5 100 7 15.0 9	3708.451 3197.711 2614.522	5^- 5^- 3^-				
5286.484	$2,3^-$	438.83 5 1050.90 4	27.6 15 100	4841.60 4229.590	1^- 2^-				
5291.90	1^-	2671.942 13 5287.1 3	100 21 3	2614.522 0	3^- 0^+	[D+Q]	+0.05 +8-3		B(E1)(W.u.)=0.021 5 I _γ : Γ _{γ0} /Γ=0.78 +22-11 from (γ,γ').
5317.041	$(3)^+$	993.105 12 2702.42 3	100 23 3	4323.946 2614.522	4^+ 3^-				
5317.2		2119.5 6		3197.711	5^-				
5339.46	8^+	478.59 11 728.78 6	‡ ‡	4860.78 4610.748	8^+ 8^+				
5347.270	3^-	1301.74 14 1295.8 5	‡ 18 7	4037.443 4051.134	7^- 3^-	[E1]			
5380.6	-	2732.729 15 2766.1 8	100	2614.522	3^-	[M1+E2]			δ: +0.11 8 or +1.0 2.
5382.82	$3^+, 4^+, 5^+$	1387.37 3		3995.438	4^-	[E1]			B(E1)(W.u.)=0.0020 3
5384.59	3^-	1155.00 2 1333.48 22	60 6 31 6	4229.590 4051.134	2^- 3^-				
		2770.45 20 5384.37 12	100 4 16.9 11	2614.522 0	3^- 0^+	[D+Q] [E3]			δ: -0.20 +15-21 or -2.6 +10-18. B(E3)(W.u.)=3.8

Adopted Levels, Gammas (continued)

 $\gamma(^{208}\text{Pb})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [#]	$\delta^{\#}$	Comments
5481.87	5 ⁻	1356.49 4 2867.35 3	83 9 100	4125.347 5 ⁻ 2614.522 3 ⁻		[E2+M3]	+0.042 +53-32	E_γ : not reported in (d,p γ). $B(E2)(W.u.)=0.24$ 4; $B(M3)(W.u.)=4.E+2 +10-4$
5490.34	(4 ⁻ ,6 ⁻)	1107.0 5 1193.52 20 1283.5 10 1365.0 5 1529.0 5 1781.5 5	83 [†] 13 59 [†] 9 35 [†] 7 100 [†] 13 75 [†] 13 69 [†] 15	4383.285 6 ⁻ 4296.560 5 ⁻ 4206.277 6 ⁻ 4125.347 5 ⁻ 3961.162 5 ⁻ 3708.451 5 ⁻				
5491.53	(4 ⁻ ,6 ⁻)	1571.49 4	38 4	3919.966 6 ⁻				I_γ : from (n,n'γ). $I_\gamma/I\gamma(2294\gamma)=0.48 +19-14$ in (d,p γ). The 1572 γ is not reported in (p,p'γ).
5511.78	1 ⁻	2293.85 3 5511.70 14	100 0	3197.711 5 ⁻ 0 0 ⁺	[M1+E2] [E1]			δ : +0.16 +6-5 or >+10, <-94. $B(E1)(W.u.)=0.058 +4-3$ I_γ : $\Gamma_{\gamma 0}/\Gamma=0.98 +2-4$ from (γ,γ'). $B(M1)(W.u.)=0.0117$ 19; $B(E2)(W.u.)=0.43$ 8
5516.714	3 ⁻	2902.17 2		2614.522 3 ⁻	[M1+E2]			
5536.58	10 ⁺	467.30 20 641.3 3	23 7 100	5069.31 10 ⁺ 4895.23 10 ⁺				
5543.01	7 ⁻	457.45 20 1062.9 5 1119.1 10 1159.6 3 1336.5 5 1505.9 5 1623.2 5	29 3 16.2 25 7 3 100 8 43 5 25 4 14 4	5085.470 7 ⁻ 4480.746 6 ⁻ 4423.647 6 ⁺ 4383.285 6 ⁻ 4206.277 6 ⁻ 4037.443 7 ⁻ 3919.966 6 ⁻				
5545.46	(5 ⁻)	1248.5 5 1283.48 10 1420.3 5 1584.35 10 1599.1 5 1837.06 4 2347.51 9	16 3 44 9 38 8 25 9 38 6 100 12 74 15	4296.560 5 ⁻ 4261.871 4 ⁻ 4125.347 5 ⁻ 3961.162 5 ⁻ 3946.578 4 ⁻ 3708.451 5 ⁻ 3197.711 5 ⁻				
5548.113	2 ⁻	2933.57 2 5547.6 3 2946.79 5	100 2.6 4 100	2614.522 3 ⁻ 0 0 ⁺ 2614.522 3 ⁻	[M2] [M1+E2]			$B(M2)(W.u.)=0.051$ 9 $B(M1)(W.u.)=0.0158$ 24; $B(E2)(W.u.)=0.03 +7-3$
5561.31	2 ⁺	5560.8 2	36 3	0 0 ⁺	[E2]	+0.23 +23-17		$B(E2)(W.u.)=0.0101$ 14
5563.73	3 ⁻	2366.3 3 2949.18 4	57 7 100	3197.711 5 ⁻ 2614.522 3 ⁻	[E2]			$B(E2)(W.u.)=0.86 +18-21$
5565.2	(4 ⁺)	2089.7 5		3475.078 4 ⁻				
5599.48	0 ⁻	757.93 7 1369.83 7	41 3 100	4841.60 1 ⁻ 4229.590 2 ⁻				
5639.55	1 ⁻	3024.96 9	10.3 9	2614.522 3 ⁻				

Adopted Levels, Gammas (continued)

 $\gamma(^{208}\text{Pb})$ (continued)

E_i (level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [#]	$\delta^{\#}$	Comments
5639.55	1 ⁻	5639.7 2	100	0	0 ⁺	[E1]		B(E1)(W.u.)=0.008 4
5641.98	1,2 ⁺	5641.9 2		0	0 ⁺			
5649.01	3 ⁻ ,4 ⁻	1387.4 10	35 9	4261.871	4 ⁻			
		1523.8 10	82 14	4125.347	5 ⁻			
		1654.2 5	59 12	3995.438	4 ⁻			
		2451.20 8	100 15	3197.711	5 ⁻			
		3034.52 9	37 2	2614.522	3 ⁻	[D+Q]	δ : -0.17 +13-18 or -3.8 +14-34.	
5658.51	5 ⁻	1663.05 5	60 6	3995.438	4 ⁻			
		2460.80 5	100 6	3197.711	5 ⁻			
		3044.0 2	11.4 16	2614.522	3 ⁻	[E2]	B(E2)(W.u.)=0.063 +16-18	
5675.366	2 ⁻ ,3,4	1317.0 10	4.9 20	4358.670	4 ⁻			
		1413.0 10	10.0 20	4261.871	4 ⁻			
		1420.0 10	21 5	4254.795	3 ⁻			
		3060.82 2	100 9	2614.522	3 ⁻	[D+Q]	δ : +0.06 +11-4 or +1.1 +3-2.	
5686.5	6 ⁻	1561.0 10	99 8	4125.347	5 ⁻			
		1726.0 10	100 9	3961.162	5 ⁻			
		1767.0 10	100 10	3919.966	6 ⁻			
5690.117	4 ⁺	3075.57 2		2614.522	3 ⁻	[E1+M2]	-0.031 +31-21	B(E1)(W.u.)=0.000144 13; B(M2)(W.u.)=0.07 +14-7
5694.22	7 ⁻	1774.25 12	100	3919.966	6 ⁻			
5715.53	2 ⁺	3101.07 10	12.6 11	2614.522	3 ⁻	[E1]		B(E1)(W.u.)=0.00022 +9-6
		5715.1 2	100	0	0 ⁺	[E2]		B(E2)(W.u.)=0.30 +12-8
5721.51	7 ⁻	1297.86 3		4423.647	6 ⁺	[E1]		B(E1)(W.u.)=0.0031 +8-11
5737.9		1314.6 12		4423.647	6 ⁺			
5749.67	(11 ⁺)	680.6 2	100	5069.31	10 ⁺			
		854.6 2	14 10	4895.23	10 ⁺			
5777.96	2 ⁻ ,3 ⁻	1523.03 15	17.8 22	4254.795	3 ⁻	[D+Q]	-1.3 +6-42	
		1726.66 17	16.6 25	4051.134	3 ⁻			
		3163.43 3	100 9	2614.522	3 ⁻	[D+Q]		δ : -0.38 +7-8 or +4.4 +23-11.
		5777.4 3	5.1 10	0	0 ⁺	[M2,E3]		B(M2)(W.u.)=0.32 7; B(E3)(W.u.)=5.1 11
5783.22		1399.93 6		4383.285	6 ⁻			
5789.34	2 ^{+,3^{+,4⁺}}	3174.79 3		2614.522	3 ⁻			
5799.41		2324.32 9		3475.078	4 ⁻			
5805.0	1	5804.9 3		0	0 ⁺	[E1,M1]		
5813.27	3 ⁻	2338.18 26	85 14	3475.078	4 ⁻			
		3198.72 4	100	2614.522	3 ⁻	[M1+E2]		δ : -0.59 +12-14 or >+6.7, <-4.0.
5819.49	1 ^{+,2⁺}	5819.4 2		0	0 ⁺	[M1,E2]		
5825.3		1214.5 5		4610.748	8 ⁺			
5844.49	1 ⁺	5844.4 2		0	0 ⁺			B(M1)(W.u.)=0.38 3 from (γ,γ'), 0.186 +76-24 from (e,e').
5873.573	3 ⁻	2398.48 2		3475.078	4 ⁻			
5885.55	3 ⁻	1588.5 5	14 6	4296.560	5 ⁻	[E2]		B(E2)(W.u.)=7 3
		3271.00 3	100	2614.522	3 ⁻			
5918.28	3 ⁻ ,4,5 ⁻	2720.57 4	100	3197.711	5 ⁻			

Adopted Levels, Gammas (continued)
 $\gamma(^{208}\text{Pb})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [#]	Comments
5918.28	$3^-, 4, 5^-$	3303.65 7	42 3	2614.522	3^-		
5923.67	2^-	631.3 3	3.7 7	5291.90	1^-		
		678.50 8	30.7 12	5245.246	3^-		
		796.7 4	3.9 7	5127.356	$2^-, 3^-$		
		886.35 25	8.0 9	5037.536	3^-		
		949.82 4	100 3	4973.918	3^-		
		1225.41 7	98 5	4698.323	3^-		
		1668.60 8	26.7 16	4254.795	3^-		
		1694.08 17	10.7 11	4229.590	2^-		
		1872.43 8	52 3	4051.134	3^-		
		3308.99 15	13.5 18	2614.522	3^-		
		5922.6 8	11.1 21	0	0^+	[E1,M2]	$B(E1)(\text{W.u.})=2.8 \times 10^{-7} +19-14; B(M2)(\text{W.u.})=0.037 +26-20$
5928.0	10^+	858.4 4	54 21	5069.31	10^+		
		1033.0 4	100	4895.23	10^+		
5946.77	1^-	5946.6 2		0	0^+		
5965.8		749.6 4		5216.214	4^+		
5968.55	4^-	1644.1 8	1.0 5	4323.946	4^+	[E1]	$B(E1)(\text{W.u.})=4 \times 10^{-5} +4-2$
		1762.6 3	3.4 3	4206.277	6^-	[E2]	$B(E2)(\text{W.u.})=1.5 +7-9$
		2260.02 8	34.2 21	3708.451	5^-		
		2770.88 8	100 5	3197.711	5^-		
5973.0	2^+	1648.5 5	40 17	4323.946	4^+		
		5973.5 8	100	0	0^+		
5992.67	6^+	779.8 5	43 18	5213.007	6^+		
		797.4 5	54 21	5195.37	7^+		
		1511.6 6	66 21	4480.746	6^-		
		1609.3 6	73 23	4383.285	6^-		
		2795.0 6	100 28	3197.711	5^-		
6009.75	3^-	1685.7 4	13.7 17	4323.946	4^+	[E1]	$B(E1)(\text{W.u.})=0.00036 +14-17$
		1924.19 9	26 3	4085.52	2^+	[E1]	$B(E1)(\text{W.u.})=0.00046 +18-22$
		2534.66 4	100 5	3475.078	4^-		
6011.64		3397.09 6		2614.522	3^-		
6025.8		2030.4 6		3995.438	4^-		
6086.56	1^-	841.40 20	9.5 10	5245.246	3^-	[E2]	$B(E2)(\text{W.u.})=11 +5-11$
		959.5 3	4.6 10	5127.356	$2^-, 3^-$	[E2]	$B(E2)(\text{W.u.})=15 +7-11$
		1112.70 6	52 4	4973.918	3^-	[E2]	$B(E2)(\text{W.u.})=15 +7-11$

Adopted Levels, Gammas (continued)

 $\gamma^{(208\text{Pb})}$ (continued)

E _i (level)	J _i ^π	E _γ	I _γ	E _f	J _f ^π	Mult. [#]	Comments
6086.56	1 ⁻	1388.19 13	100 5	4698.323	3 ⁻	[E2]	B(E2)(W.u.)=10 +4-10
		1831.77 7	73 5	4254.795	3 ⁻	[E2]	B(E2)(W.u.)=1.8 +8-12
		1856.73 12	53 4	4229.590	2 ⁻		
		2035.30 17	100 5	4051.134	3 ⁻	[E2]	B(E2)(W.u.)=1.4 +6-10
		3471.9 2	27 6	2614.522	3 ⁻	[E2]	B(E2)(W.u.)=0.026 +13-19
		6085.4 10	3.2 18	0	0 ⁺	[E1]	B(E1)(W.u.)=1.8×10 ⁻⁷ +13-16
6099.8		860.50 6	100	5239.3	4 ⁻		
		1802.7 5	45 22	4296.560	5 ⁻		
6100.69	12 ⁺	351.4 2	20 4	5749.67	(11 ⁺)		
		865.34 20	100	5235.37	(11 ⁺)		
6101.1	(5 ⁺)	2626		3475.078	4 ⁻		
6103.5		538.0 4	100	5565.2	(4 ⁺)		
		1807.6 6	63 33	4296.560	5 ⁻		
6147.8		2672.7 8		3475.078	4 ⁻		
6193.1	2 ⁺	6193.1 4		0	0 ⁺	[E2]	B(E2)(W.u.)=1.36 11
6242.4		3627.8 9		2614.522	3 ⁻		
6255.68	2 ⁺	3641.13 6		2614.522	3 ⁻		
		6255.5 4		0	0 ⁺		E _γ : from (n,n'γ). Eγ=3636 5 reported in (d,pγ).
							E _γ : from (γ,γ'). Not seen in (d,pγ). Energy is above the cutoff for transitions reported in (n,n'γ).
6263.7	1 ⁻	6263.6 1		0	0 ⁺		
6274.55	3 ⁻	757.8 4	19 6	5516.714	3 ⁻		
		2278.3 5	41 11	3995.438	4 ⁻		
		3660.3 3	100 7	2614.522	3 ⁻		
6313.9	1 ⁻	6313.8 1		0	0 ⁺		
6340	1 ⁻ ,2,3 ⁻	3725 5		2614.522	3 ⁻		
6354.4		2303.3 4		4051.134	3 ⁻		
6361.6	1 ⁻	6361.5 1		0	0 ⁺	[E1]	B(E1)(W.u.)=0.0028 3
6435.57	12 ⁻	1200.2 2		5235.37	(11 ⁺)		
6444.4	3 ⁻	6444.3 2		0	0 ⁺		
6448.40	(13 ⁻)	348.00 15	100	6100.69	12 ⁺		
		1552.7 2	15 4	4895.23	10 ⁺		
6486.5	1 ⁻	512.98 25	20 5	5973.0	2 ⁺	[E1]	B(E1)(W.u.)=0.26 4
		3871.7 7	21 13	2614.522	3 ⁻	[E2]	B(E2)(W.u.)=1.6 10
		6485.9 12	100 8	0	0 ⁺	[E1]	B(E1)(W.u.)=0.00063 19
6505.6	1	6505.6 22		0	0 ⁺		
6512.8	1	6512.7 6		0	0 ⁺		E _γ : from E(level)in (p,p'). Eγ=6515.2 18 reported in (γ,γ').
6545.2		3930.6 11		2614.522	3 ⁻		
6551.93	1 ⁻ ,2,3 ⁻	3937.37 16	100	2614.522	3 ⁻		
		6551.8 21	14 1	0	0 ⁺		
6617.0	3 ⁻	2436.8 5	51 15	4180.414	5 ⁻		
		4002.8 5	100	2614.522	3 ⁻		
6657.8	4 ⁺	2478.7 5	34 9	4180.414	5 ⁻		

Adopted Levels, Gammas (continued)

 $\gamma(^{208}\text{Pb})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. [#]	Comments
6657.8	4 ⁺	4042.7 2	100	2614.522	3 ⁻		
6682.46	(5 ⁻)	2324.2 5	63 15	4358.670	4 ⁻		
		2974.10 20	34 7	3708.451	5 ⁻		
		4067.5 8	100 15	2614.522	3 ⁻		
6687.8	5 ⁻	2207.1 7		4480.746	6 ⁻		
6699.60	(3 ⁻)	1049.9 4	22 6	5649.01	3 ⁻ ,4 ⁻		
		2470.1 6	21 7	4229.590	2 ⁻		
		4085.4 3	100 7	2614.522	3 ⁻		
6719.8	1 ⁻	6719.7 5		0	0 ⁺		
6739.6		2381.4 1		4358.670	4 ⁻		
6743.42	14 ⁻	295.31 25	47 8	6448.40	(13 ⁻)		
		1508.1 2	100	5235.37	(11 ⁺)		
6766.6		4152.0 10		2614.522	3 ⁻		
6773.4	1,2,3 ⁻	6773.3 15		0	0 ⁺		
6789.1	(2 ⁻ ,3 ⁺)	4174.5 6		2614.522	3 ⁻		
6800.8		2504.2 20		4296.560	5 ⁻		
6820.0	(2 ⁻ ,3 ⁻)	872.2 7	100	5946.77	1 ⁻		
		2873.7 4	85 59	3946.578	4 ⁻		
6897.3		2188.1 5	52 16	4708.727	5 ⁻		
		2668.1 5	100	4229.590	2 ⁻		
6913	2 ⁺	6913 4		0	0 ⁺		
6920.7		4306.1 8		2614.522	3 ⁻		
6929.6	2 ⁻	4315.0 5		2614.522	3 ⁻		
6969.3	2 ⁻	3771.6 5		3197.711	5 ⁻		
6980	1,2 ⁺	6980 40		0	0 ⁺		
7001.0		3803.3 4		3197.711	5 ⁻		
7020.2	(3 ⁻)	1052.3 6	38 11	5968.55	4 ⁻		
		2660.3 6	100 19	4358.670	4 ⁻		
		2696.7 7	44 11	4323.946	4 ⁺		
		2758.6 7	55 14	4261.871	4 ⁻		
7063.53	1 ⁻	7063.4 2		0	0 ⁺	[E1]	B(E1)(W.u.)=0.0218 +14-20
							E_γ : from (γ, γ'). Others: 7062.1 1 (p,p' γ), 7063.4 5 (d, $\gamma\gamma$). Note that $E(\text{level})=7063.4$ 15 in (p,p') and 7064.1 6 in (d,p).
7083.2	1 ⁻	7083.1 3		0	0 ⁺	[E1]	I_γ : $\Gamma_{\gamma 0}/\Gamma=0.98$ +2-7 from (γ, γ'). B(E1)(W.u.)=0.0108 9 I_γ : $\Gamma_{\gamma 0}/\Gamma=1$ from (γ, γ').
7137.3	3 ⁻ ,4 ⁻	4522.7 4		2614.522	3 ⁻		
7177.0	1	7176.9 3		0	0 ⁺		
7196.6		4582.0 10		2614.522	3 ⁻		E_γ : from the level energy. $E_\gamma=7176$ 4 in (γ, γ').

Adopted Levels, Gammas (continued)
 $\gamma(^{208}\text{Pb})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	E_f	J_f^π	Mult. [#]	Comments
7206.9	1	7206.8 5	0	0 ⁺		
7218.6		4020.8 14	3197.711	5 ⁻		E_γ : from the level energies. $E\gamma=4018.5$ in (d,p γ).
7240	1 ⁻	7240 2	0	0 ⁺		E_γ : from the level energies. See the comment on $E(\text{level})$.
7264.4		4066.6 10	3197.711	5 ⁻		
7278.68	1 ⁺	7278.54 20	0	0 ⁺	[M1]	$B(M1)(\text{W.u.})=0.098.3$ $I_\gamma: \Gamma_{\gamma 0}/\Gamma=1$ from (γ, γ').
7315.4	2 ⁺	7315.3 20	0	0 ⁺		
7332.4	1 ⁻	7332.3 8	0	0 ⁺	[E1]	$B(E1)(\text{W.u.})=0.031 +5-3$ $I_\gamma: \Gamma_{\gamma 0}/\Gamma=1.00 +0-12$ in (γ, γ').
7389.0	3 ⁻	3913.9 10	3475.078	4 ⁻		
7415	1 ⁻	7415 3	0	0 ⁺		
7528.79		1080.2 2	6448.40	(13 ⁻)		
		1428.0 2	6100.69	12 ⁺		
7548.6	1 ⁻	7548.5 6	0	0 ⁺		E_γ : from the level energy. $E\gamma=7547.4$ 26 in (γ, γ').
7631	1 ⁻	7631 4	0	0 ⁺		
7685.4	1,2 ⁺	7685.2 5	0	0 ⁺		
7722.6	1	7722.5 24	0	0 ⁺		
7913	1 ⁽⁻⁾	7913 3	0	0 ⁺		
7974.04	(15 ⁻)	445.1 2	7528.79			
		1230.8 2	6743.42	14 ⁻		
8026.95	(14 ⁻)	498.0 2	7528.79			
		1283.4 2	6743.42	14 ⁻		
		1578.6 2	6448.40	(13 ⁻)		
8264.38		237.5 2	8026.95	(14 ⁻)		
8350.79	(15 ⁻)	323.7 2	8026.95	(14 ⁻)		
		376.8 2	7974.04	(15 ⁻)		
		1607.6 2	6743.42	14 ⁻		
8562.94	(16 ⁻)	212.3 2	8350.79	(15 ⁻)		
8723.50		459.2 2	8264.38			
		1980.0 2	6743.42	14 ⁻		
8812.70	(14 ⁻ ,15,16 ⁻)	249.9 2	8562.94	(16 ⁻)		
		785.6 2	8026.95	(14 ⁻)		
9061.2	(17 ⁺)	2317.8 2	6743.42	14 ⁻		
9103.1		42	9061.2	(17 ⁺)		
		290.4 2	8812.70	(14 ⁻ ,15,16 ⁻)		
9394.4		291.3 2	9103.1			
10136.8		742.4 2	9394.4			
10196.1		801.7	9394.4			
10342.0		947.6	9394.4			
10357.4		963.0	9394.4			
10372.2		235.4	10136.8			
10552.4		356.3	10196.1			

Adopted Levels, Gammas (continued) **$\gamma(^{208}\text{Pb})$ (continued)**

E _i (level)	E _{γ}	E _f
11361.0	1019.0	10342.0
11958.1	597.0	11361.0
12949.6	991.4	11958.1
	1588.7	11361.0
13675.0	725.4	12949.6

[†] From (d,p γ). See comment on the 5490 multiplet.

[‡] For the 5339 level, I γ (478 γ):728 γ :1301 γ is reported as 63 8err; aut=J. Tuli; dat=18-Dec-2007; com=Fixed typos from pnpi rpt; 63 8:100 11:25 11 in (d,p γ) and as 130 29:100 19:48 9 in (n,n' γ). These data suggest that I γ (728 γ) in (d,p γ) may Be a factor of two too large. The alternative possibility is that I γ (478 γ) and I γ (1301 γ) are both a factor of two too large in (n,n' γ).

[#] From $\gamma(\theta)$ in (n,n' γ), except where noted otherwise. Single mult assignments given in square brackets are based on the adopted J^π values. Mixed mult assignments in square brackets are based on mult=D+Q, Q+O..., from (n,n' γ) with the mult character based on the adopted J^π values.

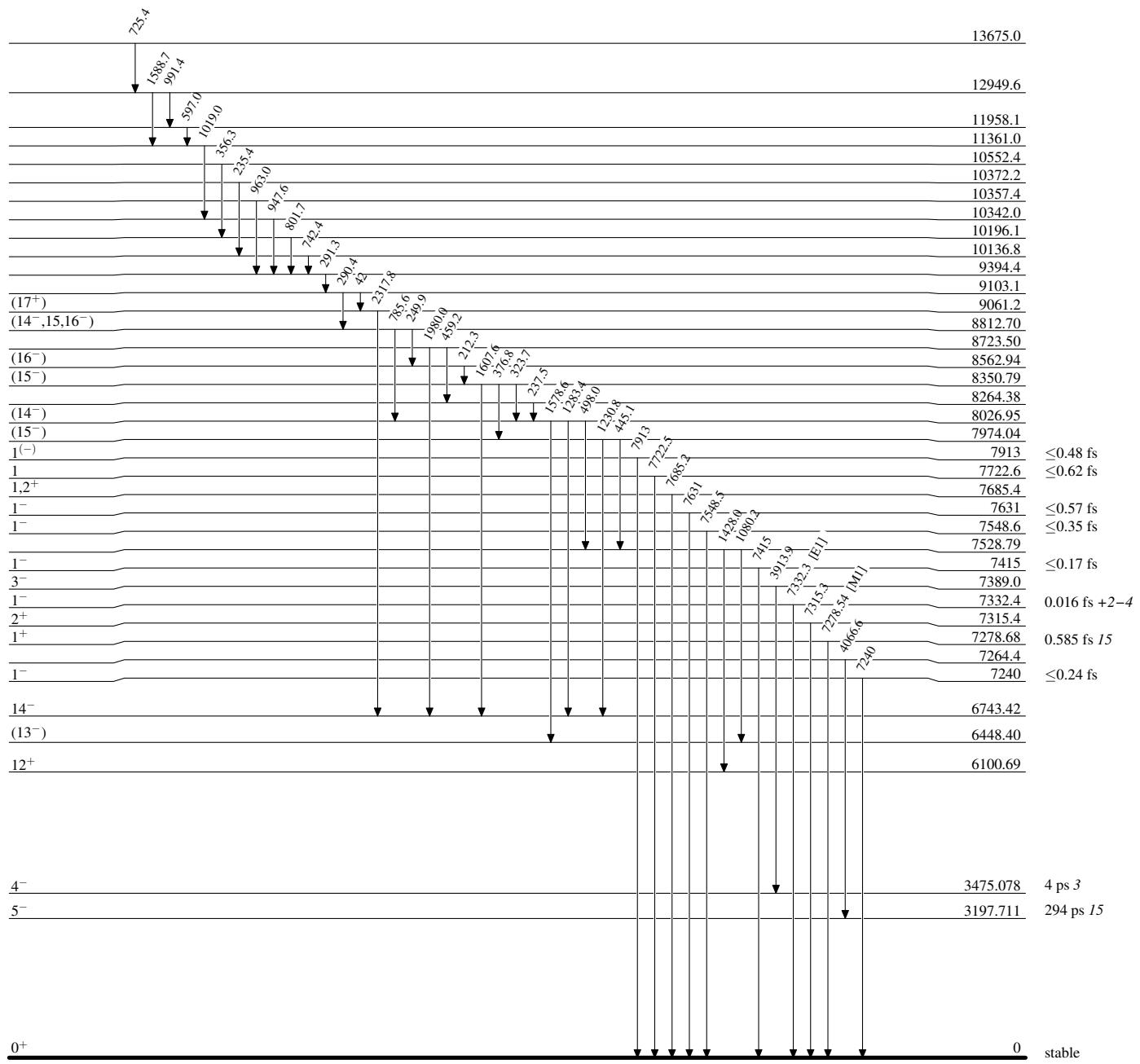
[@] Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

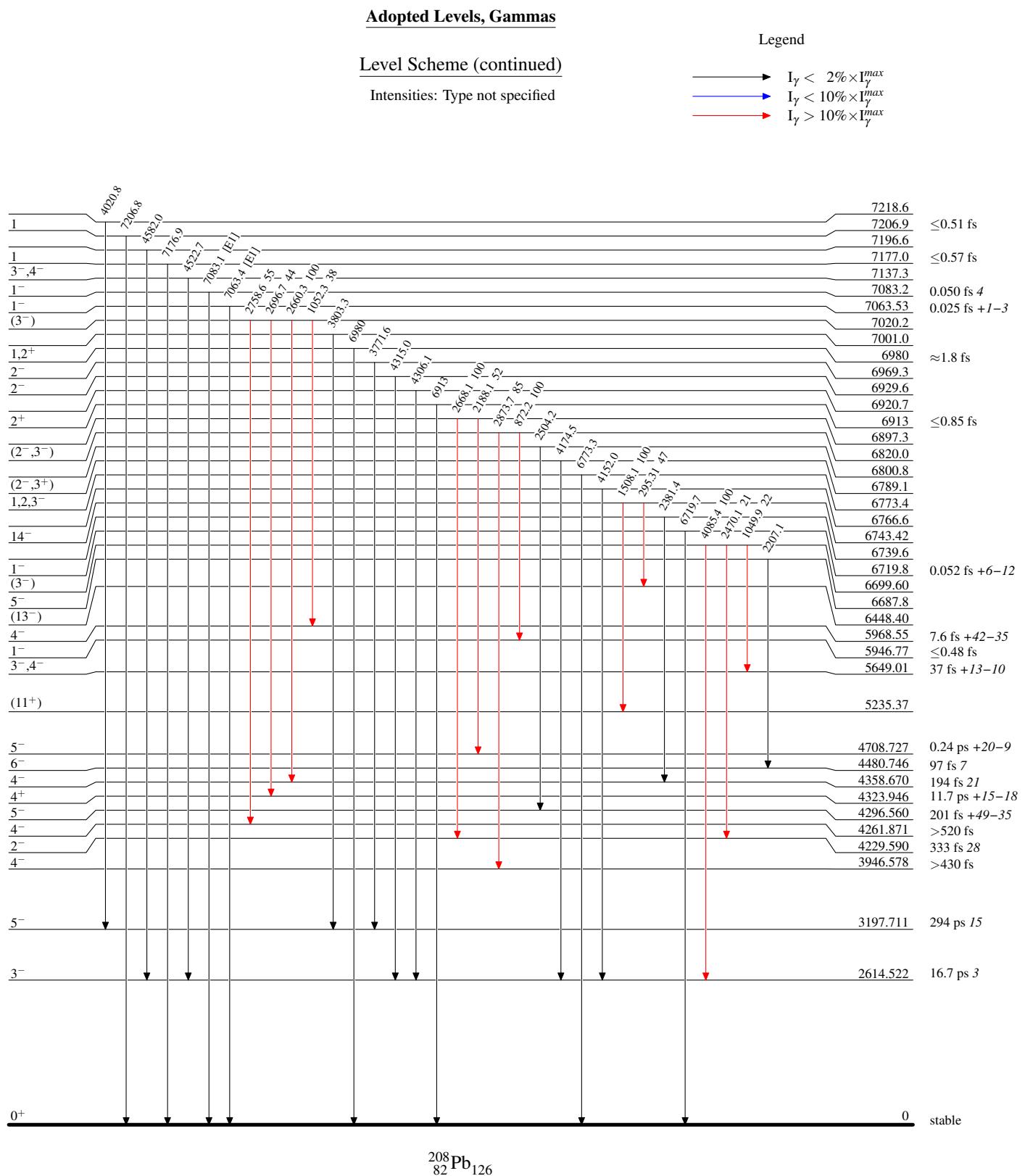
& Placement of transition in the level scheme is uncertain.

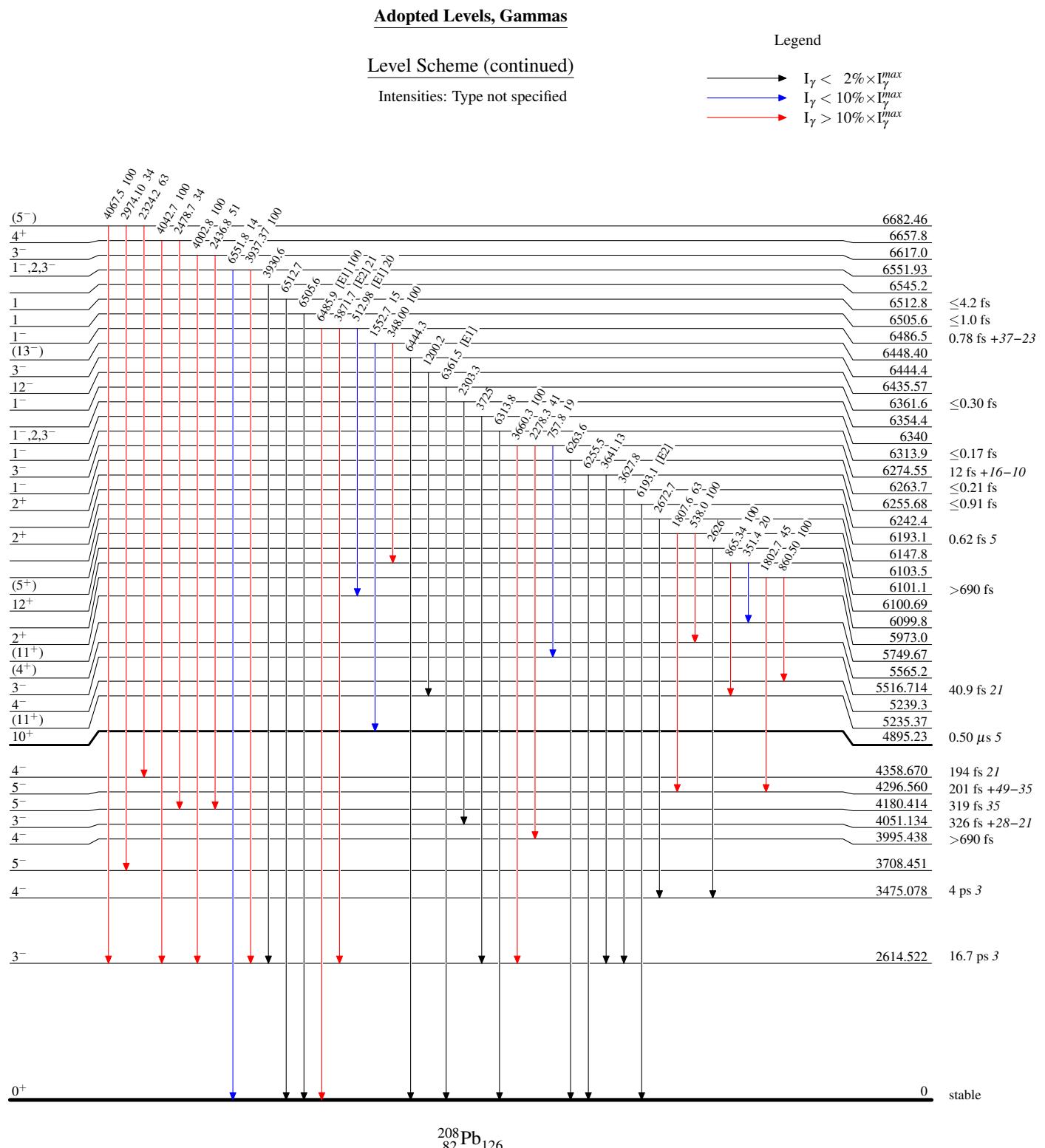
Adopted Levels, Gammas

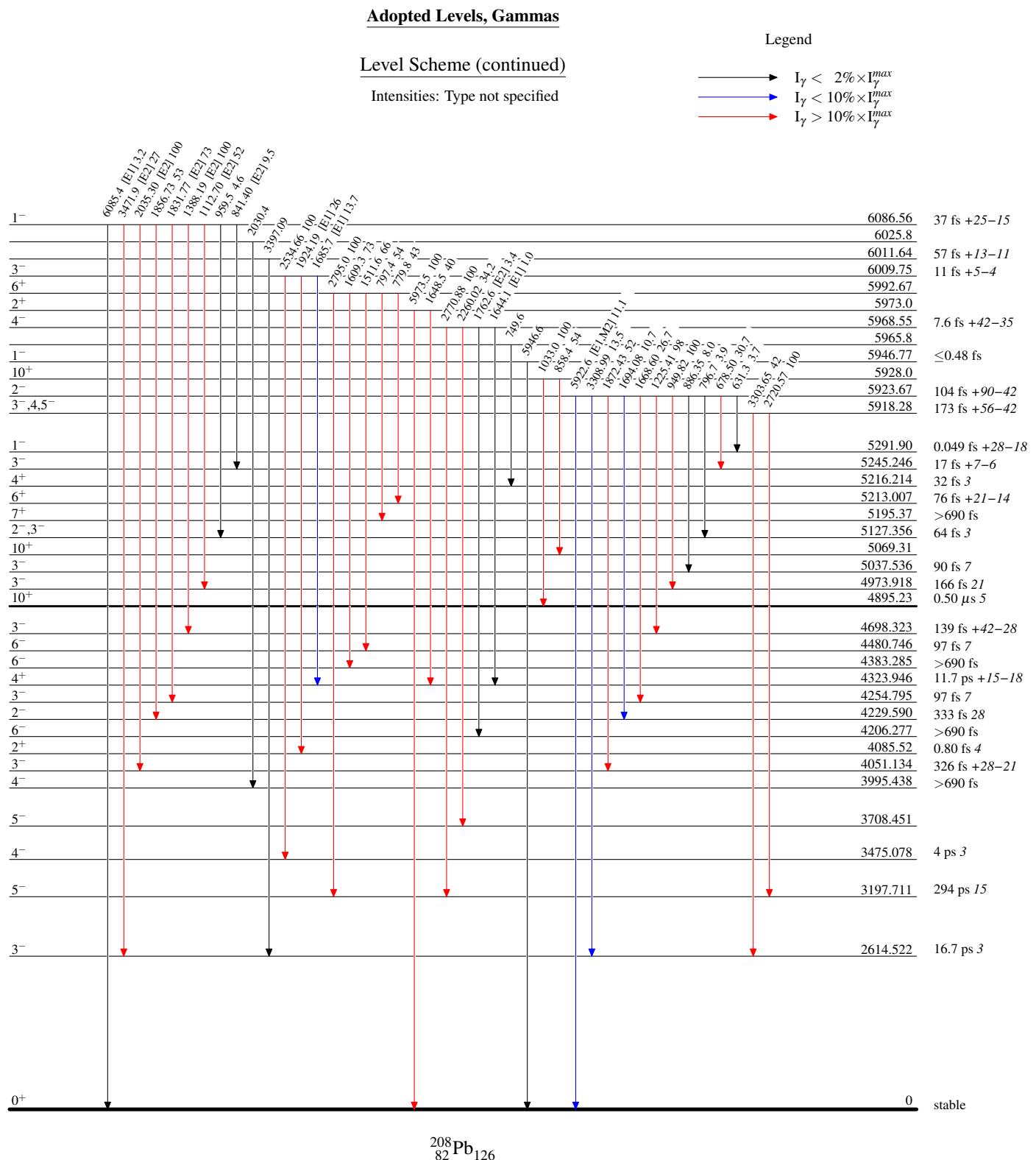
Level Scheme

Intensities: Type not specified







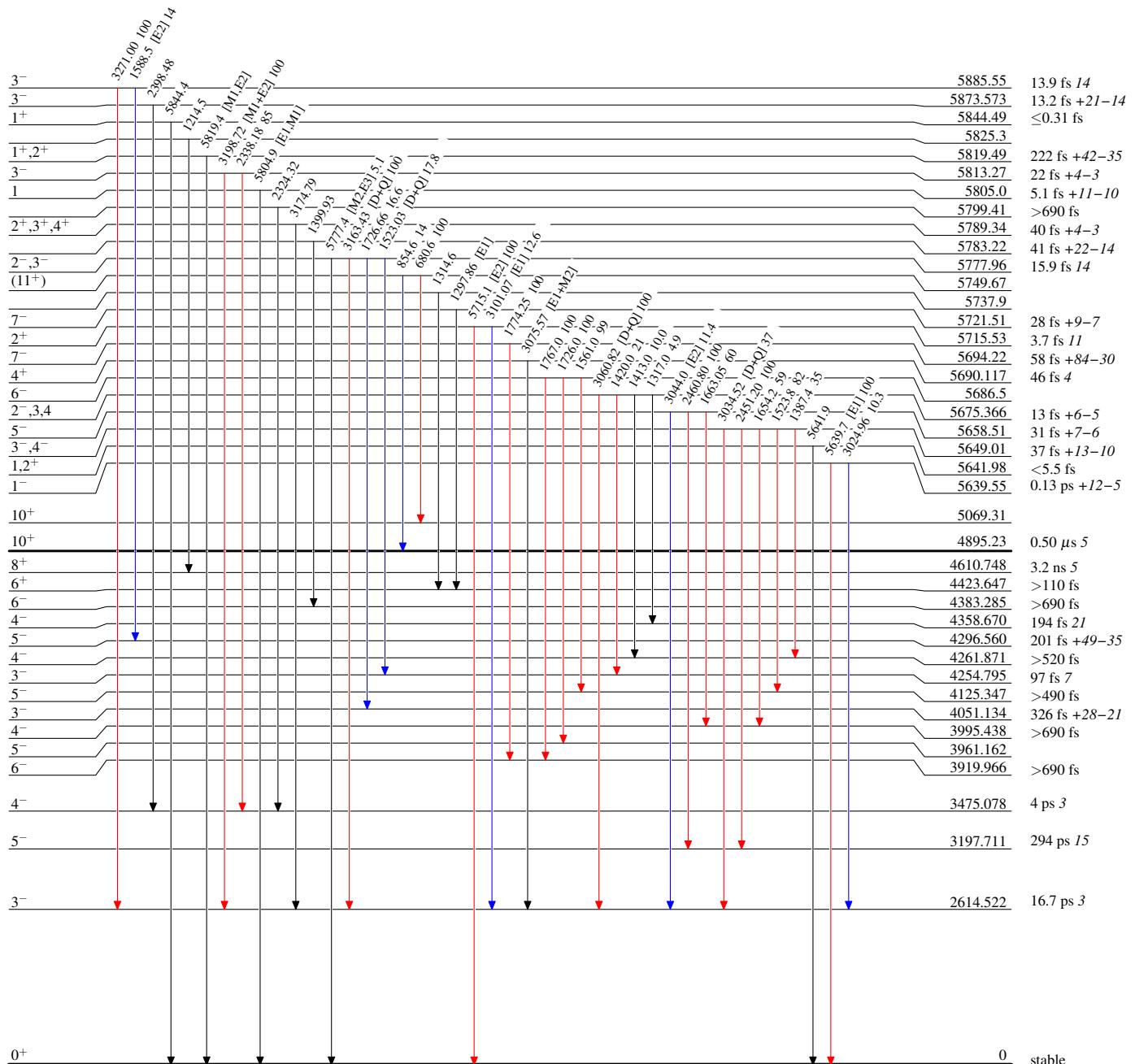


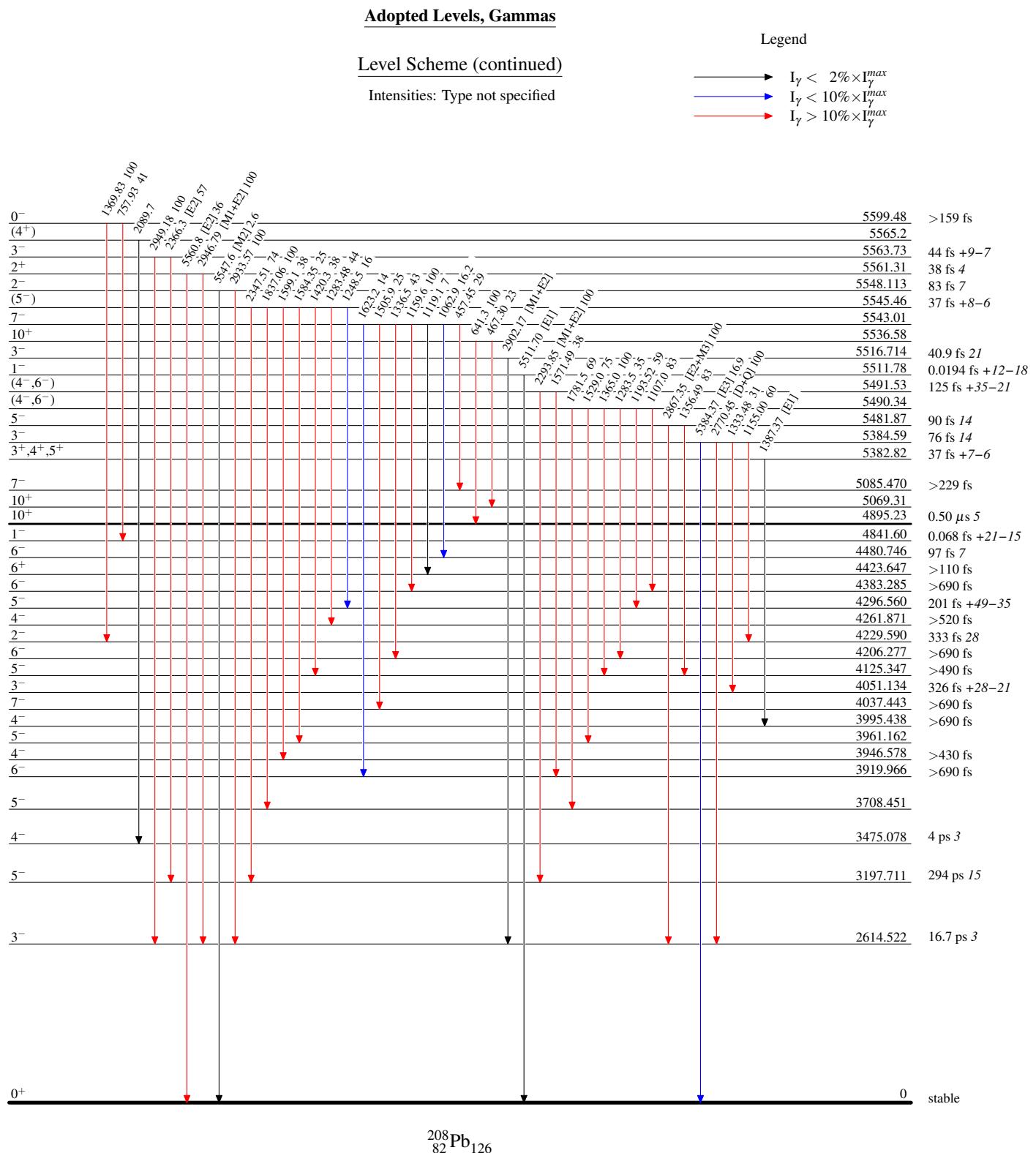
Adopted Levels, Gammas**Level Scheme (continued)**

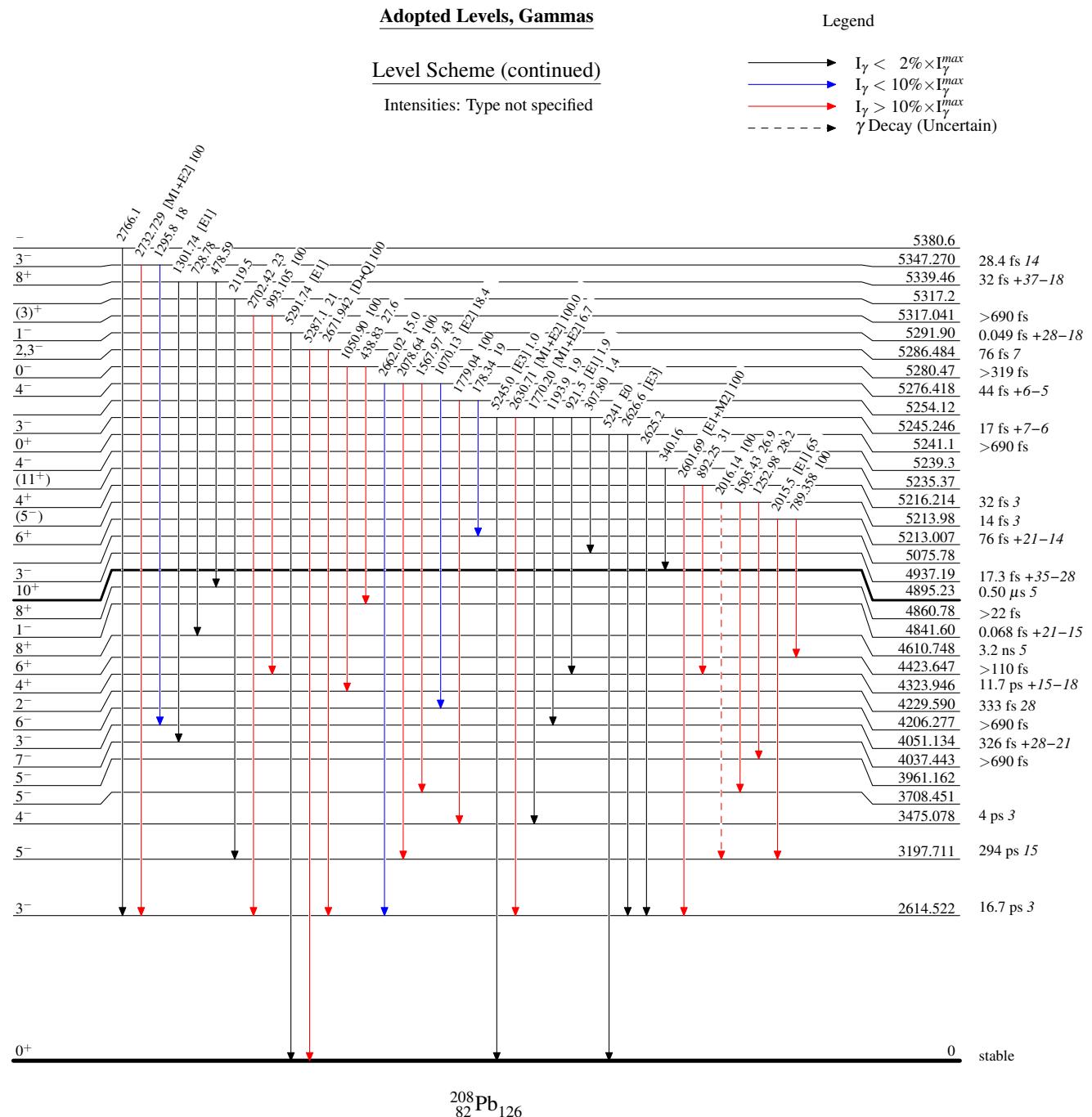
Intensities: Type not specified

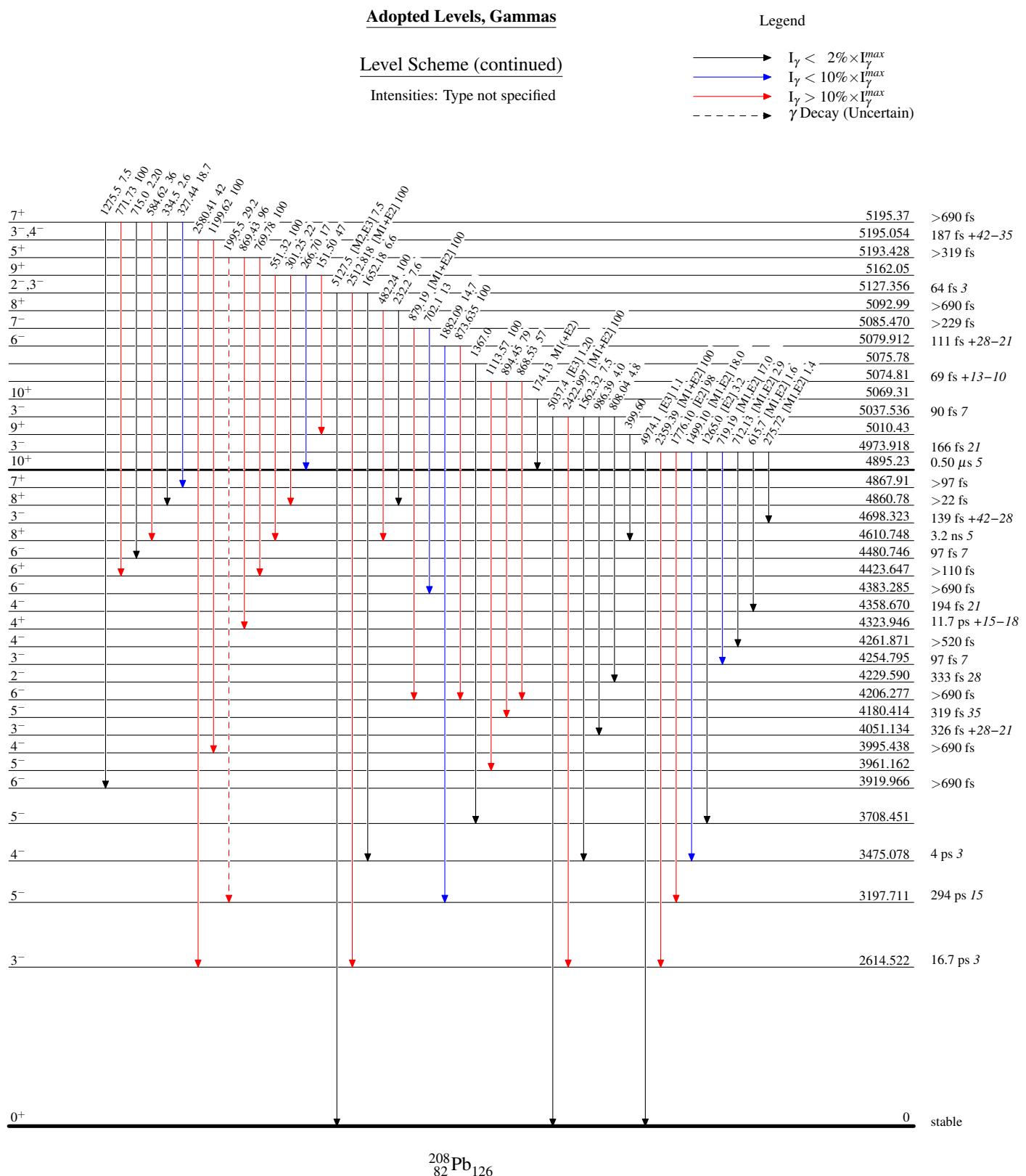
Legend

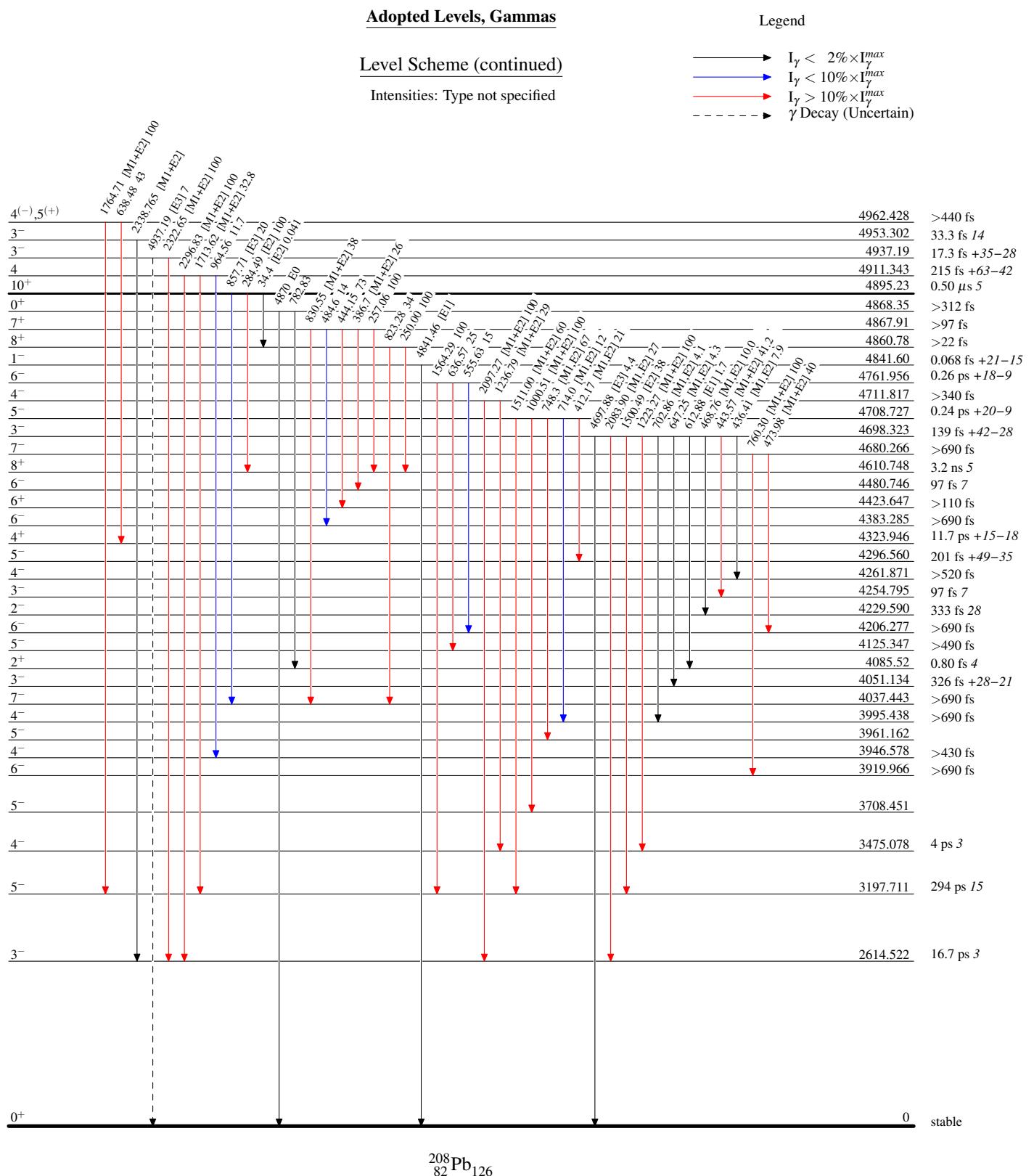
- $I_{\gamma} < 2\% \times I_{\gamma}^{\max}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{\max}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{\max}$











Adopted Levels, Gammas

Legend

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

Intensities: Type not specified

γ Decay (Uncertain)

