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

 $Q(\beta^{-}) = -7865 \ 32; \ S(n) = 10155 \ 19; \ S(p) = 4463 \ 26; \ Q(\alpha) = 4707 \ 16 \ 2017Wa10$ 

Additional information 1.

### <sup>188</sup>Hg Levels

#### Cross Reference (XREF) Flags

		А	$^{188}$ Tl $arepsilon$	decay D $\frac{164}{D}$ Dy $(^{28}$ Si,4n $\gamma$ )
		В	<sup>192</sup> Pb a	$\mu$ decay (3.5 min) E $^{168}$ Er( $^{24}$ Mg,4n $\gamma$ )
		C	<sup>150</sup> Gd( <sup>5</sup>	F Coulomb excitation
E(level) <sup>†</sup>	$J^{\pi \ddagger}$	T <sub>1/2</sub>	XREF	Comments
0.0 <sup>#</sup>	$0^{+}$	3.25 min 15	ABCDEF	$\% \varepsilon + \% \beta^+ = 99.999963 8; \ \% \alpha = 3.7 \times 10^{-5} 8$
#				% <i>α</i> : from 1979Ha10. Other: $4.2 \times 10^{-5}$ , preliminary value from 1993ToZY. T <sub>1/2</sub> : from 190.2βγ(t) in 1972Fi12. Others: 3.7 min (1960Po07) and 3.17 min (1978CoYZ). Δ <r<sup>2&gt;(<sup>188</sup>Hg,<sup>198</sup>Hg)=-0.3944 fm<sup>2</sup> 10 (1986Ul02) and Δ<r<sup>2&gt;(<sup>188</sup>Hg,<sup>204</sup>Hg)=-0.80 fm<sup>2</sup> 9 (1977Ku11).</r<sup></r<sup>
412.91# 8	2+	13.1 ps 20	A CDEF	J <sup><math>\pi</math></sup> : 412.9 $\gamma$ E2 to 0 <sup>+</sup> . B(E2,0 <sup>+</sup> to 2 <sup>+</sup> )↑=1.72 26 from E2 matrix element (0,0 <sup>+</sup> to 413,2 <sup>+</sup> )=+1.31 10 (2014Br05). T <sub>1</sub> (2): From B(E2,0 <sup>+</sup> to 2 <sup>+</sup> )↑
824.50 <sup>e</sup> 20	$0^{+}$	204 ps 45	A C	$J_{1/2}^{\pi}$ : 824.5 E0 transition to 0 <sup>+</sup> .
	•			T <sub>1/2</sub> : from $\beta\gamma\gamma(t)$ in <sup>188</sup> Tl $\varepsilon$ decay (1994Jo13).
881.10° 8	21	141 ps <i>31</i>	A CDE	$J^{*}: 881.1\gamma E2 \text{ to } 0^{\circ}.$
1004.89 <sup>#</sup> 10	4+	1.60 ps 13	A CDEF	B(E2,2 <sup>+</sup> to 4 <sup>+</sup> ) $\uparrow$ =0.86 7 from E2 matrix element (413,2 <sup>+</sup> to 1005,4 <sup>+</sup> )=+2.07 8 (2014Br05).
				$T_{1/2}$ : From B(E2,2 <sup>+</sup> to 4 <sup>+</sup> ) $\uparrow$ .
1207.92 <sup>e</sup> 9	4+		A CDE	$J^{\pi}$ : 795.2 $\gamma$ E2 to 2 <sup>+</sup> , 203.2 $\gamma$ M1(+E2) to 4 <sup>+</sup> .
1239.64 10	$(4)^{+}$		Α	$J^{\pi}$ : 826.7 $\gamma$ (E2) to 2 <sup>+</sup> ; 269.4 $\gamma$ from 6 <sup>+</sup> .
1455.19 9	3+		Α	$J^{\pi}$ : 574.0 $\gamma$ M1+E2 to 2 <sup>+</sup> , 247.6 E2+M1 to 4 <sup>+</sup> .
1509.18 <sup>e</sup> 10	$6^+$		A CDE	$J^{\pi}$ : 504.3 $\gamma$ E2 to 4 <sup>+</sup> .
1/18.90? 13	(1,2,3) $(2,4,5)^+$		A	$J^{*}: 83/.8\gamma \ge 1$ to $2^{+}$ . $I^{\pi}: 760.8\gamma \ge M1(1 \ge 2)$ to $4^{+}$
1774.07212	(3,4,3)			$J : 705.87 \text{ MI}(\pm 22) \text{ to } 4$ .
1890 432 12	$4^+$		A CDE	$J^{\pi}$ : 381 52 to 6 <sup>+</sup> 1477 52 to 2 <sup>+</sup>
1907.82 12	4 <sup>+</sup> .5 <sup>+</sup>		A	$J^{\pi}$ : 398.2 $\gamma$ to 6 <sup>+</sup> , 452.7 $\gamma$ E2(+M1) to 3 <sup>+</sup> .
1909.66 <sup>b</sup> 12	5-		A CDE	$I^{\pi}$ : 904.8v AI=1. E1 to 4 <sup>+</sup> .
1969.86 <sup>e</sup> 14	8+		A CDE	$J^{\pi}$ : 460.7 $\gamma$ E2 to 6 <sup>+</sup> .
2077.00? 19	(3,4) <sup>-</sup>		Α	$J^{\pi}$ : 622.0 $\gamma$ E1 to 3 <sup>+</sup> ; 167.3 $\gamma$ to 5 <sup>-</sup> .
2136.40 12	$(5,6)^+$		Α	$J^{\pi}$ : 627.2 $\gamma$ E2+M1 to 6 <sup>+</sup> ; 928.5 $\gamma$ to 4 <sup>+</sup> .
2201.37 <sup>b</sup> 12	7-		A CDE	$J^{\pi}$ : 291.7 $\gamma$ E2 to 5 <sup>-</sup> ; 424.1 $\gamma$ E1 to 6 <sup>+</sup> .
2249.9? 5	(6 <sup>+</sup> )		Α	J <sup>*</sup> : 280.0 $\gamma$ to 8 <sup>+</sup> consistent with J from 6 to 10. Non-observation in HI,xn $\gamma$
2274 22 5			۸	data sets would be consistent with non-yrast status and hence lowest spin.
2295.41 <sup>°</sup> 14	(6)-		A CD	$J^{\pi}$ : 385.8 $\gamma$ E2+M1 to 5 <sup>-</sup> ; band assignment.

### <sup>188</sup>Hg Levels (continued)

E(level) <sup>†</sup>	$J^{\pi \ddagger}$	T <sub>1/2</sub>	XREF	Comments
2350.89? 15	$(4,5,6)^+$		Α	$J^{\pi}$ : 443.1 $\gamma$ E2+M1 to 4 <sup>+</sup> ,5 <sup>+</sup> , 841.2 $\gamma$ to 6 <sup>+</sup> .
2422.50 <sup>#</sup> 13	8+		A CDE	$J^{\pi}$ : 645.6 $\gamma$ E2 to 6 <sup>+</sup> .
2448.98 <sup>c</sup> 15	(8 <sup>-</sup> )		A CD	$J^{\pi}$ : 153.9 $\gamma$ E2 to (6) <sup>-</sup> , 247.3 $\gamma$ to 7 <sup>-</sup> .
2470.78 <sup>0</sup> 15	9 <sup>-</sup>		A CDE	$J^{\pi}$ : 269.4 $\gamma$ E2 to 7 <sup>-</sup> .
2490.76° 23 2566.002.14	10'		A CDE	J <sup>*</sup> : 521.2 $\gamma$ E2 to 8'; band member. I <sup><math>\pi</math></sup> : 780 Sec and 1057 Sec to 6 <sup>+</sup> suggest I=4 to 8
2500.99? 14	10+		A	J . 769.67 and 1057.87 to 0 suggest $J=4$ to 8.
2680.97 5	$(6^+, 7, 8^+)$		A	$J^{\pi}$ : 711.0v to $8^+$ and 1170.5v to $6^+$ .
$2724.1^{@}4$	12+	154 ns 20	CDE	$\mu = -2.02.12$ (1983Se20)
_,				$Q=0.91 \ 11 \ (1984 Dr 09, 2016 St 14)$
				$J^{\pi}$ : 61.6 $\gamma$ to 10 <sup>+</sup> ; $\mu$ ; systematics of similar isomers in the region.
				$T_{1/2}$ : Unweighted average of 134 ns 15 (1983Ha15) and 173 ns 35 (2004Gl04).
				$\mu$ ,Q: $\mu$ is from g=-0.108 10 m 1985Se20. Boun $\mu$ and Q were deduced using the TDPAD technique
				configuration: $v(i_{13/2})^{-2}$ .
2784.16 <sup>C</sup> 24	(10 <sup>-</sup> )		CD	$J^{\pi}$ : 313.3 $\gamma$ (M1) to 9 <sup>-</sup> , 335.3 $\gamma$ (E2) to (8 <sup>-</sup> ).
2946.90 25	$10^{+}$		CD	$J^{\pi}$ : 456.2 $\gamma$ (E2+M1) to 10 <sup>+</sup> ; 524.3 $\gamma$ E2 to 8 <sup>+</sup> .
2967.9 <sup><i>a</i></sup> 4	(11 <sup>-</sup> )		CD	$J^{\pi}$ : 183.8 $\gamma$ (E2+M1) to 10 <sup>-</sup> , 305.3 $\gamma$ to 10 <sup>+</sup> ; band assignment.
3011.4 <sup>b</sup> 3	11-		CDE	$J^{\pi}$ : 540.6 $\gamma$ E2 to 9 <sup>-</sup> .
3069.4° 4	$12^{+}$ (12 <sup>+</sup> )		CDE	$J^{*}$ : 5/8.6 $\gamma$ E2 to 10'; band member. $I^{\pi}$ : 451.3 $\gamma$ : 10 <sup>+</sup>
$31615^{0}$	(12)		CDE	J : 451.57 10. $I^{\pi}: 437.4\alpha$ F2 to 12 <sup>+</sup> : hand member
32101.5 $4$	$(11^{-})$		CD	$I^{\pi}$ : 272 227 (E1) to 10 <sup>+</sup>
3250.0 <sup>°</sup> 4	$(11^{-})$		CD	$J^{\pi}$ : 465.8 $\gamma$ E2 to (10 <sup>-</sup> ).
3447.1 <sup><i>d</i></sup> 4	(13 <sup>-</sup> )		CD	$J^{\pi}$ : 479.2 $\gamma$ E2 to (11 <sup>-</sup> ).
3682.0 <sup>b</sup> 4	13-		CDE	$J^{\pi}$ : 670.6 $\gamma$ E2 to 11 <sup>-</sup> .
3687.8 <sup>f</sup> 5	(13 <sup>-</sup> )		CD	$J^{\pi}$ : 468.7 $\gamma$ to (11 <sup>-</sup> ); band member.
3689.5 <sup>e</sup> 5	14+		CDE	$J^{\pi}$ : 620.1 $\gamma$ E2 to 12 <sup>+</sup> ; band member.
3804.3 5	(14+)		С	$J^{\pi}$ : 690.7 $\gamma$ to 12 <sup>+</sup> .
3821.3 <sup><sup>w</sup></sup> 4	$16^+$		CDE	$J^{\pi}$ : 659.8 $\gamma$ E2 to 14 <sup>+</sup> ; band member.
3931.7° 5	(14)		CD	$J^{*}: 681./\gamma$ to (12); band member.
$4126.7^{a}$ 4	(15)		CD	$J^{*}: 6/9.6\gamma E2$ to (13).
4160.27 0	(15) $(16^+)$		C	$J^{*}: 4/2.4\gamma$ E2 to (13); band member. $I^{\pi}: 451.3\gamma$ to $14^{+}$
$4256.0^{b} 4$	15-		СП	$I^{\pi} \cdot 547.9 \times F2 \text{ to } 13^{-1}$
4329.6 <sup>e</sup> 6	15 16 <sup>+</sup>		CDE	$J^{\pi}$ : 640.1 $\gamma$ E2 to 14 <sup>+</sup> ; band member.
4502.9 <sup><i>a</i></sup> 5	(16)		CD	$J^{\pi}$ : 681.6 $\gamma$ , $\Delta J=0$ transition to 16 <sup>+</sup> .
4554.2 <sup>b</sup> 4	17-		CDE	$J^{\pi}$ : 297.3 $\gamma$ E2 to 15 <sup>-</sup> ; 732.8 $\gamma$ (E1) to 16 <sup>+</sup> .
4581.8 <sup>@</sup> 5	$18^{+}$		CDE	$J^{\pi}$ : 760.5 $\gamma$ E2 to 16 <sup>+</sup> ; band member.
$4628.2^{f}$ 6	(17 <sup>-</sup> )		CD	$J^{\pi}$ : 468.0 $\gamma$ to (15 <sup>-</sup> ); band member.
4841.1 <sup><i>d</i></sup> 5	(17 <sup>-</sup> )		С	$J^{\pi}$ : 714.4 $\gamma$ to (15 <sup>-</sup> ); band member.
4850.5 <sup><i>a</i></sup> 6	(18)		CD	$J^{\pi}$ : 347.6 $\gamma$ E2 to (16).
4949.9° 5	19 <sup>-</sup>		CD	$J^{\pi}$ : 395.7 $\gamma$ E2 to 17 <sup>-</sup> .
$4988.0^{\circ}$ /	18.		CD CD	J:: 039.07 E2 to 10°; band member.
$3130.3^{j}$ /	(19) 20 <sup>+</sup>		CD CD F	J <sup>**</sup> : $522.5\gamma$ E2 to (1/ ); band member.
$5300.5^{-2}0$ 5397 4 <sup><i>a</i></sup> 7	(20)			$J^{*}$ : 724.5 $\gamma$ E2 to 16°. $I^{\pi}$ : 546.9 $\gamma$ E2 to (18)
$5469.0^{@} 6$	20+		CD	$I^{\pi}$ : 887.2 $\gamma$ E2 to 18 <sup>+</sup> : band member.
5582.7 6	21-		CD	$J^{\pi}$ : 632.8 $\gamma$ E2 to 19 <sup>-</sup> .

#### <sup>188</sup>Hg Levels (continued)

E(level) <sup>†</sup>	Jπ‡	XREF	Comments
5602.1 <sup>d</sup> 6	(19 <sup>-</sup> )	С	$J^{\pi}$ : 761.0 $\gamma$ to 17 <sup>-</sup> ; probable band member.
5605.3 <sup>b</sup> 6	$21^{-}$	CD	$J^{\pi}$ : 655.4 $\gamma$ E2 to 19 <sup>-</sup> .
5684.3 <sup>e</sup> 7	$20^{+}$	CD	$J^{\pi}$ : 695.7 $\gamma$ E2 to 18 <sup>+</sup> ; band member.
5706.6 7	$(20^{+})$	С	$J^{\pi}$ : 718.0 $\gamma$ to (18 <sup>+</sup> ).
5742.5 <sup>f</sup> 8	(21 <sup>-</sup> )	С	$J^{\pi}$ : 592.0 $\gamma$ to (19 <sup>-</sup> ); band member.
5916.8 <mark>&amp;</mark> 7	22+	CD	$J^{\pi}$ : 610.5 $\gamma$ E2 to 20 <sup>+</sup> .
6162.0 <sup>b</sup> 6	(23 <sup>-</sup> )	С	$J^{\pi}$ : 556.7 $\gamma$ to 21 <sup>-</sup> ; band member.
6243.0 <sup>@</sup> 6	$(22^{+})$	С	$J^{\pi}$ : 936.7 $\gamma$ E2 to 20 <sup>+</sup> .
6386.3 7	(23 <sup>-</sup> )	С	$J^{\pi}$ : 803.6 $\gamma$ to 21 <sup>-</sup> .
6402.9 9	$(22^{+})$	D	$J^{\pi}$ : 718.6 $\gamma$ E2 to 20 <sup>+</sup> .
6405.7 <sup>ƒ</sup> 8	$(23^{-})$	С	$J^{\pi}$ : 663.2 $\gamma$ E2 to (21 <sup>-</sup> ); band member.
6408.1 <sup>e</sup> 8	$22^{+}$	С	$J^{\pi}$ : 723.8 $\gamma$ E2 to 20 <sup>+</sup> ; band member.
6717.8 <sup>&amp;</sup> 7	$(24^{+})$	С	$J^{\pi}$ : 801.0 $\gamma$ to 22 <sup>+</sup> ; band member.
6831.5 <sup>@</sup> 7	$(24^{+})$	С	$J^{\pi}$ : 588.5 $\gamma$ to 22 <sup>+</sup> .
6953.0 <sup>b</sup> 7	(25 <sup>-</sup> )	С	$J^{\pi}$ : 791.0 $\gamma$ to (23 <sup>-</sup> ); band member.
7138.9 <sup>f</sup> 9	(25 <sup>-</sup> )	С	$J^{\pi}$ : 733.2 $\gamma$ to (23 <sup>-</sup> ); band member.
7314.9? <mark>&amp;</mark> <i>15</i>	$(26^{+})$	С	$J^{\pi}$ : 597 $\gamma$ to (24 <sup>+</sup> ); probable band member.
7852.8 <sup>b</sup> 7	(27 <sup>-</sup> )	С	$J^{\pi}$ : 899.8 $\gamma$ to (25 <sup>-</sup> ); band member.
7941.1 <sup>f</sup> 9	(27 <sup>-</sup> )	С	$J^{\pi}$ : 802.2 $\gamma$ to (25 <sup>-</sup> ); band member.

<sup>†</sup> From a least-squares fit to  $E\gamma$ 's.

<sup> $\ddagger$ </sup> From deduced  $\gamma$ -ray transition multipolarities and the apparent band structures.

- # Band(A): g.s. band.
- <sup>@</sup> Band(B): band 2 ( $\alpha$ =0).
- & Band(C): band 3 ( $\alpha$ =0).
- <sup>*a*</sup> Band(D): band 4 ( $\alpha$ =0).
- <sup>b</sup> Band(E): band 5 ( $\alpha$ =1).
- <sup>c</sup> Band(F): band 6 ( $\alpha$ =0).
- <sup>*d*</sup> Band(G): band 7 ( $\alpha$ =1).
- <sup>*e*</sup> Band(H): band 8 ( $\alpha$ =0). K<sup> $\pi$ </sup>=0<sup>+</sup> (prolate) band.
- <sup>*f*</sup> Band(I): band 9 ( $\alpha$ =1).

#### $\gamma(^{188}\text{Hg})$

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$\mathbf{E}_{f}$	$\mathbf{J}_{f}^{\pi}$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
412.91	2+	412.9 <i>1</i>	100	0.0	0+	E2	0.0436	$\alpha(K)=0.0298 5; \alpha(L)=0.01046 15; \alpha(M)=0.00260 4$ $\alpha(N)=0.000649 9; \alpha(O)=0.0001142 16; \alpha(P)=3.92\times10^{-6} 6$ B(E2)(W.u.)=54 9 Mult.: $\alpha(K)\exp=0.030 7$ (1976Bo04), 0.031 3 (1984Co17);
824.50	0+	824.5 2		0.0	0+	E0		$\alpha(L)\exp=0.009\ 2\ (1984Co17).$ Others: $A_2=0.31\ 5$ , $A_4=-0.04\ 4$ , pol=0.46 7 in $^{164}$ Dy( $^{28}$ Si,4n $\gamma$ ) (1988Ha15). $E_{\gamma}$ : from ce data in $^{188}$ Tl $\varepsilon$ decay (1984Co17). Mult.: from $\alpha(K)\exp>1.3\ 1\ (1984Co17)$ , >1.3 and $\alpha(L)\exp>0.22\ (1976Bo04)$ .
881.10	2+	468.2 1	66 <i>3</i>	412.91	2+	M1+E2	0.1091	$\rho^{2}$ (E0)=0.0077 +22-32 (1994Jo13,1999Wo07). $\alpha$ (K)=0.0898 13; $\alpha$ (L)=0.01481 21; $\alpha$ (M)=0.00344 5

# $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$E_f$	$\mathbf{J}_{f}^{\pi}$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
881.10	2+	881.1 <i>1</i>	100 13	0.0	0+	E2	0.00776	$\begin{aligned} &\alpha(\mathrm{N}) = 0.000862 \ 12; \ \alpha(\mathrm{O}) = 0.0001632 \ 23; \\ &\alpha(\mathrm{P}) = 1.257 \times 10^{-5} \ 18 \\ &\mathrm{Mult.:} \ \alpha(\mathrm{K}) \exp = 0.085 \ 21 \ (1976Bo04), \ 0.087 \ 5 \\ &(1984\mathrm{Co17}); \ \alpha(\mathrm{L}) \exp = 0.013 \ 4 \ (1984\mathrm{Co17}). \\ &\mathrm{Others:} \ \mathrm{DCO} = 1.30 \ 15 \ \mathrm{in}^{156}\mathrm{Gd}(^{36}\mathrm{S}, 4\mathrm{n}\gamma) \\ &(1993BeZJ). \\ &\alpha(\mathrm{K}) = 0.00617 \ 9; \ \alpha(\mathrm{L}) = 0.001219 \ 17; \\ &\alpha(\mathrm{M}) = 0.00289 \ 4 \\ &\alpha(\mathrm{N}) = 7.23 \times 10^{-5} \ 11; \ \alpha(\mathrm{O}) = 1.331 \times 10^{-5} \ 19; \\ &\alpha(\mathrm{P}) = 8.13 \times 10^{-7} \ 12 \\ &\mathrm{B(E2)(W.u.)} = 0.068 \ 19 \\ &\mathrm{Mult.:} \ \alpha(\mathrm{K}) \exp = 0.0061 \ 15 \ (1976Bo04), \ 0.0065 \ 7 \\ &(1984\mathrm{Co17}). \ \mathrm{Others:} \ \mathrm{A}_2 = 0.2 \ 1, \ \mathrm{pol} = 0.4 \ 2 \ \mathrm{in} \end{aligned}$
1004.89	4+	592.1 <i>I</i>	100	412.91	2+	E2	0.0181	<sup>164</sup> Dy( <sup>28</sup> Si,4nγ) (1988Ha15). $\alpha$ (K)=0.01361 <i>19</i> ; $\alpha$ (L)=0.00343 <i>5</i> ; $\alpha$ (M)=0.000833 <i>12</i> $\alpha$ (N)=0.000208 <i>3</i> ; $\alpha$ (O)=3.75×10 <sup>-5</sup> <i>6</i> ; $\alpha$ (P)=1.81×10 <sup>-6</sup> <i>3</i> B(E2)(W.u.)=75 <i>6</i> Mult.: A <sub>2</sub> =0.29 <i>6</i> , A <sub>4</sub> =-0.06 <i>10</i> , pol=0.4 <i>1</i> in <sup>164</sup> Dy( <sup>28</sup> Si,4nγ) (1988Ha15). Other: DCO=1.15 2 in <sup>156</sup> C 4/365 4n; ) (1002D -77)
1207.92	4+	203.2 2	11.5 9	1004.89	4+	M1(+E2)	1.057	$\alpha(K)=0.867 \ 13; \ \alpha(L)=0.1458 \ 21; \ \alpha(M)=0.0339 \ 5 \ \alpha(N)=0.0001233 \ 13; \ \alpha(O)=0.001611 \ 23; \ \alpha(P)=0.0001233 \ 18 \ Mult: \ \alpha(K)exp=0.99 \ 5 \ (1976Ha25), \ 0.99 \ 11 \ (10007) \ 17 \ 10007 \ 17 \ 10007 \ 17 \ 10007 \ 17 \ 1$
		326.9 1	95 4	881.10	2+	E2	0.0828	(1984Co17). $\alpha(K)=0.0513 \ 8; \ \alpha(L)=0.0237 \ 4; \ \alpha(M)=0.00599 \ 9$ $\alpha(N)=0.001492 \ 21; \ \alpha(O)=0.000259 \ 4; \ \alpha(P)=6.66\times10^{-6} \ 10$ Mult.: $\alpha(K)\exp=0.049 \ 7 \ (1976Bo04), \ 0.040 \ 4$ (1984Co17). Others: A <sub>2</sub> =0.33 \ 13, pol=0.43 \ 15 in 164 Dw(^{28}S; 4mc) (1089Ha15)
		795.2 1	100 5	412.91	2+	E2	0.00957	$\alpha(K) = 0.00752 \ 11; \ \alpha(L) = 0.001565 \ 22; \alpha(M) = 0.000373 \ 6 \alpha(N) = 9.33 \times 10^{-5} \ 13; \ \alpha(O) = 1.710 \times 10^{-5} \ 24; \alpha(P) = 9.94 \times 10^{-7} \ 14 Mult.: \ \alpha(K) exp = 0.0073 \ 8 \ (1984Co17), \ 0.0078 \ 12, \alpha(L) exp = 0.0020 \ 3, and \ K/L = 3.9 \ 8 \ (1976Bo04). Otherwise A = 0.27 \ 15 in \ 16^4 Dy(^{28}Si \ 4ny)$
1239.64	(4)+	826.7 1	100	412.91	2+	(E2)	0.00884	(1988Ha15). $\alpha(K)=0.00697 \ 10; \ \alpha(L)=0.001422 \ 20; \ \alpha(M)=0.000339 \ 5$ $\alpha(N)=8.46\times10^{-5} \ 12; \ \alpha(O)=1.554\times10^{-5} \ 22; \ \alpha(P)=9.21\times10^{-7} \ 13$ Mult.: $\alpha(K)exp=0.018 \ 5 \ (1984Co17) \ consistent \ with both \ M1 \ and \ E2, \ but \ the \ latter \ agrees \ with$
1455.19	3+	215.7 <i>1</i> 247.6 <i>1</i>	13 2 42 2	1239.64 1207.92	$(4)^+$ 4 <sup>+</sup>	E2+M1	0.611	the decay scheme. $\alpha(K)=0.501\ 7;\ \alpha(L)=0.0840\ 12;\ \alpha(M)=0.0195\ 3$ $\alpha(N)=0.00490\ 7;\ \alpha(O)=0.000927\ 13;$ $\alpha(P)=7.10\times10^{-5}\ 10$ Mult.: From $\alpha(K)$ exp=0.13 2 (1984Co17); other
		450.3 <i>1</i>	11 <i>I</i>	1004.89	4+	M1+E2	0.1210	$\alpha$ (K)exp=0.33 8 (1976Bo04). $\alpha$ (K)=0.0996 14; $\alpha$ (L)=0.01644 23; $\alpha$ (M)=0.00382

# $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$E_f$	$\mathbf{J}_{f}^{\pi}$	Mult.#	α <sup>@</sup>	Comments
1455.19	3+	574.0 <i>I</i>	100 7	881.10	2+	E2+M1	0.0638	$\frac{6}{\alpha(N)=0.000957 \ 14; \ \alpha(O)=0.000181 \ 3;} \\ \alpha(P)=1.394\times10^{-5} \ 20 \\ Mult.: \ \alpha(K)exp=0.068 \ 14 \ (1984Co17). \\ \alpha(K)=0.0526 \ 8; \ \alpha(L)=0.00862 \ 12; \\ \alpha(M)=0.00200 \ 3 \\ \alpha(N)=0.000501 \ 7; \ \alpha(O)=9.50\times10^{-5} \ 14; \\ \alpha(P)=7.33\times10^{-6} \ 11 \\ M \ b \ (V) = 0.0021 \ 4 \ (100452 \ 15) \ 0.0022 \\ M \ (V)=0.0022 \ 4 \ (100452 \ 15) \ 0.0022 \\ M \ (V)=0.0022 \ 4 \ (100452 \ 15) \ 0.0022 \\ M \ (V)=0.0022 \ 4 \ (100452 \ 15) \ 0.0022 \\ M \ (V)=0.0022 \ 4 \ (100452 \ 15) \ 0.0022 \\ M \ (V)=0.0022 \ 4 \ (100452 \ 15) \ 0.0022 \\ M \ (V)=0.0022 \ 4 \ (100452 \ 15) \ 0.0022 \\ M \ (V)=0.0022 \ 4 \ (100452 \ 15) \ 0.0022 \\ M \ (V)=0.0022 \ (V) \$
		1042.0 <i>1</i>	78 4	412.91	2+	E2+M1	0.01373	Mult.: $\alpha$ (K)exp=0.024 4 (1984Co17), 0.022 5 (1976Bo04). $\alpha$ (K)=0.01135 16; $\alpha$ (L)=0.00183 3; $\alpha$ (M)=0.000423 6 $\alpha$ (N)=0.0001060 15; $\alpha$ (O)=2.01×10 <sup>-5</sup> 3; $\alpha$ (D)=1.564×10 <sup>-6</sup> 22
1509.18	6+	269.4 <i>1</i> 301.2 <i>1</i>	5.3 <i>4</i> 20.8 <i>11</i>	1239.64 1207.92	(4) <sup>+</sup> 4 <sup>+</sup>	E2	0.1052	$\begin{aligned} \alpha(\mathbf{r}) &= 1.304 \times 10^{-2.2} \\ \text{Mult.: } \alpha(\mathbf{K}) &= 0.0047 \ 24 \ (1984\text{Col7}). \\ \text{E}_{\gamma}: \text{ Probably a doublet in } ^{188}\text{Tl } \varepsilon \text{ decay.} \\ \alpha(\mathbf{K}) &= 0.0625 \ 9; \ \alpha(\mathbf{L}) &= 0.0322 \ 5; \\ \alpha(\mathbf{M}) &= 0.00816 \ 12 \\ \alpha(\mathbf{N}) &= 0.00203 \ 3; \ \alpha(\mathbf{O}) &= 0.000350 \ 5; \\ \alpha(\mathbf{P}) &= 8.04 \times 10^{-6} \ 12 \end{aligned}$
		504.3 <i>I</i>	100 6	1004.89	4+	E2	0.0264	Mult.: $\alpha(K)\exp=0.071 \ 18 \ (1976Bo04),$ $0.083 \ 15 \ (1984Co17).$ Other: $A_2=0.26 \ 6,$ $pol=0.42 \ 12 \ in \ ^{164}Dy(^{28}Si,4n\gamma)$ (1988Ha15). $\alpha(K)=0.0191 \ 3; \ \alpha(L)=0.00551 \ 8;$ $\alpha(M)=0.000337 \ 5; \ \alpha(O)=6.02\times10^{-5} \ 9;$ $\alpha(P)=2.54\times10^{-6} \ 4$ Mult.: $\alpha(K)\exp=0.017 \ 3 \ (1976Bo04), \ 0.019 \ 2 \ (1984Co17), \ \alpha(L)\exp=0.0048 \ 8$
1718.90?	(1,2,3) <sup>-</sup>	837.8 <i>1</i>	100 8	881.10	2+	E1	0.00319	(1984Co17). Other: $A_2=0.30 \ 6, A_4=-0.1 \ 1, \text{ pol}=0.7 \ 2 \text{ in } {}^{164}\text{Dy}({}^{28}\text{Si},4n\gamma) \ (1988Ha15).$ $\alpha(\text{K})=0.00267 \ 4; \ \alpha(\text{L})=0.000403 \ 6; \ \alpha(\text{M})=9.26\times10^{-5} \ 13 \ \alpha(\text{N})=2.31\times10^{-5} \ 4; \ \alpha(\text{O})=4.34\times10^{-6} \ 6; \ \alpha(\text{P})=3.21\times10^{-7} \ 5 \ \text{Mult}: \ \alpha(\text{K})=\text{end} \ 0.0035 \ 20 \ (1976Bo04)$
1774.67?	(3,4,5)+	1306.1 <sup>&amp;</sup> 4 535.0 1	77 8 65 5	412.91 1239.64	$2^+$ (4) <sup>+</sup>	M1	0.0767	$\alpha(K) = 0.0632 \ 9; \ \alpha(L) = 0.01038 \ 15; \alpha(M) = 0.00241 \ 4 \alpha(N) = 0.000604 \ 9; \ \alpha(O) = 0.0001144 \ 16; 0.000604 \ 1056 $
		769.8 <i>1</i>	100 <i>10</i>	1004.89	4+	M1(+E2)	0.0298	$\alpha(P)=8.82\times10^{-5} I_{3}^{-5}$ Mult.: $\alpha(K)\exp=0.013 \ 4 \ (1984Co17).$ $\alpha(K)=0.0246 \ 4; \ \alpha(L)=0.00399 \ 6;$ $\alpha(M)=0.000925 \ I_{3}$ $\alpha(N)=0.000232 \ 4; \ \alpha(O)=4.40\times10^{-5} \ 7;$
1777.23	6+	569.3 1	28.9 22	1207.92	4+	E2	0.0198	$\alpha(P)=3.41\times10^{-6} 5$ Mult.: $\alpha(K)\exp=0.029 7 (1976Bo04)$ . $\alpha(K)=0.01477 21$ ; $\alpha(L)=0.00384 6$ ; $\alpha(M)=0.000935 14$ $\alpha(N)=0.000233 4$ ; $\alpha(O)=4.20\times10^{-5} 6$ ;

# $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$\mathbf{E}_{f}$	$\mathbf{J}_f^{\pi}$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
1777.23	6+	772.4 1	100 4	1004.89	4+	E2	0.01017	$\begin{array}{l} \alpha(\mathrm{P}) = 1.96 \times 10^{-6} \ 3 \\ \mathrm{Mult.:} \ \alpha(\mathrm{K}) \mathrm{exp} = 0.017 \ 4 \ (1984\mathrm{Co17}), \\ \alpha(\mathrm{L}) \mathrm{exp} = 0.0036 \ 9 \ (1976\mathrm{Bo04}). \ \mathrm{Other:} \\ \mathrm{A}_2 = 0.37 \ 10 \ \mathrm{in}^{164} \mathrm{Dy}(^{28}\mathrm{Si}, 4\mathrm{n\gamma}) \ (1988\mathrm{Ha15}). \\ \alpha(\mathrm{K}) = 0.00796 \ 12; \ \alpha(\mathrm{L}) = 0.001683 \ 24; \\ \alpha(\mathrm{M}) = 0.000402 \ 6 \\ \alpha(\mathrm{N}) = 0.0001005 \ 14; \ \alpha(\mathrm{O}) = 1.84 \times 10^{-5} \ 3; \\ \alpha(\mathrm{P}) = 1.053 \times 10^{-6} \ 15 \\ \mathrm{Mult.:} \ \alpha(\mathrm{K}) \mathrm{exp} = 0.0085 \ 13 \ (1976\mathrm{Bo04}), \ 0.0065 \\ 11 \ (1984\mathrm{Co17}), \ \alpha(\mathrm{L}) \mathrm{exp} = 0.0021 \ 3 \ \mathrm{and} \\ \mathrm{K/L} = 4.1 \ 8 \ (1976\mathrm{Bo04}). \ \mathrm{Other:} \ \mathrm{A}_2 = 0.26 \ 10, \\ \mathrm{A}_4 = 0.06 \ 10, \ \mathrm{pol} = 0.5 \ 2 \ \mathrm{in}^{164} \mathrm{Dy}(^{28}\mathrm{Si}, 4\mathrm{n\gamma}) \\ (1988\mathrm{Ha15}). \end{array}$
1890.43?	4+	381.5 4	50 10	1509.18	6 <sup>+</sup>			
		682.8 <sup>4</sup> 885.1 4	20 <i>10</i> 85 <i>9</i>	1207.92 1004.89	4 <sup>+</sup> 4 <sup>+</sup>	(M1)	0.0208	$\alpha(K)=0.01721\ 25;\ \alpha(L)=0.00278\ 4;\ \alpha(M)=0.000644\ 9\ \alpha(N)=0.0001615\ 23;\ \alpha(O)=3.06\times10^{-5}\ 5;\ \alpha(P)=2.38\times10^{-6}\ 4\ Mult.:\ \alpha(K)exp\approx0.04\ (1976Bo04).$
		1009.8 4	20 10	881.10	2+			
1907 82	4+ 5+	1477.5 <i>I</i> 398.2 2	100 10	412.91	2+ 6+			
1907.02	1,5	452.7 1	85 6	1455.19	3+	E2(+M1)	0.1193	$\alpha$ (K)=0.0982 <i>14</i> ; $\alpha$ (L)=0.01620 <i>23</i> ; $\alpha$ (M)=0.00376 <i>6</i> $\alpha$ (N)=0.000944 <i>14</i> ; $\alpha$ (O)=0.000179 <i>3</i> ;
		700.1 2	100 9	1207.92	4+	E2+M1	0.0381	$\alpha(P)=1.375\times10^{-5} 20$ Mult.: $\alpha(K)\exp=0.029 5$ (1984Co17). $\alpha(K)=0.0314 5$ ; $\alpha(L)=0.00512 8$ ; $\alpha(M)=0.001186 17$ $\alpha(N)=0.000297 5$ ; $\alpha(O)=5.63\times10^{-5} 8$ ; $\alpha(P)=4.36\times10^{-6} 7$ Mult.: $\alpha(K)\exp=0.015 5$ (1976Bo04), 0.019 3 (1984Co17).
1909.66	5-	701.7 2 904.8 <i>1</i>	7.3 <i>16</i> 100 <i>6</i>	1207.92 1004.89	4+ 4+	E1	0.00277	$\alpha$ (K)=0.00231 4; $\alpha$ (L)=0.000348 5; $\alpha$ (M)=7.99×10 <sup>-5</sup> 12 $\alpha$ (N)=1.99×10 <sup>-5</sup> 3; $\alpha$ (O)=3.75×10 <sup>-6</sup> 6;
	at				~ +			$\alpha(P)=2.79\times10^{-7} 4$ Mult.: $\alpha(K)\exp=0.0027 4$ (1976Bo04), 0.0020 3 (1984Co17). Other: A <sub>2</sub> =-0.24 <i>10</i> , pol=0.3 <i>1</i> in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15).
1969.86	8+	460.7 1	100	1509.18	6+	E2	0.0330	$\alpha(K)=0.0233 4; \alpha(L)=0.00731 11;$ $\alpha(M)=0.00181 3$ $\alpha(N)=0.000450 7; \alpha(O)=7.98 \times 10^{-5} 12;$ $\alpha(P)=3.08 \times 10^{-6} 5$ Mult.: $\alpha(K)\exp=0.014 4$ (1984Co17). Other: $A_2=0.31 6, A_4=-0.04 4, pol=0.53 13$ in $^{164}Dy(^{28}Si_4n\gamma)$ (1988Ha15).
2077.00?	(3,4)-	167.3 <i>4</i> 622.0 2	71 <i>14</i> 100 <i>10</i>	1909.66 1455.19	5- 3+	E1	0.00568	$\alpha(K)=0.00473 \ 7; \ \alpha(L)=0.000731 \ 11; \alpha(M)=0.0001684 \ 24 \alpha(N)=4.20\times10^{-5} \ 6; \ \alpha(O)=7.85\times10^{-6} \ 11; \alpha(P)=5.63\times10^{-7} \ 8 Mult.: \ \alpha(K)exp<0.006 \ (1976Bo04).$

# $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	${\rm E_{\gamma}}^{\dagger}$	$I_{\gamma}^{\dagger}$	$E_f$	${ m J}_f^\pi$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
2077.00? 2136.40	(3,4) <sup>-</sup> (5,6) <sup>+</sup>	1071.4 <i>4</i> 627.2 <i>1</i>	43 <i>14</i> 100 <i>6</i>	1004.89 1509.18	4+ 6+	E2+M1	0.0506	$\alpha$ (K)=0.0418 6; $\alpha$ (L)=0.00682 10; $\alpha$ (M)=0.001582 23 $\alpha$ (N)=0.000397 6; $\alpha$ (O)=7.52×10 <sup>-5</sup> 11; $\alpha$ (P)=5.81×10 <sup>-6</sup> 9
2201.37	7-	928.5 <i>1</i> 291.7 <i>1</i>	94 6 100 8	1207.92 1909.66	4+ 5 <sup>-</sup>	E2	0.1158	Mult.: $\alpha$ (K)exp=0.029 7 (1976Bo04), 0.019 7 (1984Co17). $\alpha$ (K)=0.0675 10; $\alpha$ (L)=0.0363 6; $\alpha$ (M)=0.00923 13 $\alpha$ (N)=0.00230 4; $\alpha$ (O)=0.000396 6; $\alpha$ (P)=8.67×10 <sup>-6</sup> 13 Mult.: E2 from $\alpha$ (K)exp=0.066 16
		424.1 <i>1</i>	98 8	1777.23	6+	E1	0.01267	(1976Bo04). $\alpha$ (K)exp=0.021 5 (1984Co17) suggests E1. Other: A <sub>2</sub> =0.29 5, A <sub>4</sub> =0.03 10, pol=0.45 8 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15). $\alpha$ (K)=0.01049 15; $\alpha$ (L)=0.001675 24; $\alpha$ (M)=0.000387 6 $\alpha$ (N)=9.64 $\times$ 10 <sup>-5</sup> 14; $\alpha$ (O)=1.79 $\times$ 10 <sup>-5</sup> 3; $\alpha$ (P)=1.218 $\times$ 10 <sup>-6</sup> 17 Mult.: $\alpha$ (K)exp=0.013 3 (1976Bo04), 0.020 10 (1984Co17). Other: A <sub>2</sub> =-0.20
		692.3 2	63 5	1509.18	6+	E1	0.00460	8, A <sub>4</sub> =0.0 <i>I</i> , pol=0.26 8 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15). $\alpha$ (K)=0.00383 6; $\alpha$ (L)=0.000588 9; $\alpha$ (M)=0.0001352 <i>19</i> $\alpha$ (N)=3.37 $\times$ 10 <sup>-5</sup> 5; $\alpha$ (O)=6.31 $\times$ 10 <sup>-6</sup> 9; $\alpha$ (P)=4.58 $\times$ 10 <sup>-7</sup> 7 Mult.: $\alpha$ (K)exp $\leq$ 0.005 (1976Bo04) gives E1, whereas $\alpha$ (K)exp=0.0093 35 (1984Co17) gives E2. Other: A <sub>2</sub> =-0.12 8, A <sub>4</sub> =-0.01 <i>I</i> 0, pol=0.2 <i>I</i> in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15)
2249.9? 2274.2?	(6+)	280.0 <i>4</i> 499.5 <sup>&amp;</sup> <i>4</i>	100 100	1969.86 1774.67?	8 <sup>+</sup> (3,4,5) <sup>+</sup>			E <sub><math>\gamma</math></sub> : 1984Co17 assign this line to <sup>188</sup> Au
2295.41	(6) <sup>-</sup>	385.8 <i>1</i>	100 8	1909.66	5-	E2+M1	0.183	$\alpha$ (K)=0.1503 21; $\alpha$ (L)=0.0249 4; $\alpha$ (M)=0.00579 9 $\alpha$ (N)=0.001452 21; $\alpha$ (O)=0.000275 4; $\alpha$ (P)=2.11×10 <sup>-5</sup> 3 Mult.: $\alpha$ (K)exp=0.038 10 (1976Bo04), 0.036 9 (1984Co17)
2350.89?	(4,5,6) <sup>+</sup>	387.5 2 443.1 <i>1</i>	8.1 <i>14</i> 100 <i>11</i>	1907.82 1907.82	4 <sup>+</sup> ,5 <sup>+</sup> 4 <sup>+</sup> ,5 <sup>+</sup>	E2+M1	0.1263	$\alpha(K)=0.1039 \ I5; \ \alpha(L)=0.01716 \ 24; \alpha(M)=0.00399 \ 6 \alpha(N)=0.000999 \ I4; \ \alpha(O)=0.000189 \ 3; \alpha(P)=1.456 \times 10^{-5} \ 21 Mult.: \ \alpha(K)exp=0.032 \ 7 \ (1984Co17).$
2422.50	8+	≈574 <sup>&amp;</sup> 841.2 <i>4</i> 645.6 2	95 <i>11</i> 100 <i>8</i>	1777.23 1509.18 1777.23	6+ 6+ 6+	E2	0.01493	$\alpha(K)=0.01139 \ 16; \ \alpha(L)=0.00269 \ 4; \\ \alpha(M)=0.000651 \ 10 \\ \alpha(N)=0.0001626 \ 23; \ \alpha(O)=2.95\times10^{-5} \ 5; \\ \alpha(P)=1.511\times10^{-6} \ 22$

# $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^\pi$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$\mathbf{E}_{f}$	$\mathbf{J}_{f}^{\pi}$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
2422.50	0+	012.2.1	12.4	1500.10	<u> </u>			Mult.: $\alpha$ (K)exp=0.015 4 (1976Bo04), 0.023 9 (1984Co17). Other: A <sub>2</sub> =0.34 15, pol=0.58 25 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15).
2422.50 2448.98	8' (8 <sup>-</sup> )	913.2 <i>1</i> 153.9 <i>4</i>	13 4 58 5	1509.18 2295.41	6' (6) <sup>-</sup>	E2	1.000 17	$\alpha(K)=0.311 5; \alpha(L)=0.516 10;$ $\alpha(M)=0.1342 25$ $\alpha(N)=0.0333 6; \alpha(O)=0.00558 11;$ $\alpha(P)=3.98\times10^{-5} 7$ Mult.: A <sub>2</sub> =0.18 5 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1089Lp15)
		247.6 1	100 5	2201.37	7-			(1988/1815).
		478.9 <sup>&amp;</sup> 4	42 5	1969.86	8+			
2470.78	9-	269.4 1	100	2201.37	7-	E2	0.1476	$\begin{aligned} &\alpha(\mathbf{K}) = 0.0819 \ 12; \ \alpha(\mathbf{L}) = 0.0494 \ 7; \\ &\alpha(\mathbf{M}) = 0.01260 \ 18 \\ &\alpha(\mathbf{N}) = 0.00313 \ 5; \ \alpha(\mathbf{O}) = 0.000537 \ 8; \\ &\alpha(\mathbf{P}) = 1.044 \times 10^{-5} \ 15 \\ &\text{Mult.: } A_2 = 0.30 \ 4, \ A_4 = 0.01 \ 10, \ \text{pol} = 0.5 \ 1 \\ &\text{ in } ^{164} \text{Dy}(^{28}\text{Si}, 4n\gamma) \ (1988\text{Ha}15). \end{aligned}$
2490.76	10+	521.0 <sup>‡</sup> 3	100 <sup>‡</sup>	1969.86	8+	E2	0.0244	$\alpha(K)=0.0178 \ 3; \ \alpha(L)=0.00499 \ 7; \ \alpha(M)=0.001223 \ 18 \ \alpha(N)=0.000305 \ 5; \ \alpha(O)=5.45\times10^{-5} \ 8; \ \alpha(P)=2.36\times10^{-6} \ 4 \ Mult.; \ A_2=0.39 \ 9, \ A_4=-0.1 \ 1, \ pol=0.56 \ 12 \ A_4=-0.1 \ A_4=-0.56 \ A_5=-0.56 \ A_4=-0.56 \ A_5=-0.56 $
								in ${}^{164}$ Dy( ${}^{28}$ Si,4n $\gamma$ ) (1988Ha15).
2566.99?		789.8 4 1057 8 1	45 9 100 9	1777.23	$6^+$ $6^+$			
2662.35	10+	171.6 <sup>‡</sup> 3	41 <sup>‡</sup> 10	2490.76	10+	E2+M1	1.70 3	α(K)=1.393 21; α(L)=0.235 4; $α(M)=0.0547 9$ $α(N)=0.01371 21; α(O)=0.00259 4; $ $α(P)=0.000198 3$ Mult.: A <sub>2</sub> =0.21 5 in <sup>164</sup> Dy( <sup>28</sup> Si,4nγ) (1988Ha15); DCO=1.5 3 in <sup>156</sup> Gd( <sup>36</sup> S,4nγ) (1993BeZJ); ΔJ=0 transition.
		239.7 <sup>‡</sup> 3	18 <sup>‡</sup> 5	2422.50	8+			
2680.9?	(6 <sup>+</sup> ,7,8 <sup>+</sup> )	$692.6^{\ddagger} 3$ 711.0 4 1170.5 <sup>&amp;</sup> 4	$100^{\ddagger} 15$ 8 4 100 13	1969.86 1969.86 1509.18	$8^+$ $8^+$ $6^+$			
2724.1	12+	61.6 <sup>‡</sup> 7	100 <sup>‡</sup>	2662.35	10+	[E2]	49 3	B(E2)(W.u.)=1.30 23 $\alpha$ (L)=37.0 22; $\alpha$ (M)=9.7 6 $\alpha$ (N)=2.39 14; $\alpha$ (O)=0.395 23;
		233.3 3		2490.76	10+	[E2]	0.233	$\alpha(P)=0.000539 \ 25$ $\alpha(K)=0.1165 \ 17; \ \alpha(L)=0.0877 \ 14;$ $\alpha(M)=0.0225 \ 4$ $\alpha(N)=0.00560 \ 9; \ \alpha(O)=0.000953 \ 15;$ $\alpha(P)=1.467\times10^{-5} \ 21$ E <sub>\gamma</sub> : Observed only in <sup>168</sup> Er( <sup>24</sup> Mg,4n\gamma) (1983Ha15).
2784.16	(10 <sup>-</sup> )	313.3 <sup>‡</sup> 3	100 <sup>‡</sup> 3	2470.78	9-	(M1)	0.321	$\alpha$ (K)=0.263 4; $\alpha$ (L)=0.0439 7; $\alpha$ (M)=0.01021 15 $\alpha$ (N)=0.00256 4; $\alpha$ (O)=0.000484 7;

# $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^\pi$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$E_f$	$\mathbf{J}_f^{\pi}$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
					_			$\alpha$ (P)=3.72×10 <sup>-5</sup> 6 Mult.: DCO=1.44 <i>11</i> in <sup>156</sup> Gd( <sup>36</sup> S,4n $\gamma$ ) (1993BeZJ).
2784.16	(10 <sup>-</sup> )	335.3 <sup>‡</sup> <i>3</i>	14.2 <sup>‡</sup> <i>14</i>	2448.98	(8-)	(E2)	0.0770	$\begin{array}{l} \alpha(\mathrm{K}) = 0.0483 \ 7; \ \alpha(\mathrm{L}) = 0.0216 \ 4; \\ \alpha(\mathrm{M}) = 0.00545 \ 8 \\ \alpha(\mathrm{N}) = 0.001358 \ 20; \ \alpha(\mathrm{O}) = 0.000236 \ 4; \\ \alpha(\mathrm{P}) = 6.28 \times 10^{-6} \ 9 \\ \mathrm{Mult.:} \ \mathrm{A_2} = 0.18 \ 10, \ \mathrm{pol} = 0.24 \ 7 \ \mathrm{in} \\ ^{164}\mathrm{Dy}(^{28}\mathrm{Si}, 4n\gamma) \ (1988\mathrm{Ha15}). \end{array}$
2946.90	10+	456.2 <sup>‡</sup> 3	92 <sup>‡</sup> 6	2490.76	10+	(E2+M1)	0.1169	$\alpha(K)=0.0962 \ 14; \ \alpha(L)=0.01587 \ 23; \ \alpha(M)=0.00369 \ 6 \ \alpha(N)=0.000924 \ 13; \ \alpha(O)=0.0001750 \ 25; \ \alpha(P)=1.347\times10^{-5} \ 19 \ Mult.: \ A_2=0.19 \ 10, \ pol=0.45 \ 10 \ in \ 1^{64}Dy(^{28}Si,4n\gamma) \ (1988Ha15). \ Other: \ PCO_{-1} \ 25 \ in \ 1^{56}Cd(^{36}Si,4n\gamma)$
		524.3 <sup>‡</sup> 3	100 <sup>‡</sup> 7	2422.50	8+	E2	0.0240	$ \begin{aligned} & (1993BeZJ); \Delta J=0 \text{ transition.} \\ & ((3,4)); (1993BeZJ); \Delta J=0 \text{ transition.} \\ & (\alpha(K)=0.01759\ 25; \alpha(L)=0.00490\ 7; \\ & (\alpha(M)=0.000199\ 17\ \alpha(N)=0.000299\ 5; \alpha(O)=5.35\times10^{-5}\ 8; \\ & (\alpha(P)=2.33\times10^{-6}\ 4\ Mult.; A_2=0.21\ 5, \text{ pol}=0.4\ 2. \text{ Other:} \\ & DCO=1.44\ 25\ in\ ^{156}Gd(^{36}S,4n\gamma) \end{aligned} $
2967.9	(11 <sup>-</sup> )	183.8 <sup>‡</sup> 3	100 <sup>‡</sup> 9	2784.16	(10 <sup>-</sup> )	(E2+M1)	1.400	(1993BeZJ). $\alpha(K)=1.148 \ 17; \ \alpha(L)=0.193 \ 3; \ \alpha(M)=0.0450 \ 7 \ \alpha(N)=0.01129 \ 17; \ \alpha(O)=0.00214 \ 4; \ \alpha(P)=0.0001634 \ 24 \ Mult.: DCO=1.27 \ 12 \ in \ ^{156}Gd(^{36}S,4n\gamma) \ (1993BeZJ).$
		305.3 <sup>‡&amp;</sup> 3	9 <sup>‡</sup> 4	2662.35	$10^{+}$			
3011.4	11-	540.6 <sup>‡</sup> 3	100‡	2470.78	9-	E2	0.0224	$ \begin{aligned} &\alpha(\mathbf{K}) = 0.01648 \ 24; \ \alpha(\mathbf{L}) = 0.00447 \ 7; \\ &\alpha(\mathbf{M}) = 0.001092 \ 16 \\ &\alpha(\mathbf{N}) = 0.000272 \ 4; \ \alpha(\mathbf{O}) = 4.88 \times 10^{-5} \ 7; \\ &\alpha(\mathbf{P}) = 2.19 \times 10^{-6} \ 3 \\ &\text{Mult.: } A_2 = 0.32 \ 6, \ A_4 = -0.02 \ 10, \ \text{pol} = 0.4 \ 1 \\ &\text{in} \ ^{164}\text{Dy}(^{28}\text{Si},4n\gamma) \ (1988\text{Ha15}). \ \text{Other:} \\ &\text{DCO} = 1.47 \ 11 \ \text{in} \ ^{156}\text{Gd}(^{36}\text{S},4n\gamma) \\ &(1993\text{BeZJ}). \end{aligned} $
3069.4	12+	578.6 <sup>‡</sup> 3	100 <sup>‡</sup>	2490.76	10+	E2	0.0191	$\begin{aligned} &\alpha(\mathbf{K}) = 0.01428 \ 20; \ \alpha(\mathbf{L}) = 0.00366 \ 6; \\ &\alpha(\mathbf{M}) = 0.000891 \ I3 \\ &\alpha(\mathbf{N}) = 0.000222 \ 4; \ \alpha(\mathbf{O}) = 4.00 \times 10^{-5} \ 6; \\ &\alpha(\mathbf{P}) = 1.90 \times 10^{-6} \ 3 \\ &\text{Mult.: } A_2 = 0.29 \ 7, \ A_4 = -0.14 \ 10, \ \text{pol} = 0.4 \ 2 \\ &\text{in} \ ^{164}\text{Dy}(^{28}\text{Si},4n\gamma) \ (1988\text{Ha15}). \ \text{Other:} \\ &\text{DCO} = 1.23 \ 10 \ \text{in} \ ^{156}\text{Gd}(^{36}\text{S},4n\gamma) \\ &(1993\text{BeZJ}). \end{aligned}$
3113.6	(12 <sup>+</sup> )	451.3 <sup>‡</sup> 3	100 <sup>‡</sup>	2662.35	$10^{+}$			
3161.5	14+	437.4 <sup>‡</sup> 3	100‡	2724.1	12+	E2	0.0376	$\begin{array}{l} \alpha(\mathrm{K}) = 0.0262 \ 4; \ \alpha(\mathrm{L}) = 0.00864 \ 13; \\ \alpha(\mathrm{M}) = 0.00214 \ 3 \\ \alpha(\mathrm{N}) = 0.000534 \ 8; \ \alpha(\mathrm{O}) = 9.44 \times 10^{-5} \ 14; \\ \alpha(\mathrm{P}) = 3.45 \times 10^{-6} \ 5 \end{array}$

### $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$\mathbf{E}_{f}$	$\mathbf{J}_{f}^{\pi}$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
								Mult.: A <sub>2</sub> =0.29 7, A <sub>4</sub> =-0.03 3, pol=0.43 10 in $^{164}$ Dy( $^{28}$ Si,4n\gamma) (1988Ha15). Other: DCO=1.20 7 in $^{156}$ Gd( $^{36}$ S,4n\gamma) (1993BeZJ).
3219.1	(11 <sup>-</sup> )	272.2 <sup>‡</sup> 3	100 <sup>‡</sup> 3	2946.90	10+	(E1)	0.0349	$ \begin{aligned} &\alpha(\mathbf{K}) = 0.0287 \ 4; \ \alpha(\mathbf{L}) = 0.00479 \ 7; \\ &\alpha(\mathbf{M}) = 0.001110 \ 16 \\ &\alpha(\mathbf{N}) = 0.000276 \ 4; \ \alpha(\mathbf{O}) = 5.06 \times 10^{-5} \ 8; \\ &\alpha(\mathbf{P}) = 3.20 \times 10^{-6} \ 5 \\ &\text{Mult.:} \ A_2 = -0.28 \ 10, \ \text{pol} = 0.3 \ 1 \ \text{in} \\ & \ 1^{64} \text{Dy}(^{28}\text{Si}, 4n\gamma) \ (1988\text{Ha}15). \ \text{Other:} \\ &\text{DCO} = 0.80 \ 10 \ \text{in} \ ^{156}\text{Gd}(^{36}\text{S}, 4n\gamma) \\ &(1993\text{BeZJ}). \end{aligned} $
		728.4 <sup>‡</sup> 3	8.3 <sup>‡</sup> 25	2490.76	10+	(E1)	0.00417	$\begin{aligned} &\alpha(\mathbf{K}) = 0.00348 \ 5; \ \alpha(\mathbf{L}) = 0.000531 \ 8; \\ &\alpha(\mathbf{M}) = 0.0001220 \ 18 \\ &\alpha(\mathbf{N}) = 3.04 \times 10^{-5} \ 5; \ \alpha(\mathbf{O}) = 5.71 \times 10^{-6} \ 8; \\ &\alpha(\mathbf{P}) = 4.16 \times 10^{-7} \ 6 \\ &\text{Mult.: DCO} = 0.8 \ 3 \ \text{in}^{\ 156} \text{Gd}(^{36}\text{S}, 4n\gamma) \\ &(1993\text{BeZJ}). \end{aligned}$
3250.0	(12 <sup>-</sup> )	465.8 <sup>‡</sup> <i>3</i>	100‡	2784.16	(10 <sup>-</sup> )	E2	0.0321	$ \begin{aligned} &\alpha(\mathbf{K}) = 0.0227 \ 4; \ \alpha(\mathbf{L}) = 0.00706 \ 10; \\ &\alpha(\mathbf{M}) = 0.001743 \ 25 \\ &\alpha(\mathbf{N}) = 0.000435 \ 7; \ \alpha(\mathbf{O}) = 7.71 \times 10^{-5} \ 11; \\ &\alpha(\mathbf{P}) = 3.01 \times 10^{-6} \ 5 \\ &\text{Mult.: } \ A_2 = 0.21 \ 5, \ A_4 = -0.13 \ 10, \ \text{pol} = 0.25 \ 8 \\ &\text{in} \ ^{164}\text{Dy}(^{28}\text{Si}, 4n\gamma) \ (1988\text{Ha}15). \ \text{Other:} \\ &\text{DCO} = 1.41 \ 11 \ \text{in} \ ^{156}\text{Gd}(^{36}\text{S}, 4n\gamma) \\ &(1993\text{BeZJ}). \end{aligned} $
3447.1	(13 <sup>-</sup> )	197.2 <sup>‡&amp;</sup> 3 479.2 <sup>‡</sup> 3	5.8 <sup>‡</sup> <i>13</i> 100 <sup>‡</sup> 8	3250.0 2967.9	(12 <sup>-</sup> ) (11 <sup>-</sup> )	E2	0.0299	$\begin{aligned} &\alpha(\mathbf{K}) = 0.0214 \ 3; \ \alpha(\mathbf{L}) = 0.00645 \ 10; \\ &\alpha(\mathbf{M}) = 0.001590 \ 23 \\ &\alpha(\mathbf{N}) = 0.000397 \ 6; \ \alpha(\mathbf{O}) = 7.05 \times 10^{-5} \ 10; \\ &\alpha(\mathbf{P}) = 2.83 \times 10^{-6} \ 4 \\ &\text{Mult.: } A_2 = 0.29 \ 9, \ A_4 = -0.1 \ 1, \ \text{pol} = 0.23 \ 7 \ \text{in} \\ & 1^{64} \text{Dy}(^{28}\text{Si}, 4n\gamma) \ (1988\text{Ha}15). \ \text{Other:} \\ &\text{DCO} = 1.30 \ 10 \ \text{in} \ ^{156}\text{Gd}(^{36}\text{S}, 4n\gamma) \\ &(1993\text{BeZJ}). \end{aligned}$
3682.0	13-	670.6 <sup>‡</sup> 3	100‡	3011.4	11-	E2	0.01374	$ \begin{aligned} &\alpha(\mathbf{K}) = 0.01055 \ 15; \ \alpha(\mathbf{L}) = 0.00243 \ 4; \\ &\alpha(\mathbf{M}) = 0.000586 \ 9 \\ &\alpha(\mathbf{N}) = 0.0001464 \ 21; \ \alpha(\mathbf{O}) = 2.66 \times 10^{-5} \ 4; \\ &\alpha(\mathbf{P}) = 1.399 \times 10^{-6} \ 20 \\ &\text{Mult.:} \ A_2 = 0.23 \ 6, \ A_4 = -0.04 \ 10 \ \text{in} \\ & 1^{64} \text{Dy}(^{28}\text{Si}, 4n\gamma) \ (1988\text{Ha}15). \ \text{Other:} \\ &\text{DCO} = 1.56 \ 12 \ \text{in} \ ^{156}\text{Gd}(^{36}\text{S}, 4n\gamma) \\ &(1993\text{BeZJ}). \end{aligned} $
3687.8	(13 <sup>-</sup> )	468.7 <sup>‡</sup> <i>3</i>	100 <sup>‡</sup>	3219.1	(11 <sup>-</sup> )	E2	0.0316	$\begin{aligned} &\alpha(\mathbf{K}) = 0.0224 \ 4; \ \alpha(\mathbf{L}) = 0.00692 \ 10; \\ &\alpha(\mathbf{M}) = 0.001708 \ 25 \\ &\alpha(\mathbf{N}) = 0.000426 \ 6; \ \alpha(\mathbf{O}) = 7.56 \times 10^{-5} \ 11; \\ &\alpha(\mathbf{P}) = 2.97 \times 10^{-6} \ 5 \\ &\text{Mult.: DCO} = 1.27 \ 9 \ \text{in}^{\ 156} \text{Gd}(^{36}\text{S}, 4n\gamma) \\ &(1993\text{BeZJ}). \end{aligned}$
3689.5	14+	620.1 <sup>‡</sup> 3	100 <sup>‡</sup>	3069.4	12+	E2	0.01633	$\begin{array}{l} \alpha({\rm K}) = 0.01237 \ 18; \ \alpha({\rm L}) = 0.00301 \ 5; \\ \alpha({\rm M}) = 0.000729 \ 11 \\ \alpha({\rm N}) = 0.000182 \ 3; \ \alpha({\rm O}) = 3.29 \times 10^{-5} \ 5; \end{array}$

### $\gamma(^{188}\text{Hg})$ (continued)

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$E_f$	$\mathbf{J}_{f}^{\pi}$	Mult.#	α <sup>@</sup>	Comments
								$\alpha$ (P)=1.642×10 <sup>-6</sup> 23 Mult.: A <sub>2</sub> =0.28 10, A <sub>4</sub> =-0.05 6, pol=0.3 1 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15). Other: DCO=1.43 9 in <sup>156</sup> Gd( <sup>36</sup> S,4n $\gamma$ ) (1993BeZJ).
3804.3	(14 <sup>+</sup> )	690.7 <sup>‡</sup> 3	100 <sup>‡</sup>	3113.6	(12 <sup>+</sup> )			
3821.3	16+	659.8‡ <i>3</i>	100+	3161.5	14+	E2	0.01423	$\alpha(K)=0.01090 \ 16; \ \alpha(L)=0.00254 \ 4; \\ \alpha(M)=0.000613 \ 9 \\ \alpha(N)=0.0001530 \ 22; \ \alpha(O)=2.78\times10^{-5} \ 4; \\ \alpha(P)=1.446\times10^{-6} \ 21 \\ Mult.: \ DCO=1.43 \ 8 \ in \ ^{156}Gd(^{36}S,4n\gamma) \\ (1993Be71)$
3931.7	(14 <sup>-</sup> )	681.7 <sup>‡</sup> 3	100‡	3250.0	$(12^{-})$			
4126.7	(15 <sup>-</sup> )	679.6 <sup>‡</sup> 3	100‡	3447.1	(13 <sup>-</sup> )	E2	0.01335	$\alpha(K)=0.01027 \ 15; \ \alpha(L)=0.00235 \ 4; \ \alpha(M)=0.000565 \ 8 \ \alpha(N)=0.0001411 \ 20; \ \alpha(O)=2.56\times10^{-5} \ 4; \ \alpha(P)=1.361\times10^{-6} \ 19 \ Mult: \ A=0.35 \ 15 \ A=-0.15 \ 15 \ in$
								$^{164}$ Dy( $^{28}$ Si,4n $\gamma$ ) (1988Ha15). Other: DCO=1.4 3 in $^{156}$ Gd( $^{36}$ S,4n $\gamma$ ) (1993BeZJ).
4160.2	(15-)	472.4 <sup>‡</sup> 3	100 <sup>‡</sup>	3687.8	(13-)	E2	0.0310	$\alpha(K)=0.0220$ 4; $\alpha(L)=0.00675$ 10; $\alpha(M)=0.001665$ 24
								$\alpha$ (N)=0.000415 6; $\alpha$ (O)=7.37×10 <sup>-5</sup> 11; $\alpha$ (P)=2.92×10 <sup>-6</sup> 5 Mult.: A <sub>2</sub> =0.27 10, pol=0.38 11 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15). Other: DCO=1.32
4255.6	$(16^{+})$	451 3 3	100‡	3804 3	$(14^{+})$			$12 \text{ in } {}^{100}\text{Gd}({}^{50}\text{S},4n\gamma) (1993\text{BeZJ}).$
4256.9	15-	574.9 <sup>‡</sup> 3	100 <sup>‡</sup> 3	3682.0	13-	E2	0.0194	$\alpha$ (K)=0.01447 21; $\alpha$ (L)=0.00373 6; $\alpha$ (M)=0.000908 13 $\alpha$ (N)=0.000227 4; $\alpha$ (O)=4.08×10 <sup>-5</sup> 6;
								$\alpha$ (P)=1.92×10 <sup>-6</sup> 3 Mult.: A <sub>2</sub> =0.30 <i>15</i> in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15). Other: DCO=1.46 <i>12</i> in 156C 4/365 4) (1002D-71)
		809.8 <sup>‡</sup> 3	14 <sup>‡</sup> 3	3447.1	$(13^{-})$			Gd(-3,4iry) (1995 <b>DEZ.3</b> ).
4329.6	16+	640.1 <sup>‡</sup> 3	100‡	3689.5	14+	E2	0.01522	$\alpha$ (K)=0.01159 <i>17</i> ; $\alpha$ (L)=0.00276 <i>4</i> ; $\alpha$ (M)=0.000667 <i>10</i> $\alpha$ (N)=0.0001665 <i>24</i> ; $\alpha$ (O)=3.02×10 <sup>-5</sup> <i>5</i> ; $\alpha$ (P)=1 538×10 <sup>-6</sup> 22
								Mult.: $A_2=0.21$ 6, pol=0.4 2 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15). Other: DCO=1.42 <i>11</i> in <sup>156</sup> Cd( <sup>36</sup> S 4m) (1003Pa7I)
4502.9	(16)	681.6 <sup>‡</sup> 3	100 <sup>‡</sup>	3821.3	16+	D		Mult.: $A_2=0.4$ 3, $\Delta J=0$ in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15).
4554.2	17-	297.3 <sup>‡</sup> 3	100 <sup>‡</sup> 3	4256.9	15-	E2	0.1094	$\alpha(K)=0.0645 \ 10; \ \alpha(L)=0.0338 \ 5; \ \alpha(M)=0.00858 \ 13$
								$\alpha$ (N)=0.00214 4; $\alpha$ (O)=0.000368 6; $\alpha$ (P)=8.29×10 <sup>-6</sup> 12 Mult.: A <sub>2</sub> =0.36 9, pol=0.46 14 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15). Other: DCO=1.29
		127 5 3	31 = 3	1126 7	$(15^{-})$	F2	0 0308	20 in $^{130}$ Gd( $^{30}$ S,4n $\gamma$ ) (1993BeZJ). $\alpha$ (K)=0.0275 4: $\alpha$ (L)=0.00032 44: $\alpha$ (M)=0.00231
		+21.3 5	J <del>4</del> ' J	+120.7	(1.)	LL2	U.UJ70	$u(\mathbf{x}) = 0.0215 + 0.00252 + 0.00252 + 0.00251$

### $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$E_f$	$\mathbf{J}_{f}^{\pi}$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
								$\frac{4}{\alpha(N)=0.000577 \ 9; \ \alpha(O)=0.0001017 \ 15;}$ $\alpha(P)=3.63\times10^{-6} \ 6$ Mult.: A <sub>2</sub> =0.24 8 in <sup>164</sup> Dy( <sup>28</sup> Si,4ny) (1988Ha15). Other DCO=1.22 17 in <sup>156</sup> Cd/ <sup>36</sup> S 4mc)
4554.0	1.5-	<b>532</b> a <sup>‡</sup> a		2021.2	1.64		0.00.410	(1993BeZJ).
4554.2	17	132.8# 3	30# 3	3821.3	16	(EI)	0.00412	$\alpha(K)=0.00344$ 5; $\alpha(L)=0.000525$ 8; $\alpha(M)=0.0001206$ 17
								$\alpha(N)=3.01\times10^{-5} 5; \ \alpha(O)=5.64\times10^{-6} 8; \\ \alpha(P)=4.12\times10^{-7} 6$
								Mult.: DCO=0.84 <i>14</i> in <sup>156</sup> Gd( <sup>36</sup> S,4nγ) (1993BeZJ).
4581.8	18+	760.5 <sup>‡</sup> 3	100 <sup>‡</sup>	3821.3	16+	E2	0.01050	$\alpha$ (K)=0.00821 <i>12</i> ; $\alpha$ (L)=0.001751 <i>25</i> ; $\alpha$ (M)=0.000419 <i>6</i>
								$\alpha$ (N)=0.0001046 <i>15</i> ; $\alpha$ (O)=1.91×10 <sup>-5</sup> <i>3</i> ; $\alpha$ (P)=1.086×10 <sup>-6</sup> <i>16</i>
								Mult.: $A_2=0.33$ 7, pol=0.7 3 in <sup>164</sup> Dy( <sup>28</sup> Si,4n $\gamma$ ) (1988Ha15). Other: DCO=1.60 10 in <sup>156</sup> Gd( <sup>36</sup> S,4n $\gamma$ ) (1993BeZJ).
4628.2	(17 <sup>-</sup> )	468.0 <sup>‡</sup> 3	$100^{\ddagger}$	4160.2	(15 <sup>-</sup> )			
4841.1	$(17^{-})$	714.4+ 3	100+	4126.7	$(15^{-})$	EO	0.0605	or(K) = 0.0444.7; or(L) = 0.0100.2; or(M) = 0.00478.7
4050.5	(10)	547.01 5	100.	4302.9	(10)	E2	0.0095	$\alpha(\text{N})=0.04447, \alpha(\text{L})=0.01903, \alpha(\text{M})=0.004787$ $\alpha(\text{N})=0.001190 17; \alpha(\text{O})=0.0002073;$ $\alpha(\text{P})=5.78\times10^{-6}9$
								Mult.: DCO=1.39 <i>13</i> in $^{156}$ Gd( $^{36}$ S,4n $\gamma$ ) (1993BeZJ).
4949.9	19-	395.7 <sup>‡</sup> 3	100 <sup>‡</sup>	4554.2	17-	E2	0.0488	$\alpha(\mathbf{K})=0.0328 5; \ \alpha(\mathbf{L})=0.01208 \ I8; \ \alpha(\mathbf{M})=0.00301 5 \ \alpha(\mathbf{N})=0.000751 \ I1; \ \alpha(\mathbf{O})=0.0001318 \ I9;$
								$\alpha(P)=4.31\times10^{-6} \text{ 6}$ Mult.: DCO=1.19 <i>14</i> in <sup>156</sup> Gd( <sup>36</sup> S,4n $\gamma$ ) (1993BeZJ).
4988.6	18+	659.0 <sup>‡</sup> 3	100 <sup>‡</sup>	4329.6	16+	E2	0.01427	$\alpha$ (K)=0.01093 <i>16</i> ; $\alpha$ (L)=0.00255 <i>4</i> ; $\alpha$ (M)=0.000615 <i>9</i>
								$\alpha$ (N)=0.0001536 22; $\alpha$ (O)=2.79×10 <sup>-5</sup> 4; $\alpha$ (P)=1.449×10 <sup>-6</sup> 21
								Mult.: DCO=1.29 17 in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
5150.5	(19 <sup>-</sup> )	522.3 <sup>‡</sup> 3	100 <sup>‡</sup>	4628.2	(17 <sup>-</sup> )	E2	0.0243	$\alpha$ (K)=0.01773 25; $\alpha$ (L)=0.00495 7; $\alpha$ (M)=0.001213 18
								$\alpha$ (N)=0.000303 5; $\alpha$ (O)=5.41×10 <sup>-5</sup> 8; $\alpha$ (P)=2.35×10 <sup>-6</sup> 4
								Mult.: DCO=1.36 23 in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
5306.3	$20^{+}$	724.5 <sup>‡</sup> 3	100 <sup>‡</sup>	4581.8	18+	E2	0.01163	$\alpha(K)=0.00903 \ I3; \ \alpha(L)=0.00198 \ 3; \ \alpha(M)=0.000476 \ 7$
								$\alpha$ (N)=0.0001188 <i>17</i> ; $\alpha$ (O)=2.17×10 <sup>-5</sup> <i>3</i> ; $\alpha$ (P)=1.196×10 <sup>-6</sup> <i>17</i>
								Mult.: DCO=1.52 <i>11</i> in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
5397.4	(20)	546.9 <sup>‡</sup> 3	100‡	4850.5	(18)	E2	0.0218	$\alpha$ (K)=0.01608 23; $\alpha$ (L)=0.00432 6; $\alpha$ (M)=0.001054 15
								$\alpha(N)=0.000263 4; \alpha(O)=4.72\times10^{-5} 7;$

### $\gamma$ <sup>(188</sup>Hg) (continued)</sup>

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$\mathbf{E}_f = \mathbf{J}_f^{\pi}$	Mult. <sup>#</sup>	α <sup>@</sup>	Comments
							$\alpha(P)=2.13\times10^{-6}$ 3
							Mult.: DCO=1.34 <i>19</i> in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
5469.0	20+	887.2 <sup>‡</sup> 3	100‡	4581.8 18+	E2	0.00766	$\alpha$ (K)=0.00609 9; $\alpha$ (L)=0.001199 17; $\alpha$ (M)=0.000284 4
							$\alpha(N)=7.11\times10^{-5}$ 10; $\alpha(O)=1.310\times10^{-5}$ 19; $\alpha(P)=8.02\times10^{-7}$ 12
							Mult.: DCO=1.32 25 in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
5582.7	21-	632.8 <sup>‡</sup> 3	100 <sup>‡</sup>	4949.9 19-	E2	0.01561	$\alpha(K)=0.01187 \ 17; \ \alpha(L)=0.00285 \ 4; \\ \alpha(M)=0.000689 \ 10$
							$\alpha$ (N)=0.0001720 25; $\alpha$ (O)=3.11×10 <sup>-5</sup> 5; $\alpha$ (P)=1.575×10 <sup>-6</sup> 22
		+	+				Mult.: DCO=1.43 <i>16</i> in $^{156}$ Gd( $^{36}$ S,4n $\gamma$ ) (1993BeZJ).
5602.1	(19 <sup>-</sup> )	761.0+ 3	100+	4841.1 (17-	.)		
5605.3	21-	655.4 <sup>‡</sup> 3	1004	4949.9 19-	E2	0.01445	$\alpha(K)=0.01105 \ 16; \ \alpha(L)=0.00259 \ 4; \ \alpha(M)=0.000624 \ 9$
							$\alpha$ (N)=0.0001559 22; $\alpha$ (O)=2.83×10 <sup>-5</sup> 4; $\alpha$ (P)=1.465×10 <sup>-6</sup> 21
							Mult.: $A_2=0.33 \ 15 \text{ in } {}^{104}\text{Dy}({}^{28}\text{Si},4n\gamma)$ (1988Ha15). Other: DCO=1.25 21 in ${}^{156}\text{Gd}({}^{36}\text{S},4n\gamma)$ (1993BeZJ).
5684.3	20+	695.7 <sup>‡</sup> 3	100‡	4988.6 18+	E2	0.01269	$\alpha$ (K)=0.00980 <i>14</i> ; $\alpha$ (L)=0.00220 <i>3</i> ; $\alpha$ (M)=0.000530 <i>8</i>
							$\alpha$ (N)=0.0001324 <i>19</i> ; $\alpha$ (O)=2.41×10 <sup>-5</sup> <i>4</i> ; $\alpha$ (P)=1.298×10 <sup>-6</sup> <i>19</i>
							Mult.: $A_2=0.18 \ 4 \ in \ {}^{164}Dy({}^{28}Si,4n\gamma)$ (1988Ha15).
5706.6	$(20^{+})$	718.0 <sup>‡</sup> 3	100 <sup>4</sup>	4988.6 18+			
5742.5	(21 <sup>-</sup> )	592.0 <sup>+</sup> 3	100+	5150.5 (19-	.)		
5916.8	22+	610.5 <del>+</del> 3	100+	5306.3 20+	E2	0.01691	$\alpha(K)=0.01277\ 18;\ \alpha(L)=0.00315\ 5;\ \alpha(M)=0.000763\ 11$
							$\alpha(N)=0.000190 \ 3; \ \alpha(O)=3.44\times10^{-3} \ 5; \ \alpha(P)=1.695\times10^{-6} \ 24$
							Mult.: $A_2=0.3\ 2 \text{ in } {}^{104}\text{Dy}({}^{26}\text{Si},4n\gamma) (1988\text{Ha15}).$ Other: DCO=1.47 25 in ${}^{156}\text{Gd}({}^{36}\text{S},4n\gamma) (1993\text{BeZJ}).$
6162.0	$(23^{-})$	556.7 <sup>‡</sup> 3	100 <sup>‡</sup> 19	5605.3 21-			
	. ,	579.3 <sup>‡</sup> 3	43 <sup>‡</sup> 14	5582.7 21-			
6243.0	$(22^{+})$	774.0 <sup>‡</sup> 3	75 <sup>‡</sup> 25	5469.0 20+			
		936.7 <sup>‡</sup> 3	100 <sup>‡</sup> 50	5306.3 20+	E2	0.00687	$\alpha$ (K)=0.00549 8; $\alpha$ (L)=0.001055 15; $\alpha$ (M)=0.000250 4
							$\alpha$ (N)=6.24×10 <sup>-5</sup> 9; $\alpha$ (O)=1.152×10 <sup>-5</sup> 17; $\alpha$ (P)=7.22×10 <sup>-7</sup> 11
							Mult.: DCO=1.7 4 in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
6386.3	(23 <sup>-</sup> )	803.6 <sup>‡</sup> 3	100 <sup>‡</sup>	5582.7 21-			
6402.9	(22+)	718.6 4	100	5684.3 20+	E2	0.01184	$\alpha(K)=0.00918 \ 13; \ \alpha(L)=0.00203 \ 3; \ \alpha(M)=0.000486 \ 7$

#### $\gamma(^{188}\text{Hg})$ (continued)

E <sub>i</sub> (level)	$\mathbf{J}_i^{\pi}$	$E_{\gamma}^{\dagger}$	$I_{\gamma}^{\dagger}$	$\mathbf{E}_f \qquad \mathbf{J}_f^{\pi}$	Mult. <sup>#</sup>	$\alpha^{@}$	Comments
	_						$\alpha(N)=0.0001214 \ 17; \ \alpha(O)=2.21\times10^{-5} \ 4; \\ \alpha(P)=1.216\times10^{-6} \ 17 \\ E_{\gamma},I_{\gamma}: \ From \ ^{164}Dy(^{28}Si,4n\gamma) \ (1988Ha15). $
6405 7	$(23^{-})$	663 2 3	100	$5742.5(21^{-})$	F2	0.01408	Mult.: $A_2=0.20~12$ III $(-5)$ Dy( $(-5)$ ,4Hy) (1988Ha15). $\alpha(K)=0.01079~16; \alpha(L)=0.00250~4; \alpha(M)=0.000604$
0105.7	(23))	005.2 5	100	5712.5 (21)	112	0.01100	<i>9</i>
							$\alpha$ (N)=0.0001509 22; $\alpha$ (O)=2.74×10 <sup>-5</sup> 4; $\alpha$ (P)=1.430×10 <sup>-6</sup> 20
							Mult.: DCO=1.7 4 in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
6408.1	22+	723.8 <sup>‡</sup> 3	100‡	5684.3 20+	E2	0.01166	$\alpha$ (K)=0.00905 <i>13</i> ; $\alpha$ (L)=0.00199 <i>3</i> ; $\alpha$ (M)=0.000477 7
							$\alpha$ (N)=0.0001191 <i>17</i> ; $\alpha$ (O)=2.17×10 <sup>-5</sup> <i>3</i> ; $\alpha$ (P)=1.199×10 <sup>-6</sup> <i>17</i>
							Mult.: DCO=1.6 3 in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
6717.8	$(24^{+})$	801.0 <sup>‡</sup> 3	100 <sup>‡</sup>	5916.8 22+			
6831.5	(24 <sup>+</sup> )	588.5 <sup>‡</sup> 3	100‡	6243.0 (22+)			
6953.0	(25 <sup>-</sup> )	791.0 <sup>‡</sup> 3	100‡	6162.0 (23 <sup>-</sup> )			
7138.9	(25 <sup>-</sup> )	733.2 <sup>‡</sup> 3	100‡	6405.7 (23 <sup>-</sup> )	E2	0.01134	$\alpha$ (K)=0.00882 <i>13</i> ; $\alpha$ (L)=0.00192 <i>3</i> ; $\alpha$ (M)=0.000461 7
							$\alpha$ (N)=0.0001151 <i>17</i> ; $\alpha$ (O)=2.10×10 <sup>-5</sup> <i>3</i> ; $\alpha$ (P)=1.168×10 <sup>-6</sup> <i>17</i>
							Mult.: DCO=1.26 <i>14</i> in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).
7314.9?	(26+)	597 <b>‡&amp;</b>	100‡	6717.8 (24+)			
7852.8	(27-)	899.8 <sup>‡</sup> <i>3</i>	100‡	6953.0 (25-)			
7941.1	(27 <sup>-</sup> )	802.2 <sup>‡</sup> 3	100‡	7138.9 (25 <sup>-</sup> )	E2	0.00940	$\alpha$ (K)=0.00739 <i>11</i> ; $\alpha$ (L)=0.001531 <i>22</i> ; $\alpha$ (M)=0.000365 <i>6</i>
							$\alpha$ (N)=9.13×10 <sup>-5</sup> <i>13</i> ; $\alpha$ (O)=1.673×10 <sup>-5</sup> <i>24</i> ; $\alpha$ (P)=9.77×10 <sup>-7</sup> <i>14</i>
							Mult.: DCO=1.2 3 in ${}^{156}$ Gd( ${}^{36}$ S,4n $\gamma$ ) (1993BeZJ).

<sup>†</sup> From <sup>188</sup>Tl ε decay, unless otherwise stated.
<sup>‡</sup> From <sup>156</sup>Gd(<sup>36</sup>S,4nγ) data.
<sup>#</sup> From ce data in <sup>188</sup>Tl ε decay for levels below 2470 keV. Above this energy, the multipolarity assignment is from γ(θ), γ(lin pol) and DCO data in <sup>156</sup>Gd(<sup>36</sup>S,4nγ) (1993BeZJ) and <sup>164</sup>Dy(<sup>28</sup>Si,4nγ) (1988Ha15).
<sup>@</sup> Additional information 2.
<sup>&</sup> Placement of transition in the level scheme is uncertain.



 $^{188}_{\ 80} Hg_{108}$ 

Legend

#### Level Scheme (continued)

Intensities: Relative photon branching from each level

 $--- \rightarrow \gamma$  Decay (Uncertain)



 $^{188}_{\ 80} Hg_{108}$ 

Legend

#### Level Scheme (continued)

Intensities: Relative photon branching from each level

 $--- \rightarrow \gamma$  Decay (Uncertain)



Legend

#### Level Scheme (continued)

Intensities: Relative photon branching from each level



 $^{188}_{\ 80} Hg_{108}$ 







 $^{188}_{80}{
m Hg}_{108}$