

**(HI,xnγ) 1994We01**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak		NDS 136, 163 (2016)	14-Jul-2016

**1994We01:** <sup>126</sup>Te(<sup>24</sup>Mg,4n), E=109.5 MeV; measured Eγ, Iγ, Iγ(θ), γγ coin, γ linear polarization. <sup>146</sup>Gd deduced levels, J<sup>π</sup>. Compton-suppressed Ge detector array OSIRIS cube.

**1989Wo06:** <sup>110</sup>Pd(<sup>40</sup>Ar,4n), <sup>102</sup>Ru(<sup>48</sup>Ca,4n), E not given; measured Eγ, γγ coin. <sup>146</sup>Gd deduced levels, J<sup>π</sup>. OSIRIS and ESSA30.

**1979Ha15,1982Ha22**, also **1979Fa01:** <sup>120,122,124</sup>Sn(<sup>28</sup>Si,xn), E=108-144 MeV; measured γγ(θ,H,t) in Sn, Sm, Pb. <sup>146</sup>Gd; deduced g factor, quadrupole moment.

**1979Ke03:** <sup>110</sup>Pd(<sup>40</sup>Ar,4n), E=180 MeV; measured γγ(θ,H,t) in Pd, Pb. <sup>146</sup>Gd; deduced g factor.

The <sup>146</sup>Gd level scheme was built by **1994We01** up to 16.3 MeV, and highest J=(30) was assigned to 12.7 MeV level on the basis of γγ coin. and γ lin. polarization measurements. Crucial assignment J=20<sup>-</sup> for the isomer 8915 keV was made. In **1989Wo06**, the level scheme was constructed up to the same maximal energy but with spins which were known earlier.

<sup>146</sup>Gd Levels

E(level) <sup>†‡</sup>	J <sup>π#</sup>	E(level) <sup>†‡</sup>	J <sup>π#</sup>	E(level) <sup>†‡</sup>	J <sup>π#</sup>	E(level) <sup>†‡</sup>	J <sup>π#</sup>
0.0	0 <sup>+</sup>	5893.7 5	14 <sup>+</sup>	8915.0 <sup>a</sup> 6	20 <sup>-</sup>	11449 3	
1579.31 <sup>@</sup> 20	3 <sup>-</sup>	5995.6 6	14 <sup>+</sup>	9083.0 7	20 <sup>+</sup>	11496.9 7	(25)
2657.8 3	5 <sup>-</sup>	6119.7 6	15 <sup>+</sup>	9224.9 7	21 <sup>-</sup>	11529.0 7	25 <sup>-</sup>
2982.0 <sup>&amp;</sup> 4	7 <sup>-</sup>	6398.5 6	16 <sup>+</sup>	9253.5 7	21	11637.1 7	26 <sup>+</sup>
3182.3 4	8 <sup>-</sup>	6819.7 6	17 <sup>(+)</sup>	9256.5 7	21 <sup>-</sup>	11932.1 7	27 <sup>+</sup>
3293.6 4	8 <sup>-</sup>	7033.6 6	16 <sup>-</sup>	9481.6 7	22 <sup>-</sup>	12890.3 7	29 <sup>+</sup>
3428.1 5	9 <sup>-</sup>	7164.4 6	17 <sup>-</sup>	9494.5 21		13695.3 8	(30)
3864.5 5	10 <sup>+</sup>	7201.5 12		9526.3 7	22 <sup>-</sup>	14013.0 11	
4501.6 5	10 <sup>+</sup>	7512.7 6	16 <sup>+</sup>	9744.5 21		14175.7 11	
4541.0 5	10 <sup>+</sup>	7565.6 6	17 <sup>-</sup>	9962.1 7	22 <sup>-</sup>	14196.3 13	
4645.4 5	11 <sup>(-)</sup>	7658.5 6		10005.7 7	23 <sup>-</sup>	14443.3 16	
5094.2 5	11 <sup>+</sup>	7738.2 6	17 <sup>+</sup>	10086.4 7	23 <sup>-</sup>	14594.3 10	
5277.1 5	11 <sup>+</sup>	7999.2 6	18 <sup>+</sup>	10265.9 7	23 <sup>-</sup>	15068.3 15	
5350.3 5	12 <sup>+</sup>	8029.5 6	18 <sup>+</sup>	10439.5 21		15442.3 18	
5447.5 5	12 <sup>+</sup>	8076.5 16		10769.7 7	24 <sup>-</sup>	15757.3 20	
5528.5 5	12 <sup>+</sup>	8367.6 6	18 <sup>+</sup>	11023.1 7	24 <sup>+</sup>	16312.3 23	
5700.2 5	(12) <sup>+</sup>	8649.1 7	19 <sup>(-)</sup>	11098.5 23			
5729.7 5	(12) <sup>+</sup>	8665.2 6	19 <sup>+</sup>	11243.4 7	25 <sup>-</sup>		
5791.3 5	13 <sup>+</sup>	8803.5 19		11439.5 7	25 <sup>+</sup>		

<sup>†</sup> If ΔEγ not given, ±0.20 keV assumed for least-squares fitting.

<sup>‡</sup> From a least-squares fit to Eγ, normalized χ<sup>2</sup>=0.33.

<sup>#</sup> From **1994We01**: the assignment is a result of the χ<sup>2</sup>-analysis of the angular distribution and the experimental linear polarization for all possible hypotheses of the transitions of interest.

<sup>@</sup> g=+0.7 3 (**1979Ke03**).

<sup>&</sup> g=1.283 27 (**1979Ha15**), 1.13 9 (**1979Fa01**), +1.18 5 (**1979Ke03**).

<sup>a</sup> g=0.63 9 (**1979Ha15**); +0.7 4 (**1979Ke03**).

(HL,xn $\gamma$ ) 1994We01 (continued)

$\gamma(^{146}\text{Gd})$									
$E_\gamma$ †	$I_\gamma$ †	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. #	$\delta^{\#\&}$	$\alpha^{\text{@}}$	Comments
102.3	70 1	5893.7	14 <sup>+</sup>	5791.3	13 <sup>+</sup>				$A_2=-0.337$ 8, $A_4=0.002$ 11.
107.8	8 1	11637.1	26 <sup>+</sup>	11529.0	25 <sup>-</sup>	E1		0.239	$\alpha(\text{K})=0.200$ 3; $\alpha(\text{L})=0.0300$ 5; $\alpha(\text{M})=0.00649$ 9 $\alpha(\text{N})=0.001469$ 21; $\alpha(\text{O})=0.000216$ 3; $\alpha(\text{P})=1.132\times 10^{-5}$ 16 $A_2=-0.10$ 6, $A_4=0.03$ 8.
111.2	71 1	3293.6	8 <sup>-</sup>	3182.3	8 <sup>-</sup>	M1+E2		1.60 12	$\alpha(\text{K})=1.06$ 20; $\alpha(\text{L})=0.41$ 24; $\alpha(\text{M})=0.10$ 6 $\alpha(\text{N})=0.021$ 13; $\alpha(\text{O})=0.0029$ 16; $\alpha(\text{P})=6.9\times 10^{-5}$ 25 $A_2=0.345$ 8, $A_4=-0.02$ 1.
124 ‡ 1		6119.7	15 <sup>+</sup>	5995.6	14 <sup>+</sup>				
130.8	36 1	7164.4	17 <sup>-</sup>	7033.6	16 <sup>-</sup>	M1+E2	+0.28 +21-5	0.938	$\alpha(\text{K})=0.77$ 4; $\alpha(\text{L})=0.128$ 25; $\alpha(\text{M})=0.028$ 6 $\alpha(\text{N})=0.0065$ 13; $\alpha(\text{O})=0.00098$ 16; $\alpha(\text{P})=5.7\times 10^{-5}$ 4 $A_2=-0.291$ 15, $A_4=0.00$ 2, $\text{pol}=0.7$ 3.
134.5	334 1	3428.1	9 <sup>-</sup>	3293.6	8 <sup>-</sup>	M1+E2	-0.15 +4-6	0.866	$\alpha(\text{K})=0.727$ 12; $\alpha(\text{L})=0.109$ 4; $\alpha(\text{M})=0.0238$ 10 $\alpha(\text{N})=0.00547$ 21; $\alpha(\text{O})=0.00084$ 3; $\alpha(\text{P})=5.39\times 10^{-5}$ 10 $A_2=-0.263$ 4, $A_4=0.003$ 5, $\text{pol}=-0.11$ 4. $A_2=-0.20$ 4, $A_4=0.09$ 5. Mult.: assigned by the evaluators based on $A_2$ and $A_4$ values.
140.2	16 1	11637.1	26 <sup>+</sup>	11496.9	(25)	(D+Q)			
163 ‡ 1		14175.7		14013.0					
170.5	20 1	9253.5	21	9083.0	20 <sup>+</sup>				$A_2=-0.39$ 9, $A_4=-0.07$ 11.
173.5	71 1	9256.5	21 <sup>-</sup>	9083.0	20 <sup>+</sup>	E1		0.0662	$\alpha(\text{K})=0.0560$ 8; $\alpha(\text{L})=0.00802$ 12; $\alpha(\text{M})=0.001734$ 25 $\alpha(\text{N})=0.000394$ 6; $\alpha(\text{O})=5.90\times 10^{-5}$ 9; $\alpha(\text{P})=3.37\times 10^{-6}$ 5 $A_2=-0.456$ 9, $A_4=0.025$ 13, $\text{pol}=-0.31$ 11.
197.8	16 1	11637.1	26 <sup>+</sup>	11439.5	25 <sup>+</sup>	M1+E2		0.26 4	$\alpha(\text{K})=0.20$ 5; $\alpha(\text{L})=0.045$ 10; $\alpha(\text{M})=0.0102$ 25 $\alpha(\text{N})=0.0023$ 6; $\alpha(\text{O})=0.00033$ 6; $\alpha(\text{P})=1.4\times 10^{-5}$ 5 $A_2=-0.32$ 4, $A_4=0.11$ 6, $\text{pol}=0.06$ 3.
200.2	360 1	3182.3	8 <sup>-</sup>	2982.0	7 <sup>-</sup>	M1+E2	+0.151 +4-3	0.284	$\alpha(\text{K})=0.240$ 4; $\alpha(\text{L})=0.0349$ 5; $\alpha(\text{M})=0.00759$ 11 $\alpha(\text{N})=0.001745$ 25; $\alpha(\text{O})=0.000270$ 4; $\alpha(\text{P})=1.774\times 10^{-5}$ 25 $A_2=0.005$ 4, $A_4=0.004$ 6, $\text{pol}=-0.38$ 4.
226 ‡ 1		6119.7	15 <sup>+</sup>	5893.7	14 <sup>+</sup>				
226 ‡ 1		7738.2	17 <sup>+</sup>	7512.7	16 <sup>+</sup>				
246 ‡ 1		3428.1	9 <sup>-</sup>	3182.3	8 <sup>-</sup>				
247 ‡ 1		14443.3		14196.3					
257 ‡ 1		9481.6	22 <sup>-</sup>	9224.9	21 <sup>-</sup>				
260.9	32 1	7999.2	18 <sup>+</sup>	7738.2	17 <sup>+</sup>	M1+E2	-0.07 +5-8	0.1387 21	$\alpha(\text{K})=0.1174$ 19; $\alpha(\text{L})=0.01669$ 24; $\alpha(\text{M})=0.00362$ 6 $\alpha(\text{N})=0.000834$ 12; $\alpha(\text{O})=0.0001294$ 19; $\alpha(\text{P})=8.68\times 10^{-6}$ 15 $A_2=-0.35$ 2, $A_4=0.03$ 3, $\text{pol}=-0.27$ 9.
269.8	93 1	9526.3	22 <sup>-</sup>	9256.5	21 <sup>-</sup>	M1+E2		0.105 22	$\alpha(\text{K})=0.085$ 23; $\alpha(\text{L})=0.0158$ 6; $\alpha(\text{M})=0.00351$ 21 $\alpha(\text{N})=0.00080$ 4; $\alpha(\text{O})=0.0001180$ 17; $\alpha(\text{P})=5.9\times 10^{-6}$ 21 $A_2=-0.565$ 8, $A_4=0.04$ 1, $\text{pol}=-0.10$ 4.
279 ‡ 1		6398.5	16 <sup>+</sup>	6119.7	15 <sup>+</sup>				
291.3	83 1	8029.5	18 <sup>+</sup>	7738.2	17 <sup>+</sup>	M1+E2	-0.021 +20-24	0.1034	$\alpha(\text{K})=0.0876$ 13; $\alpha(\text{L})=0.01238$ 18; $\alpha(\text{M})=0.00269$ 4

(HL,xn $\gamma$ ) 1994We01 (continued)

							$\gamma(^{146}\text{Gd})$ (continued)		
$E_\gamma$ †	$I_\gamma$ †	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. #	$\delta$ #&	$\alpha$ @	Comments
295.0	101 1	11932.1	27 <sup>+</sup>	11637.1	26 <sup>+</sup>	M1+E2	+0.042 +12-13	0.0999	$\alpha(\text{N})=0.000618$ 9; $\alpha(\text{O})=9.60\times 10^{-5}$ 14; $\alpha(\text{P})=6.47\times 10^{-6}$ 9 $A_2=-0.264$ 10, $A_4=0.014$ 14, $\text{pol}=-0.28$ 4. $\alpha(\text{K})=0.0846$ 12; $\alpha(\text{L})=0.01197$ 17; $\alpha(\text{M})=0.00260$ 4
297.6	109 1	8665.2	19 <sup>+</sup>	8367.6	18 <sup>+</sup>	M1+E2	-0.086 +23-28	0.0974	$\alpha(\text{N})=0.000597$ 9; $\alpha(\text{O})=9.28\times 10^{-5}$ 13; $\alpha(\text{P})=6.25\times 10^{-6}$ 9 $A_2=-0.167$ 8, $A_4=-0.015$ 11, $\text{pol}=-0.38$ 3. $\alpha(\text{K})=0.0825$ 12; $\alpha(\text{L})=0.01168$ 17; $\alpha(\text{M})=0.00253$ 4
309.8	253 1	9224.9	21 <sup>-</sup>	8915.0	20 <sup>-</sup>	M1+E2	-0.058 +15-17	0.0876	$\alpha(\text{N})=0.000583$ 9; $\alpha(\text{O})=9.06\times 10^{-5}$ 13; $\alpha(\text{P})=6.09\times 10^{-6}$ 9 $A_2=-0.338$ 8, $A_4=0.011$ 11, $\text{pol}=-0.20$ 3. $\alpha(\text{K})=0.0743$ 11; $\alpha(\text{L})=0.01049$ 15; $\alpha(\text{M})=0.00228$ 4
311.6	487 1	3293.6	8 <sup>-</sup>	2982.0	7 <sup>-</sup>	M1+E2	-0.032 +12-13	0.0864	$\alpha(\text{N})=0.000524$ 8; $\alpha(\text{O})=8.14\times 10^{-5}$ 12; $\alpha(\text{P})=5.48\times 10^{-6}$ 8 $A_2=-0.317$ 5, $A_4=-0.001$ 7, $\text{pol}=-0.25$ 3. $\alpha(\text{K})=0.0732$ 11; $\alpha(\text{L})=0.01033$ 15; $\alpha(\text{M})=0.00224$ 4
315 ‡ 1 324.2	1000 1	15757.3 2982.0	7 <sup>-</sup>	15442.3 2657.8	5 <sup>-</sup>	E2		0.0476	$\alpha(\text{N})=0.000516$ 8; $\alpha(\text{O})=8.01\times 10^{-5}$ 12; $\alpha(\text{P})=5.40\times 10^{-6}$ 8 $A_2=-0.252$ 4, $A_4=0.005$ 5, $\text{pol}=-0.25$ 2. $\alpha(\text{K})=0.0368$ 6; $\alpha(\text{L})=0.00836$ 12; $\alpha(\text{M})=0.00189$ 3
328 ‡ 1 343.8	37 1	6119.7 5791.3	15 <sup>+</sup> 13 <sup>+</sup>	5791.3 5447.5	13 <sup>+</sup> 12 <sup>+</sup>	M1+E2		0.053 14	$\alpha(\text{N})=0.000428$ 6; $\alpha(\text{O})=6.11\times 10^{-5}$ 9; $\alpha(\text{P})=2.33\times 10^{-6}$ 4 $A_2=0.149$ 3, $A_4=-0.036$ 4, $\text{pol}=0.32$ 2. $\alpha(\text{K})=0.044$ 13; $\alpha(\text{L})=0.0074$ 6; $\alpha(\text{M})=0.00163$ 10
351 ‡ 1 374 ‡ 1 393.8	45 1	11449 15442.3 11637.1	26 <sup>+</sup>	11098.5 15068.3 11243.4	25 <sup>-</sup>	E1		0.00819	$\alpha(\text{N})=0.000372$ 25; $\alpha(\text{O})=5.6\times 10^{-5}$ 6; $\alpha(\text{P})=3.1\times 10^{-6}$ 11 $A_2=0.53$ 2, $A_4=0.07$ 3. $\alpha(\text{K})=0.00698$ 10; $\alpha(\text{L})=0.000952$ 14; $\alpha(\text{M})=0.000205$ 3
402.9	23 1	6398.5	16 <sup>+</sup>	5995.6	14 <sup>+</sup>	E2		0.0252	$\alpha(\text{N})=4.70\times 10^{-5}$ 7; $\alpha(\text{O})=7.18\times 10^{-6}$ 10; $\alpha(\text{P})=4.53\times 10^{-7}$ 7 $A_2=-0.24$ 2, $A_4=-0.02$ 3, $\text{pol}=0.39$ 4. $\alpha(\text{K})=0.0200$ 3; $\alpha(\text{L})=0.00400$ 6; $\alpha(\text{M})=0.000894$ 13
416.6	16 1	11439.5	25 <sup>+</sup>	11023.1	24 <sup>+</sup>	M1+E2	-0.25 +6-8	0.0394 9	$\alpha(\text{N})=0.000203$ 3; $\alpha(\text{O})=2.96\times 10^{-5}$ 5; $\alpha(\text{P})=1.313\times 10^{-6}$ 19 $A_2=0.35$ 4, $A_4=-0.15$ 5, $\text{pol}=0.79$ 12. $\alpha(\text{K})=0.0333$ 8; $\alpha(\text{L})=0.00472$ 9; $\alpha(\text{M})=0.001024$ 17
417.8	79 1	9083.0	20 <sup>+</sup>	8665.2	19 <sup>+</sup>	M1+E2	-0.27 +4-6	0.0389 8	$\alpha(\text{N})=0.000236$ 4; $\alpha(\text{O})=3.65\times 10^{-5}$ 7; $\alpha(\text{P})=2.44\times 10^{-6}$ 7 $A_2=-0.58$ 6, $A_4=0.16$ 7, $\text{pol}=-0.02$ 2. $\alpha(\text{K})=0.0330$ 7; $\alpha(\text{L})=0.00467$ 8; $\alpha(\text{M})=0.001014$ 16
421.3	28 1	6819.7	17 <sup>(+)</sup>	6398.5	16 <sup>+</sup>	(M1+E2)	-0.13 +8-15	0.0390 11	$\alpha(\text{N})=0.000233$ 4; $\alpha(\text{O})=3.62\times 10^{-5}$ 6; $\alpha(\text{P})=2.41\times 10^{-6}$ 6 $A_2=-0.606$ 11, $A_4=0.061$ 15, $\text{pol}=0.06$ 3. $\alpha(\text{K})=0.0330$ 10; $\alpha(\text{L})=0.00463$ 10; $\alpha(\text{M})=0.001004$ 20
									$\alpha(\text{N})=0.000231$ 5; $\alpha(\text{O})=3.59\times 10^{-5}$ 8; $\alpha(\text{P})=2.42\times 10^{-6}$ 8 $\delta$ : the values of $\delta$ and $\Delta\delta$ are concluded in parentheses by authors of 1994We01. $A_2=-0.44$ 3, $A_4=0.10$ 4.

(HL,xn $\gamma$ ) 1994We01 (continued) $\gamma(^{146}\text{Gd})$  (continued)

$E_\gamma$ †	$I_\gamma$ †	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. #	$\delta$ #&	$\alpha$ @	Comments
433.9		9083.0	20 <sup>+</sup>	8649.1	19 <sup>(-)</sup>	(E1)		0.00652	$\alpha(\text{K})=0.00556$ 8; $\alpha(\text{L})=0.000755$ 11; $\alpha(\text{M})=0.0001627$ 23 $\alpha(\text{N})=3.73\times 10^{-5}$ 6; $\alpha(\text{O})=5.70\times 10^{-6}$ 8; $\alpha(\text{P})=3.63\times 10^{-7}$ 5
434.3	70 1	5528.5	12 <sup>+</sup>	5094.2	11 <sup>+</sup>	M1+E2	+0.07 +3-4	0.0362 6	$\alpha(\text{K})=0.0307$ 5; $\alpha(\text{L})=0.00429$ 6; $\alpha(\text{M})=0.000930$ 13 $\alpha(\text{N})=0.000214$ 3; $\alpha(\text{O})=3.33\times 10^{-5}$ 5; $\alpha(\text{P})=2.25\times 10^{-6}$ 4 $A_2=-0.046$ 18, $A_4=0.029$ 24, $\text{pol}=-0.13$ 3.
436.4	817 1	3864.5	10 <sup>+</sup>	3428.1	9 <sup>-</sup>	E1		0.00643	$\alpha(\text{K})=0.00548$ 8; $\alpha(\text{L})=0.000745$ 11; $\alpha(\text{M})=0.0001605$ 23 $\alpha(\text{N})=3.68\times 10^{-5}$ 6; $\alpha(\text{O})=5.63\times 10^{-6}$ 8; $\alpha(\text{P})=3.58\times 10^{-7}$ 5 $A_2=-0.204$ 3, $A_4=-0.002$ 5, $\text{pol}=0.31$ 2.
440.9	76 1	5791.3	13 <sup>+</sup>	5350.3	12 <sup>+</sup>	M1+E2		0.027 8	$\alpha(\text{K})=0.023$ 7; $\alpha(\text{L})=0.0036$ 6; $\alpha(\text{M})=0.00078$ 12 $\alpha(\text{N})=0.00018$ 3; $\alpha(\text{O})=2.7\times 10^{-5}$ 5; $\alpha(\text{P})=1.6\times 10^{-6}$ 6 $A_2=-0.711$ 12, $A_4=0.135$ 16, $\text{pol}=0.28$ 3.
446.2	84 1	5893.7	14 <sup>+</sup>	5447.5	12 <sup>+</sup>	E2		0.0189	$\alpha(\text{K})=0.01525$ 22; $\alpha(\text{L})=0.00288$ 4; $\alpha(\text{M})=0.000643$ 9 $\alpha(\text{N})=0.0001462$ 21; $\alpha(\text{O})=2.14\times 10^{-5}$ 3; $\alpha(\text{P})=1.011\times 10^{-6}$ 15 $A_2=0.31$ 1, $A_4=-0.079$ 15, $\text{pol}=0.48$ 4.
463.9	9 1	8029.5	18 <sup>+</sup>	7565.6	17 <sup>-</sup>	E1		0.00559	$\alpha(\text{K})=0.00476$ 7; $\alpha(\text{L})=0.000645$ 9; $\alpha(\text{M})=0.0001390$ 20 $\alpha(\text{N})=3.18\times 10^{-5}$ 5; $\alpha(\text{O})=4.88\times 10^{-6}$ 7; $\alpha(\text{P})=3.12\times 10^{-7}$ 5 $A_2=0.07$ 2, $A_4=-0.63$ 3, $\text{pol}=0.01$ 3.
474 ‡ 1		11243.4	25 <sup>-</sup>	10769.7	24 <sup>-</sup>				
474 ‡ 1		15068.3		14594.3					
479.4	48 1	10005.7	23 <sup>-</sup>	9526.3	22 <sup>-</sup>	M1+E2	-0.47 +10-17	0.0259 15	$\alpha(\text{K})=0.0219$ 13; $\alpha(\text{L})=0.00314$ 12; $\alpha(\text{M})=0.000683$ 25 $\alpha(\text{N})=0.000157$ 6; $\alpha(\text{O})=2.42\times 10^{-5}$ 10; $\alpha(\text{P})=1.59\times 10^{-6}$ 11 $A_2=-0.82$ 2, $A_4=0.07$ 3, $\text{pol}=0.04$ 3.
480 ‡ 1		14175.7		13695.3	(30)				
505 ‡ 1		6398.5	16 <sup>+</sup>	5893.7	14 <sup>+</sup>				
505.6	56 1	11529.0	25 <sup>-</sup>	11023.1	24 <sup>+</sup>	E1		0.00460	$\alpha(\text{K})=0.00392$ 6; $\alpha(\text{L})=0.000529$ 8; $\alpha(\text{M})=0.0001139$ 16 $\alpha(\text{N})=2.61\times 10^{-5}$ 4; $\alpha(\text{O})=4.01\times 10^{-6}$ 6; $\alpha(\text{P})=2.58\times 10^{-7}$ 4 $A_2=0.019$ 17, $A_4=-0.031$ 23, $\text{pol}=0.38$ 3.
514.2	148 1	5791.3	13 <sup>+</sup>	5277.1	11 <sup>+</sup>	E2		0.01296	$\alpha(\text{K})=0.01057$ 15; $\alpha(\text{L})=0.00187$ 3; $\alpha(\text{M})=0.000415$ 6 $\alpha(\text{N})=9.45\times 10^{-5}$ 14; $\alpha(\text{O})=1.400\times 10^{-5}$ 20; $\alpha(\text{P})=7.10\times 10^{-7}$ 10 $A_2=0.262$ 9, $A_4=-0.057$ 12, $\text{pol}=0.38$ 4.
516.8	52 1	8029.5	18 <sup>+</sup>	7512.7	16 <sup>+</sup>	E2		0.01280	$\alpha(\text{K})=0.01043$ 15; $\alpha(\text{L})=0.00184$ 3; $\alpha(\text{M})=0.000409$ 6 $\alpha(\text{N})=9.31\times 10^{-5}$ 13; $\alpha(\text{O})=1.380\times 10^{-5}$ 20; $\alpha(\text{P})=7.02\times 10^{-7}$ 10 $A_2=0.01$ 2, $A_4=-0.03$ 2, $\text{pol}=0.22$ 3.
543.5	73 1	5893.7	14 <sup>+</sup>	5350.3	12 <sup>+</sup>	E2		0.01124	$\alpha(\text{K})=0.00920$ 13; $\alpha(\text{L})=0.001592$ 23; $\alpha(\text{M})=0.000352$ 5 $\alpha(\text{N})=8.03\times 10^{-5}$ 12; $\alpha(\text{O})=1.194\times 10^{-5}$ 17; $\alpha(\text{P})=6.21\times 10^{-7}$ 9 $A_2=0.27$ 2, $A_4=-0.06$ 3, $\text{pol}=0.46$ 4.
555 ‡ 1		16312.3		15757.3					
592.7	87 1	5094.2	11 <sup>+</sup>	4501.6	10 <sup>+</sup>	M1		0.01646	$\alpha(\text{K})=0.01400$ 20; $\alpha(\text{L})=0.00193$ 3; $\alpha(\text{M})=0.000418$ 6 $\alpha(\text{N})=9.62\times 10^{-5}$ 14; $\alpha(\text{O})=1.498\times 10^{-5}$ 21; $\alpha(\text{P})=1.021\times 10^{-6}$ 15 $\delta$ : 0.00 3; $A_2=-0.135$ 11, $A_4=-0.021$ 15, $\text{pol}=-0.21$ 3.
629.4	22 1	8367.6	18 <sup>+</sup>	7738.2	17 <sup>+</sup>	M1+E2	+4.5 +31-42	0.008 6	$\alpha(\text{K})=0.007$ 5; $\alpha(\text{L})=0.0011$ 6; $\alpha(\text{M})=0.00024$ 11

4

(HL,xn $\gamma$ ) **1994We01** (continued) $\gamma(^{146}\text{Gd})$  (continued)

$E_\gamma$ †	$I_\gamma$ †	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. #	$\alpha^@$	Comments
645.3	114 I	5995.6	14 <sup>+</sup>	5350.3	12 <sup>+</sup>	E2	0.00734	$\alpha(\text{N})=5.5\text{E}-5$ 3; $\alpha(\text{O})=8.5\text{E}-6$ 5; $\alpha(\text{P})=5.5\text{E}-7$ 4 $A_2=0.35$ 5, $A_4=0.18$ 6, $\text{pol}=0.5$ 2. $\alpha(\text{K})=0.00608$ 9; $\alpha(\text{L})=0.000987$ 14; $\alpha(\text{M})=0.000217$ 3 $\alpha(\text{N})=4.96\times 10^{-5}$ 7; $\alpha(\text{O})=7.45\times 10^{-6}$ 11; $\alpha(\text{P})=4.15\times 10^{-7}$ 6 $E_\gamma$ : =654.3 in table 1 is a misprint; =645.3 in fig. 1 (1994We01). $A_2=0.269$ 15, $A_4=-0.064$ 20, $\text{pol}=0.47$ 4.
649.9	54 I	8649.1	19 <sup>(-)</sup>	7999.2	18 <sup>+</sup>	(E1)	0.00267	$\alpha(\text{K})=0.00228$ 4; $\alpha(\text{L})=0.000304$ 5; $\alpha(\text{M})=6.53\times 10^{-5}$ 10 $\alpha(\text{N})=1.498\times 10^{-5}$ 21; $\alpha(\text{O})=2.31\times 10^{-6}$ 4; $\alpha(\text{P})=1.516\times 10^{-7}$ 22 $A_2=-0.44$ 2, $A_4=-0.04$ 2, $\text{pol}=0.12$ 4.
659 ‡ I		11098.5		10439.5				
669.9	53 I	11439.5	25 <sup>+</sup>	10769.7	24 <sup>-</sup>	E1	0.00250	$\alpha(\text{K})=0.00214$ 3; $\alpha(\text{L})=0.000285$ 4; $\alpha(\text{M})=6.12\times 10^{-5}$ 9 $\alpha(\text{N})=1.404\times 10^{-5}$ 20; $\alpha(\text{O})=2.16\times 10^{-6}$ 3; $\alpha(\text{P})=1.425\times 10^{-7}$ 20 $A_2=-1.0$ 3, $A_4=0.4$ 4, $\text{pol}=0.20$ 2.
691 ‡ I		9494.5		8803.5				
695 ‡ I		10439.5		9744.5				
697.1	357 I	5791.3	13 <sup>+</sup>	5094.2	11 <sup>+</sup>	E2	0.00611	$\alpha(\text{K})=0.00508$ 8; $\alpha(\text{L})=0.000805$ 12; $\alpha(\text{M})=0.0001766$ 25 $\alpha(\text{N})=4.04\times 10^{-5}$ 6; $\alpha(\text{O})=6.09\times 10^{-6}$ 9; $\alpha(\text{P})=3.49\times 10^{-7}$ 5 $A_2=0.250$ 6, $A_4=-0.096$ 8, $\text{pol}=0.51$ 4. $A_2=0.140$ 7, $A_4=0.040$ 9, $\text{pol}=0.19$ 2.
709.1	207 I	8367.6	18 <sup>+</sup>	7658.5				
727 ‡ I		8803.5		8076.5				
727.1	35 I	11496.9	(25)	10769.7	24 <sup>-</sup>	(D+Q)		$A_2=0.51$ 3, $A_4=0.13$ 4, $\text{pol}=-0.03$ 9. Mult.: assignment is based on $A_2$ and $A_4$ values (evaluators).
736 ‡ I		5277.1	11 <sup>+</sup>	4541.0	10 <sup>+</sup>			
757.1	17 I	11023.1	24 <sup>+</sup>	10265.9	23 <sup>-</sup>	E1	0.00195	$\alpha(\text{K})=0.001668$ 24; $\alpha(\text{L})=0.000220$ 3; $\alpha(\text{M})=4.74\times 10^{-5}$ 7 $\alpha(\text{N})=1.087\times 10^{-5}$ 16; $\alpha(\text{O})=1.679\times 10^{-6}$ 24; $\alpha(\text{P})=1.114\times 10^{-7}$ 16 $A_2=-0.50$ 6, $A_4=0.08$ 7, $\text{pol}=0.45$ 13.
766.0	203 I	7164.4	17 <sup>-</sup>	6398.5	16 <sup>+</sup>	E1	0.00190	$\alpha(\text{K})=0.001629$ 23; $\alpha(\text{L})=0.000215$ 3; $\alpha(\text{M})=4.63\times 10^{-5}$ 7 $\alpha(\text{N})=1.062\times 10^{-5}$ 15; $\alpha(\text{O})=1.640\times 10^{-6}$ 23; $\alpha(\text{P})=1.089\times 10^{-7}$ 16 $A_2=-0.241$ 7, $A_4=-0.01$ 1, $\text{pol}=0.26$ 2.
780.9	44 I	4645.4	11 <sup>(-)</sup>	3864.5	10 <sup>+</sup>	(E1)	0.00183	$\alpha(\text{K})=0.001568$ 22; $\alpha(\text{L})=0.000207$ 3; $\alpha(\text{M})=4.45\times 10^{-5}$ 7 $\alpha(\text{N})=1.021\times 10^{-5}$ 15; $\alpha(\text{O})=1.577\times 10^{-6}$ 22; $\alpha(\text{P})=1.048\times 10^{-7}$ 15 $A_2=-0.40$ 2, $A_4=-0.10$ 3, $\text{pol}=0.13$ 6.
802.1	65 I	5447.5	12 <sup>+</sup>	4645.4	11 <sup>(-)</sup>	(E1)	$1.74\times 10^{-3}$	$\alpha(\text{K})=0.001487$ 21; $\alpha(\text{L})=0.000196$ 3; $\alpha(\text{M})=4.21\times 10^{-5}$ 6 $\alpha(\text{N})=9.67\times 10^{-6}$ 14; $\alpha(\text{O})=1.494\times 10^{-6}$ 21; $\alpha(\text{P})=9.95\times 10^{-8}$ 14 $A_2=0.54$ 2, $A_4=0.09$ 3, $\text{pol}=-0.120$ 5.
803 ‡ I		7201.5		6398.5	16 <sup>+</sup>			
805.0	22 I	13695.3	(30)	12890.3	29 <sup>+</sup>			$A_2=0.99$ 10, $A_4=0.19$ 11.
807.7	36 I	10769.7	24 <sup>-</sup>	9962.1	22 <sup>-</sup>	E2	0.00436	$\alpha(\text{K})=0.00366$ 6; $\alpha(\text{L})=0.000555$ 8; $\alpha(\text{M})=0.0001213$ 17 $\alpha(\text{N})=2.78\times 10^{-5}$ 4; $\alpha(\text{O})=4.22\times 10^{-6}$ 6; $\alpha(\text{P})=2.52\times 10^{-7}$ 4 $A_2=0.29$ 6, $A_4=-0.07$ 8, $\text{pol}=0.37$ 8.
838.8	37 I	7658.5		6819.7	17 <sup>(+)</sup>			$A_2=0.25$ 3, $A_4=0.03$ 4.

(HL,xn $\gamma$ ) 1994We01 (continued)

							$\gamma(^{146}\text{Gd})$ (continued)		
$E_\gamma$ †	$I_\gamma$ †	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. #	$\delta^\#\&$	$\alpha^@$	Comments
861.5	52 1	10086.4	23 <sup>-</sup>	9224.9	21 <sup>-</sup>	E2		0.00379	$\alpha(\text{K})=0.00318$ 5; $\alpha(\text{L})=0.000475$ 7; $\alpha(\text{M})=0.0001037$ 15 $\alpha(\text{N})=2.37\times 10^{-5}$ 4; $\alpha(\text{O})=3.62\times 10^{-6}$ 5; $\alpha(\text{P})=2.20\times 10^{-7}$ 3 $A_2=0.28$ 8, $A_4=-0.09$ 3, $\text{pol}=0.56$ 7.
865.1	232 1	8029.5	18 <sup>+</sup>	7164.4	17 <sup>-</sup>	E1		$1.50\times 10^{-3}$	$\alpha(\text{K})=0.001283$ 18; $\alpha(\text{L})=0.0001685$ 24; $\alpha(\text{M})=3.62\times 10^{-5}$ 5 $\alpha(\text{N})=8.31\times 10^{-6}$ 12; $\alpha(\text{O})=1.285\times 10^{-6}$ 18; $\alpha(\text{P})=8.60\times 10^{-8}$ 12 $A_2=-0.211$ 6, $A_4=-0.02$ 1, $\text{pol}=0.31$ 3.
875 $\ddagger$ 1 885.5	327 30	8076.5 8915.0	20 <sup>-</sup>	7201.5 8029.5	18 <sup>+</sup>	M2+E3	-0.13 +6-4	0.01571 24	$\alpha(\text{K})=0.01321$ 21; $\alpha(\text{L})=0.00195$ 3; $\alpha(\text{M})=0.000426$ 7 $\alpha(\text{N})=9.82\times 10^{-5}$ 15; $\alpha(\text{O})=1.523\times 10^{-5}$ 23; $\alpha(\text{P})=1.017\times 10^{-6}$ 16 $A_2=0.17$ 1, $A_4=-0.18$ 1, $A_6=0.02$ 1, $\text{pol}=-0.37$ 8.
899 $\ddagger$ 1 913.8	109 1	14594.3 7033.6	16 <sup>-</sup>	13695.3 6119.7	(30) 15 <sup>+</sup>	E1		$1.35\times 10^{-3}$	$\alpha(\text{K})=0.001154$ 17; $\alpha(\text{L})=0.0001513$ 22; $\alpha(\text{M})=3.25\times 10^{-5}$ 5 $\alpha(\text{N})=7.46\times 10^{-6}$ 11; $\alpha(\text{O})=1.155\times 10^{-6}$ 17; $\alpha(\text{P})=7.75\times 10^{-8}$ 11 $A_2=-0.20$ 1, $A_4=0.01$ 2, $\text{pol}=0.33$ 3.
936.7	69 1	11023.1	24 <sup>+</sup>	10086.4	23 <sup>-</sup>	E1		$1.28\times 10^{-3}$	$\alpha(\text{K})=0.001101$ 16; $\alpha(\text{L})=0.0001442$ 21; $\alpha(\text{M})=3.10\times 10^{-5}$ 5 $\alpha(\text{N})=7.11\times 10^{-6}$ 10; $\alpha(\text{O})=1.101\times 10^{-6}$ 16; $\alpha(\text{P})=7.39\times 10^{-8}$ 11 $A_2=-0.33$ 3, $A_4=0.02$ 4, $\text{pol}=0.34$ 4.
941 $\ddagger$ 1 945 $\ddagger$ 1 958.2	54 1	9744.5 10439.5 12890.3	29 <sup>+</sup>	8803.5 9494.5 11932.1	27 <sup>+</sup>	E2		0.00301	$\alpha(\text{K})=0.00254$ 4; $\alpha(\text{L})=0.000371$ 6; $\alpha(\text{M})=8.06\times 10^{-5}$ 12 $\alpha(\text{N})=1.85\times 10^{-5}$ 3; $\alpha(\text{O})=2.83\times 10^{-6}$ 4; $\alpha(\text{P})=1.757\times 10^{-7}$ 25 $A_2=0.22$ 2, $A_4=-0.13$ 3, $\text{pol}=0.42$ 6.
977.6	33 1	11243.4	25 <sup>-</sup>	10265.9	23 <sup>-</sup>	E2		0.00289	$\alpha(\text{K})=0.00244$ 4; $\alpha(\text{L})=0.000354$ 5; $\alpha(\text{M})=7.70\times 10^{-5}$ 11 $\alpha(\text{N})=1.765\times 10^{-5}$ 25; $\alpha(\text{O})=2.70\times 10^{-6}$ 4; $\alpha(\text{P})=1.686\times 10^{-7}$ 24 $A_2=0.48$ 5, $A_4=-0.15$ 6, $\text{pol}=0.79$ 8.
1041.0	99 1	10265.9	23 <sup>-</sup>	9224.9	21 <sup>-</sup>	E2		0.00253	$\alpha(\text{K})=0.00214$ 3; $\alpha(\text{L})=0.000307$ 5; $\alpha(\text{M})=6.67\times 10^{-5}$ 10 $\alpha(\text{N})=1.531\times 10^{-5}$ 22; $\alpha(\text{O})=2.35\times 10^{-6}$ 4; $\alpha(\text{P})=1.482\times 10^{-7}$ 21 $A_2=0.30$ 3, $A_4=-0.11$ 3, $\text{pol}=0.38$ 6.
1047.1	77 1	9962.1	22 <sup>-</sup>	8915.0	20 <sup>-</sup>	E2		0.00250	$\alpha(\text{K})=0.00211$ 3; $\alpha(\text{L})=0.000303$ 5; $\alpha(\text{M})=6.59\times 10^{-5}$ 10 $\alpha(\text{N})=1.511\times 10^{-5}$ 22; $\alpha(\text{O})=2.32\times 10^{-6}$ 4; $\alpha(\text{P})=1.465\times 10^{-7}$ 21 $A_2=0.26$ 2, $A_4=-0.08$ 2, $\text{pol}=0.41$ 5.
1073.6	58 1	4501.6	10 <sup>+</sup>	3428.1	9 <sup>-</sup>	E1		$9.96\times 10^{-4}$	$\alpha(\text{K})=0.000854$ 12; $\alpha(\text{L})=0.0001112$ 16; $\alpha(\text{M})=2.39\times 10^{-5}$ 4 $\alpha(\text{N})=5.48\times 10^{-6}$ 8; $\alpha(\text{O})=8.50\times 10^{-7}$ 12; $\alpha(\text{P})=5.75\times 10^{-8}$ 8 $A_2=-0.14$ 3, $A_4=0.04$ 4, $\text{pol}=0.30$ 7.
1078.5	968 2	2657.8	5 <sup>-</sup>	1579.31	3 <sup>-</sup>	E2		0.00235	$\alpha(\text{K})=0.00199$ 3; $\alpha(\text{L})=0.000284$ 4; $\alpha(\text{M})=6.17\times 10^{-5}$ 9

(HL,xn $\gamma$ ) 1994We01 (continued) $\gamma(^{146}\text{Gd})$  (continued)

$E_\gamma$ †	$I_\gamma$ †	$E_i$ (level)	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.#	$\delta\#\&$	$\alpha^@$	Comments
1112.9	63 1	4541.0	10 <sup>+</sup>	3428.1	9 <sup>-</sup>	E1		9.35×10 <sup>-4</sup>	$\alpha(\text{N})=1.415\times 10^{-5}$ 20; $\alpha(\text{O})=2.17\times 10^{-6}$ 3; $\alpha(\text{P})=1.380\times 10^{-7}$ 20 A <sub>2</sub> =0.153 4, A <sub>4</sub> =-0.036 5, pol=0.29 4. $\alpha(\text{K})=0.000800$ 12; $\alpha(\text{L})=0.0001040$ 15; $\alpha(\text{M})=2.23\times 10^{-5}$ 4 $\alpha(\text{N})=5.13\times 10^{-6}$ 8; $\alpha(\text{O})=7.95\times 10^{-7}$ 12; $\alpha(\text{P})=5.39\times 10^{-8}$ 8; $\alpha(\text{IPF})=2.91\times 10^{-6}$ 4 A <sub>2</sub> =-0.12 4, A <sub>4</sub> =0.10 5, pol=-0.01 16.
1114.2	144 1	7512.7	16 <sup>+</sup>	6398.5	16 <sup>+</sup>	M1+E2	+0.2 2	0.00348 15	$\alpha(\text{K})=0.00297$ 13; $\alpha(\text{L})=0.000402$ 16; $\alpha(\text{M})=8.7\times 10^{-5}$ 4 $\alpha(\text{N})=2.00\times 10^{-5}$ 8; $\alpha(\text{O})=3.11\times 10^{-6}$ 12; $\alpha(\text{P})=2.14\times 10^{-7}$ 10; $\alpha(\text{IPF})=5.64\times 10^{-7}$ 10 A <sub>2</sub> =0.40 2, A <sub>4</sub> =-0.04 2, pol=0.66 6.
1123 <sup>‡</sup> 1		14013.0		12890.3	29 <sup>+</sup>				
1167.2	41 1	7565.6	17 <sup>-</sup>	6398.5	16 <sup>+</sup>	E1		8.69×10 <sup>-4</sup>	$\alpha(\text{K})=0.000734$ 11; $\alpha(\text{L})=9.53\times 10^{-5}$ 14; $\alpha(\text{M})=2.04\times 10^{-5}$ 3 $\alpha(\text{N})=4.70\times 10^{-6}$ 7; $\alpha(\text{O})=7.29\times 10^{-7}$ 11; $\alpha(\text{P})=4.95\times 10^{-8}$ 7; $\alpha(\text{IPF})=1.310\times 10^{-5}$ 19 A <sub>2</sub> =-0.23 4, A <sub>4</sub> =-0.04 5, pol=0.32 6.
1229.7	259 1	5094.2	11 <sup>+</sup>	3864.5	10 <sup>+</sup>	M1+E2	-1.67 7	0.00208 4	$\alpha(\text{K})=0.00176$ 3; $\alpha(\text{L})=0.000243$ 4; $\alpha(\text{M})=5.25\times 10^{-5}$ 9 $\alpha(\text{N})=1.205\times 10^{-5}$ 20; $\alpha(\text{O})=1.87\times 10^{-6}$ 3; $\alpha(\text{P})=1.237\times 10^{-7}$ 21; $\alpha(\text{IPF})=9.34\times 10^{-6}$ 14 A <sub>2</sub> =-0.689 7, A <sub>4</sub> =0.185 9, pol=0.23 4.
1260 <sup>‡</sup> 1		7658.5		6398.5	16 <sup>+</sup>				
1288.1	57 1	10769.7	24 <sup>-</sup>	9481.6	22 <sup>-</sup>	E2		1.67×10 <sup>-3</sup>	$\alpha(\text{K})=0.001400$ 20; $\alpha(\text{L})=0.000194$ 3; $\alpha(\text{M})=4.20\times 10^{-5}$ 6 $\alpha(\text{N})=9.65\times 10^{-6}$ 14; $\alpha(\text{O})=1.488\times 10^{-6}$ 21; $\alpha(\text{P})=9.71\times 10^{-8}$ 14; $\alpha(\text{IPF})=1.79\times 10^{-5}$ 3 A <sub>2</sub> =0.40 4, A <sub>4</sub> =-0.14 5, pol=0.46 7.
1306 <sup>‡</sup> 1		14196.3		12890.3	29 <sup>+</sup>				
1412.5	60 1	5277.1	11 <sup>+</sup>	3864.5	10 <sup>+</sup>	M1+E2		0.0018 4	$\alpha(\text{K})=0.0015$ 3; $\alpha(\text{L})=0.00020$ 4; $\alpha(\text{M})=4.2\times 10^{-5}$ 8 $\alpha(\text{N})=9.7\times 10^{-6}$ 18; $\alpha(\text{O})=1.5\times 10^{-6}$ 3; $\alpha(\text{P})=1.03\times 10^{-7}$ 22; $\alpha(\text{IPF})=5.0\times 10^{-5}$ 3 A <sub>2</sub> =-0.65 2, A <sub>4</sub> =0.23 3, pol=0.27 6.
1485.7	219 1	5350.3	12 <sup>+</sup>	3864.5	10 <sup>+</sup>	E2		1.32×10 <sup>-3</sup>	$\alpha(\text{K})=0.001064$ 15; $\alpha(\text{L})=0.0001451$ 21; $\alpha(\text{M})=3.13\times 10^{-5}$ 5 $\alpha(\text{N})=7.19\times 10^{-6}$ 10; $\alpha(\text{O})=1.113\times 10^{-6}$ 16; $\alpha(\text{P})=7.38\times 10^{-8}$ 11; $\alpha(\text{IPF})=6.94\times 10^{-5}$ 10 A <sub>2</sub> =0.284 8, A <sub>4</sub> =-0.10 1, pol=0.42 6.
1579.3	987 2	1579.31	3 <sup>-</sup>	0.0	0 <sup>+</sup>	E3		0.00216	$\alpha(\text{K})=0.001778$ 25; $\alpha(\text{L})=0.000262$ 4; $\alpha(\text{M})=5.71\times 10^{-5}$ 8 $\alpha(\text{N})=1.310\times 10^{-5}$ 19; $\alpha(\text{O})=2.01\times 10^{-6}$ 3; $\alpha(\text{P})=1.278\times 10^{-7}$ 18; $\alpha(\text{IPF})=4.64\times 10^{-5}$ 7 A <sub>2</sub> =0.254 4, A <sub>4</sub> =-0.025 6, A <sub>6</sub> =0.022 7, pol=0.31 5.
1583.1	62 1	5447.5	12 <sup>+</sup>	3864.5	10 <sup>+</sup>	E2		1.21×10 <sup>-3</sup>	$\alpha(\text{K})=0.000944$ 14; $\alpha(\text{L})=0.0001278$ 18; $\alpha(\text{M})=2.76\times 10^{-5}$ 4 $\alpha(\text{N})=6.34\times 10^{-6}$ 9; $\alpha(\text{O})=9.82\times 10^{-7}$ 14; $\alpha(\text{P})=6.55\times 10^{-8}$ 10; $\alpha(\text{IPF})=0.0001039$ 15 A <sub>2</sub> =0.30 2, A <sub>4</sub> =-0.06 3, pol=0.48 7.

(HL,xn $\gamma$ ) **1994We01** (continued)

$\gamma(^{146}\text{Gd})$  (continued)

$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>†</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.#	$\alpha$ <sup>@</sup>	Comments
1631.0	34 1	8029.5	18 <sup>+</sup>	6398.5	16 <sup>+</sup>	E2	$1.17 \times 10^{-3}$	$\alpha(\text{K})=0.000893$ 13; $\alpha(\text{L})=0.0001205$ 17; $\alpha(\text{M})=2.60 \times 10^{-5}$ 4 $\alpha(\text{N})=5.97 \times 10^{-6}$ 9; $\alpha(\text{O})=9.26 \times 10^{-7}$ 13; $\alpha(\text{P})=6.19 \times 10^{-8}$ 9; $\alpha(\text{IPF})=0.0001225$ 18 $A_2=0.29$ 4, $A_4=-0.04$ 5, $\text{pol}=0.37$ 8.
1704 <sup>‡</sup> 1		14594.3		12890.3	29 <sup>+</sup>			
1835.7	51 1	5700.2	(12) <sup>+</sup>	3864.5	10 <sup>+</sup>	(E2)	$1.05 \times 10^{-3}$	$\alpha(\text{K})=0.000717$ 10; $\alpha(\text{L})=9.58 \times 10^{-5}$ 14; $\alpha(\text{M})=2.06 \times 10^{-5}$ 3 $\alpha(\text{N})=4.74 \times 10^{-6}$ 7; $\alpha(\text{O})=7.36 \times 10^{-7}$ 11; $\alpha(\text{P})=4.97 \times 10^{-8}$ 7; $\alpha(\text{IPF})=0.000211$ 3 $A_2=0.30$ 3, $A_4=-0.06$ 3, $\text{pol}=0.21$ 12.
1865.2	29 1	5729.7	(12) <sup>+</sup>	3864.5	10 <sup>+</sup>	(E2)	$1.04 \times 10^{-3}$	$\alpha(\text{K})=0.000696$ 10; $\alpha(\text{L})=9.29 \times 10^{-5}$ 13; $\alpha(\text{M})=2.00 \times 10^{-5}$ 3 $\alpha(\text{N})=4.60 \times 10^{-6}$ 7; $\alpha(\text{O})=7.14 \times 10^{-7}$ 10; $\alpha(\text{P})=4.83 \times 10^{-8}$ 7; $\alpha(\text{IPF})=0.000224$ 4 $A_2=0.35$ 4, $A_4=-0.14$ 6, $\text{pol}=0.5$ 2.

<sup>†</sup> From [1994We01](#);  $\Delta E_\gamma=0.2$  keV was assumed by evaluators, except as noted.

<sup>‡</sup> Absent in table 1 ([1994We01](#)), taken from fig. 1 of the level scheme given in this paper.  $\Delta E_\gamma=1$  keV is assumed by the evaluators.

<sup>#</sup> From  $\gamma(\theta)$ , lin pol and  $\chi^2$ -analysis of theirs ([1994We01](#)).

<sup>@</sup> [Additional information 1](#).

<sup>&</sup> If No value given it was assumed  $\delta=1.00$  for E2/M1.

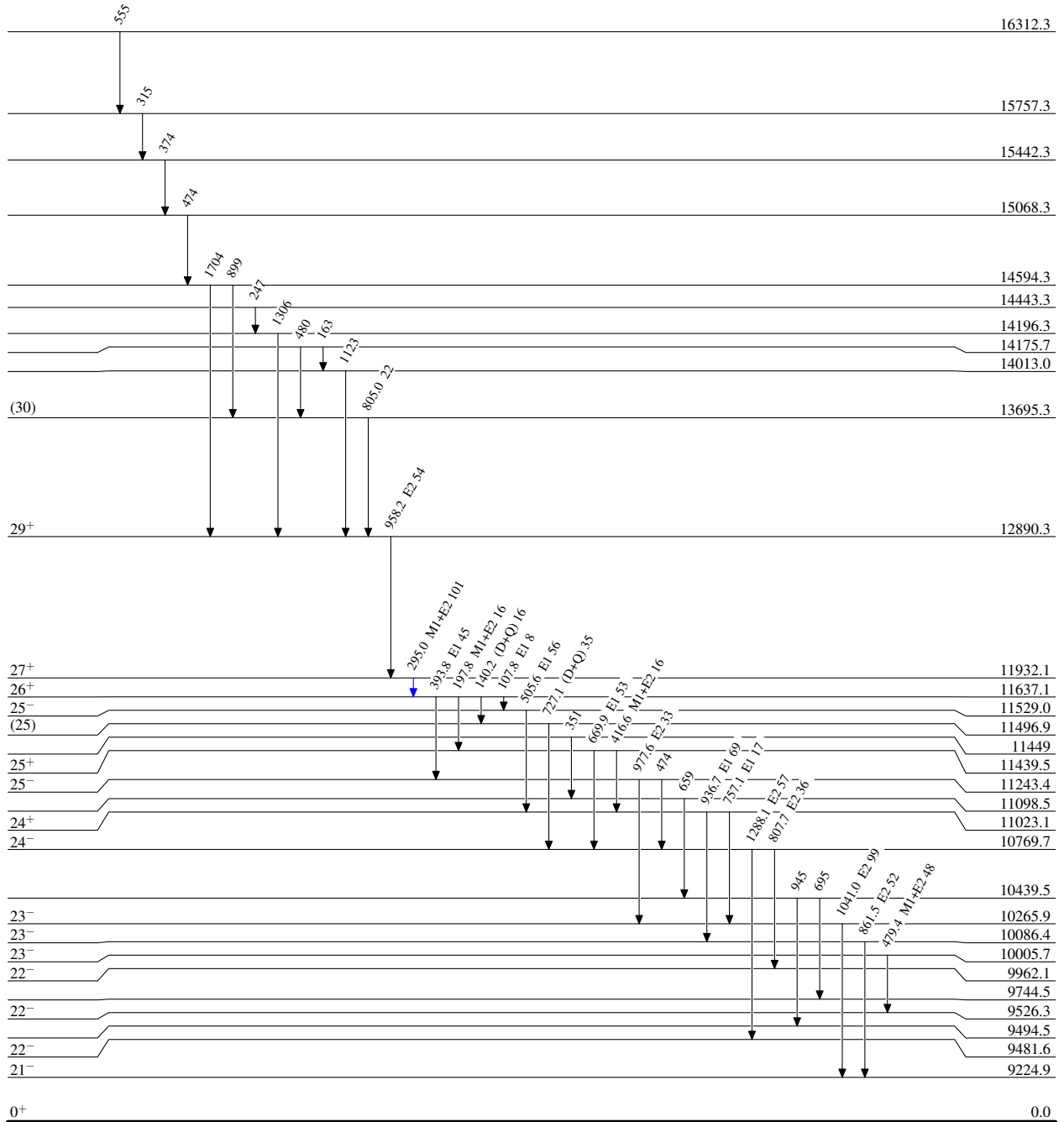


(HI,xn $\gamma$ ) 1994We01

Level Scheme  
Intensities: Relative I $\gamma$

Legend

- I $\gamma$  < 2% × I $\gamma^{max}$
- I $\gamma$  < 10% × I $\gamma^{max}$
- I $\gamma$  > 10% × I $\gamma^{max}$



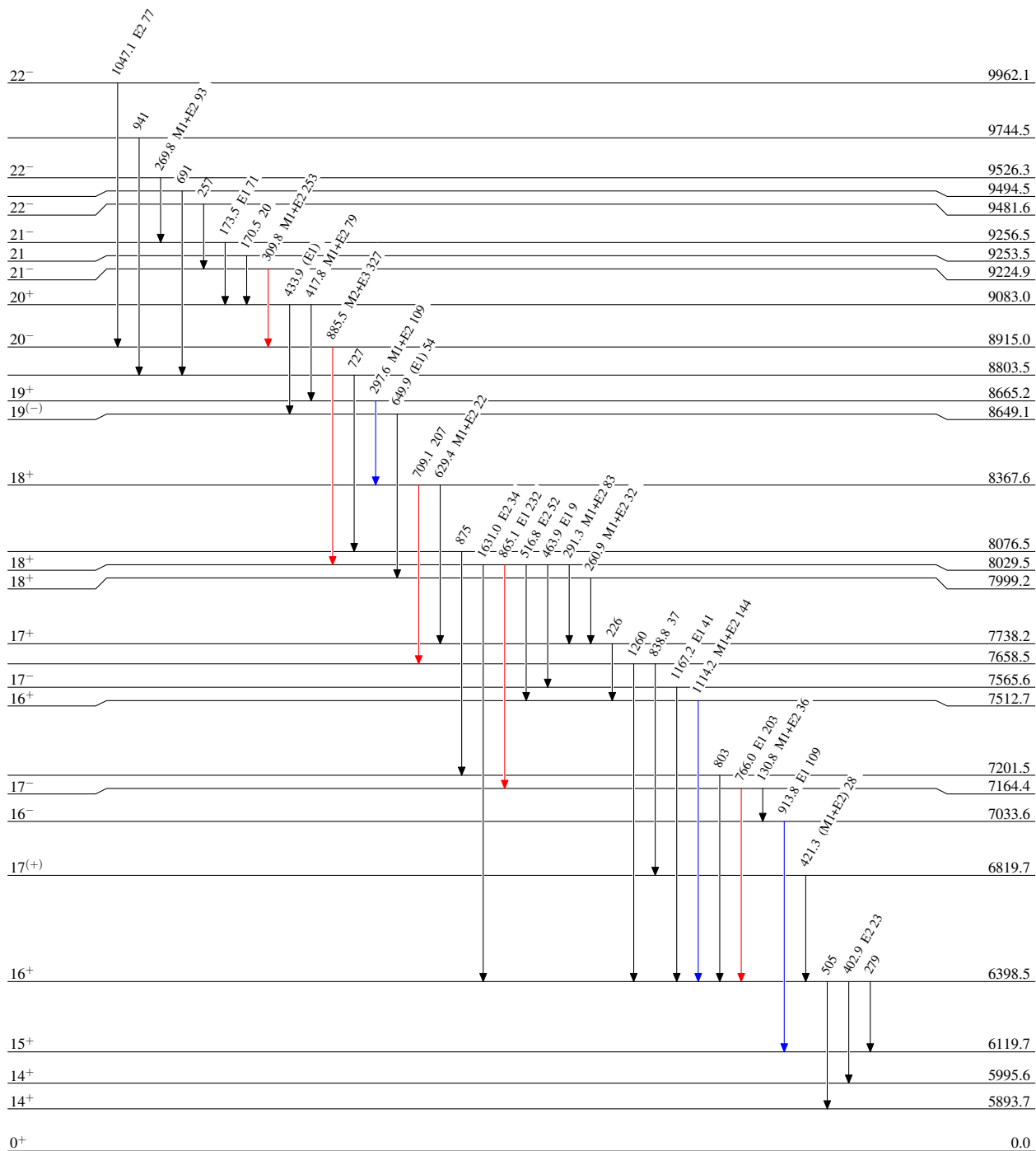
(HI,xn $\gamma$ ) 1994We01

Level Scheme (continued)

Intensities: Relative  $I_{\gamma}$

Legend

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



$^{146}_{64}\text{Gd}_{82}$

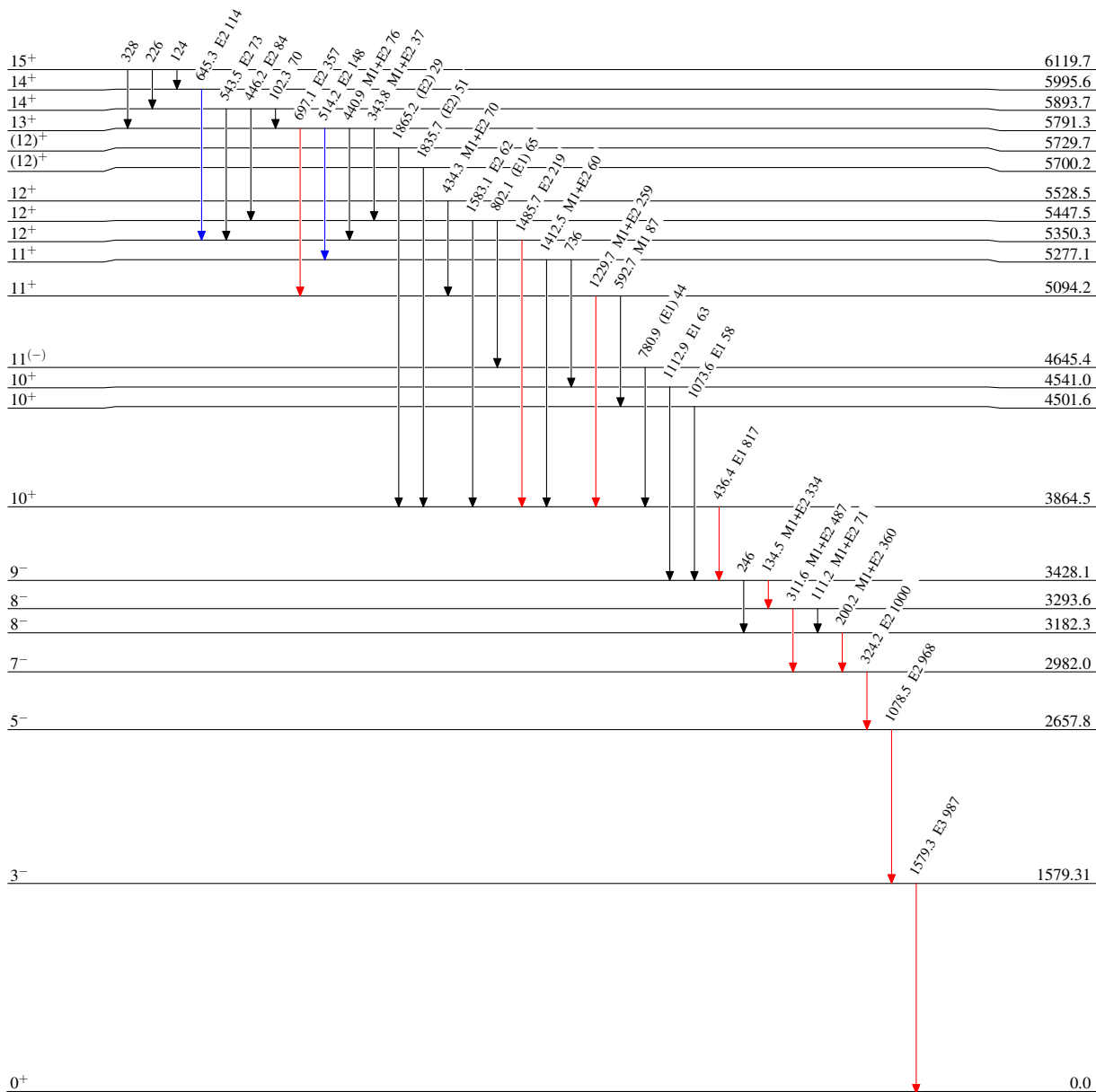
(HI,xn $\gamma$ ) 1994We01

Level Scheme (continued)

Intensities: Relative  $I_\gamma$

Legend

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



$^{146}_{64}\text{Gd}_{82}$