Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

Q(β^-)=−1.27×10^3 *6*; S(n)=7.51×10^3 *6*; S(p)=3.61×10^3 *6*; Q(α)=2.81×10^3 *7* 2017Wa10
Q(ε)=5.05×10^3 *6*; S(2n)=1.698×10^4 *6*; S(2p)=9.90×10^3 *6* 2017Wa10
Additional information 1.
Additional information 2.
Numerous discussions of signature splitting in ^{156}Ho have appeared. Some of those are: 2003Ya19; 2001Zh16; 2001Ri19; 2000Xu01; 1995Li40.

^{156}Ho Levels

For the definition of the labels used to designate the various quasiparticle orbitals in the configuration assignments, see the table in the ^{148}Nd(^{14}N,6nγ) data set.
The designations for the band configurations are those of 1998Cu01, from ^{148}Nd(^{14}N,6nγ), and are included here for convenience in referring to them. A definition of these labels is given in the ^{148}Nd(^{14}N,6nγ) data set.

Cross Reference (XREF) Flags

A	^{156}Ho IT decay (7.6 min)
B	^{156}Ho IT decay (9.5 s)
C	^{148}Nd(^{14}N,6nγ)
D	^{156}Er ε decay

E(level)[†]	J$^\pi$[#]	T$_{1/2}$	XREF	Comments
0[m]	4$^-$	56 min *1*	B D	%ε+%β^+=100 μ=+2.98 *3*; Q=+2.34 *18* Assuming additivity of the μ values (given by, e.g., 1989Be04) of the two quasiparticles assumed to make up this state, one finds good agreement with the measured μ value. J$^\pi$: From collinear fast beam laser spectroscopy (1988NeZZ), J=4. M3 transition from 1$^-$ gives π=−. T$_{1/2}$: Average of 57 min *3* (1960Gr24), 55 min *5* (1961Ba32), 56 min *2* (1964Ab03), 57 min *2* (1965Zh02), 55 min *1* (1966La11), and 56 min *1* (1967Av03). The change in charge radius, Δ<r^2>, has been determined from isotope shifts to be Δ<r^2>(158-156)=0.40 (1988NeZZ) and 0.39 (1989Al27) and Δ<r^2>(156-154)=0.40 (1988NeZZ) and 0.33 (1989Al27); the values of 1988NeZZ were obtained from graphs by evaluator. Other: 1987AlZU, by the same authors as 1989Al27. From an evaluation of data on nuclear rms charge radii, 2004An14 report <r^2>$^{1/2}$=5.115 fm *32*. μ: From 1989Al27. The evaluation of 1989Ra17 quotes 2.99 *3* from a private communication from the same author. The compilation by 2005St24 lists μ=2.99 *3*. Q: From 1989Al27. The evaluation of 1989Ra17 quotes the same value from a private communication from the same author. The compilation by 2005St24 lists Q=2.3 *2*.
52.37[n]	1$^-$	9.5 s *15*	B D	%IT=100 %IT: Presumed to be 100%, since ε decay has not been reported. See the discussion in the ^{156}Ho IT decay (9.5 s) data set. The relatively large B(M3)(W.u.) value indicates that at least one, and possibly both, of the quasiparticle orbitals making up this state is the same as those in the g.s. J$^\pi$: M1 γ from 1$^-$, M3 γ to 4$^-$. T$_{1/2}$: From ce(L)(52γ,t) in ^{156}Er ε decay (1995KaZS).
82.23[o]	2$^-$	1.38 ns *12*	D	J$^\pi$: M1+E2 γ to 1$^-$. If a possible E2 γ deexcites this level, then J$^\pi$=2$^-$ uniquely.

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Adopted Levels, Gammas (continued)

^{156}Ho Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	XREF	Comments
				$T_{1/2}$: Weighted average of 1.46 ns *15* (1975Al26) and 1.25 ns *20* (1978Sc10) from ^{156}Er ε decay studies.
91.0	1^+		D	J^{π}: E1 γ to negative-parity state indicates π=+. Feeding in ε+β^+ decay from 0^+ level gives J=1.
117.58[p]	1^+	58 ns *3*	D	J^{π}: Allowed-unhindered (*au*) ε+β^+ transition (log *ft* probably ≈4.6, (see the comment in the ^{156}Er ε decay data set)) from 0^+, indicating the occurrence of a π7/2[523]→ν5/2[523] transition. $T_{1/2}$: From Kx-35γ coincidences in ^{156}Er ε decay.
215.74	1^-		D	J^{π}: M1 γ to negative-parity state indicates π=−. ε feeding from 0^+ level gives J=1.
251.09[‡]			D	
268.12	1		D	J^{π}: ε feeding from 0^+, γ to 2^- level.
303.52[‡]			D	
434.2 *10*	1		D	J^{π}: ε feeding from 0^+, γ to 2^- level.
504.95[‡]			D	
571.64[‡]			D	
52.37+x[e]	9^+	7.6 min *3*	A	%ε+%β^+=75; %IT=25 %ε+%β^+ is from 1999KaZV, from a study of the decay of this isomer. These authors do not list an uncertainty for this value. Bandhead of a $K^{\pi}=9^+$ band. Conf=π7/2[523]+ν11/2[505]. The evaluator has assumed that this level is associated with the YA_p band seen in the ^{148}Nd(^{14}N,6n) reaction. If so, then the parity of the levels in this band is positive. E(level): 170 *70* (2012Au07) from mass measurement. E(level): From comparison with ^{158}Ho, E(level) is expected to be ≈0.2 MeV. From consideration of the expected log *ft* values for the *au* β transitions in this region, 1999KaZV estimate E(level)≈350 keV. J^{π}: From an *au* β transition to the 2787, 8^+ level in ^{156}Dy. This also establishes the listed conf for this state. $T_{1/2}$: From ^{156}Ho ε Decay (7.6 min).
0+y[@]	(8^-)		C	
91.0+y[&]	(9^-)		C	
171.5+y	(10^-)		C	
185.5+y[@]	(10^-)		C	
187.0+y			C	
219.0+y			C	
277.5+y			C	
320.0+y[&]	(11^-)		C	
530.2+y[@]	(12^-)		C	
660.1+y[&]	(13^-)		C	
660.5+y[c]	(10^+)		C	
849.1+y[d]	(11^+)		C	
923.8+y[@]	(14^-)		C	
1044.0+y[c]	(12^+)		C	
1135.7+y[&]	(15^-)		C	
1267.0+y[d]	(13^+)		C	
1436.3+y[@]	(16^-)		C	
1505.7+y[c]	(14^+)		C	
1719.2+y[&]	(17^-)		C	
1769.6+y[d]	(15^+)		C	
2037.2+y[c]	(16^+)		C	
2045.9+y[@]	(18^-)		C	

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Adopted Levels, Gammas (continued)

^{156}Ho Levels (continued)

E(level)[†]	J$^{\pi}$[#]	XREF
2337.6+y[d]	(17$^+$)	C
2387.8+y[b]	(17$^+$)	C
2390.0+y[&]	(19$^-$)	C
2640.1+y[c]	(18$^+$)	C
2685.1+y[a]	(18$^+$)	C
2738.7+y[@]	(20$^-$)	C
2907.4+y[b]	(19$^+$)	C
2969.6+y[d]	(19$^+$)	C
3133.6+y[&]	(21$^-$)	C
3197.0+y[a]	(20$^+$)	C
3315.9+y[c]	(20$^+$)	C
3448.8+y[b]	(21$^+$)	C
3496.3+y[@]	(22$^-$)	C
3668.8+y[d]	(21$^+$)	C
3764.6+y[a]	(22$^+$)	C
3930.5+y[&]	(23$^-$)	C
4057.3+y[b]	(23$^+$)	C
4066.8+y[c]	(22$^+$)	C
4297.2+y[@]	(24$^-$)	C
4413.3+y[a]	(24$^+$)	C
4439.8+y[d]	(23$^+$)	C
4749.6+y[b]	(25$^+$)	C
4750.8+y[&]	(25$^-$)	C
4922.8+y[c]	(24$^+$)	C
5123.2+y[@]	(26$^-$)	C
5139.7+y[a]	(26$^+$)	C
5301.8+y[d]	(25$^+$)	C
5525.3+y[b]	(27$^+$)	C
5587.5+y[&]	(27$^-$)	C
5853.8+y[c]	(26$^+$)	C
5939.5+y[a]	(28$^+$)	C
5978.3+y[@]	(28$^-$)	C
6214.8+y[d]	(27$^+$)	C
6393.3+y[b]	(29$^+$)	C
6464.5+y[&]	(29$^-$)	C
6809.8+y[c]	(28$^+$)	C
6818.5+y[a]	(30$^+$)	C
6884.3+y[@]	(30$^-$)	C
7066.8+y[d]	(29$^+$)	C
7328.3+y[b]	(31$^+$)	C
7402.5+y[&]	(31$^-$)	C
7701+y[c]	(30$^+$)	C
7745.5+y[a]	(32$^+$)	C
7854.4+y[@]	(32$^-$)	C
8291+y[b]	(33$^+$)	C
8411+y[&]	(33$^-$)	C
8611+y[c]	(32$^+$)	C

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Adopted Levels, Gammas (continued)

^{156}Ho Levels (continued)

E(level)[†]	J$^{\pi}$[#]	XREF	Comments
8682+y[a]	(34$^+$)	C	
8890+y[@]	(34$^-$)	C	
9290+y[b]	(35$^+$)	C	
9489+y[&]	(35$^-$)	C	
9628+y[a]	(36$^+$)	C	
9994+y[@]	(36$^-$)	C	
10248+y[b]	(37$^+$)	C	
0+z[f]	(12)	C	E(level): From the possible decay of this level to the 185.5+y, (10$^-$) level, z>185.5+y. The energy of this transition is not reported. Also, if the 7.6-min, 9$^+$ level is the head of this band, then y>x.
227.9+z[e]	(13)	C	
484.1+z[f]	(14)	C	
761.7+z[e]	(15)	C	
1056.7+z[f]	(16)	C	
1367.1+z[e]	(17)	C	
1691.0+z[f]	(18)	C	
2023.9+z[e]	(19)	C	
2365.2+z[f]	(20)	C	
2700.1+z[e]	(21)	C	
2823.5+z[h]	(21)	C	
2984.3+z[f]	(22)	C	
3043.2+z[g]	(22)	C	
3234.3+z[e]	(23)	C	
3379.1+z[h]	(23)	C	
3501.4+z[f]	(24)	C	
3781.2+z[g]	(24)	C	
3789.2+z[e]	(25)	C	
4064.1+z[h]	(25)	C	
4103.7+z[f]	(26)	C	
4443.3+z[e]	(27)	C	
4803.1+z[h]	(27)	C	
4804.0+z[f]	(28)	C	
5191.3+z[e]	(29)	C	
5598.0+z[f]	(30)	C	
5612+z[h]	(29)	C	
6030.3+z[e]	(31)	C	
6477.0+z[f]	(32)	C	
6951.3+z[e]	(33)	C	
7436+z[f]	(34)	C	
7945+z[e]	(35)	C	
8467+z[f]	(36)	C	
9016+z[e]	(37)	C	
0+u[j]	(11)	C	E(level): From the possible decay of this level to the 185.5+y, (10$^-$) and 171.5+y, (10$^-$) levels, u>185.5+y. The energies of these transitions are not reported.
161.9+u[i]	(12)	C	
324.1+u[j]	(13)	C	
541.5+u[i]	(14)	C	
758.1+u[j]	(15)	C	

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Adopted Levels, Gammas (continued)

^{156}Ho Levels (continued)

E(level)[†]	J$^{\pi}$[#]	XREF	Comments
1023.9+u[i]	(16)	C	
1285.9+u[j]	(17)	C	
1592.1+u[i]	(18)	C	
1891.6+u[j]	(19)	C	
2228.8+u[i]	(20)	C	
2557.7+u[j]	(21)	C	
2902.8+u[i]	(22)	C	
3285.7+u[j]	(23)	C	
3581.8+u[i]	(24)	C	
4039.7+u[j]	(25)	C	
4828.7+u[j]	(27)	C	
0+v[k]	(22)	C	E(level): From the possible decay of this level to the 3496.3+y, (22^-) and 3133.6+y, (21^-) levels, v>3496.3+y. The energies of these transitions are not reported.
696+v[k]	(24)	C	
1450+v[k]	(26)	C	
2242+v[k]	(28)	C	
3073+v[k]	(30)	C	
3953+v[k]	(32)	C	
4890+v[k]	(34)	C	
5878+v[k]	(36)	C	
6911+v[k]	(38)	C	
0+w[l]	(24)	C	E(level): From the possible decay of this level to the 4297.2+y, (24^-) and 3930.5+y, (23^-) levels, w>4297.2+y. The energies of these transitions are not reported.
624+w[l]	(26)	C	
1304+w[l]	(28)	C	
2068+w[l]	(30)	C	
2922+w[l]	(32)	C	
3843+w[l]	(34)	C	
4814+w[l]	(36)	C	
5821+w[l]	(38)	C	

[†] Computed from the listed γ energies.

[‡] New level introduced by 2003KaZQ in ε decay, but no properties other than the level energy are given.

[#] For those levels seen only in the heavy-ion-induced reaction, the J$^{\pi}$ values and configuration assignments are those proposed by 1998Cu01. These are based on the usual considerations in such studies, including the existence of rotational bands, DCO ratios, deduced alignments and cranked shell-model calculations.

[@] Band(A): Band 1a. Yrast band, α=0. At lower spins, conf is AA_p, changing to $ABCA_p$ at the higher spins. (For a definition of the labeling of the quasiparticle orbitals, see the ^{148}Nd(^{14}N,6nγ) data set.).

[&] Band(a): Band 1b. α=1 partner of the yrast band. At the lower spins, conf is AB_p, changing to $ABCB_p$ at the higher spins.

[a] Band(B): Band 2a. Proposed conf is $EABA_p$, up to the band termination. α=0.

[b] Band(b): Band 2b. Proposed conf is $EABB_p$, up to the band termination. α=1.

[c] Band(C): Band 3a. Proposed conf is AE_p, up to the band termination. α=0.

[d] Band(c): Band 3b. Proposed conf is AF_p, up to the band termination. α=1.

[e] Band(D): Band 7b. Proposed conf is YA_p at lower spins, becoming $YABA_p$ at the higher spins. α=1 partner. The evaluator has assumed that the 7.6-min, 9^+ isomer is the bandhead of this band (and thus of its signature partner (Band 7a) as well). If correct, then π=+ for both of these bands.

[f] Band(d): Band 7a. Proposed conf is XA_p at lower spins, becoming $XABA_p$ at the higher spins. α=0. See the comment for Band

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Adopted Levels, Gammas (continued)

^{156}Ho Levels (continued)

7b for a possible bandhead and π assignment for this band.

[g] Band(E): Band 8a. Proposed continuation of Band 7a above the band crossing. Proposed conf is then XA_p, α=0.

[h] Band(e): Band 8b. Proposed continuation of Band 7b above the band crossing. Proposed conf is thus YA_p, α=1.

[i] Band(F): Band 6a. Proposed conf is BF_p, α=0.

[j] Band(f): Band 6b. Proposed conf is BE_p, α=1.

[k] Band(G): Band 5. Decoupled band. Proposed conf is X_pEAB, α=0.

[l] Band(H): Band 4. Decoupled band, α=0. One possible conf is X_pA, becoming X_pABC. An alternative possibility is X_pA, becoming $X_pAA_pB_p$.

[m] Band(I): $K^\pi=4^-$ Bandhead. Probable conf=π5/2[402]+ν3/2[521]. The Σ=1 coupling of these two orbitals, which lies below the Σ=0 coupling, in agreement with the expectations of 1958Ga27.

[n] Band(J): $K^\pi=1^-$ Bandhead. Probable conf=π5/2[402]-ν3/2[521]. The Σ=0 coupling of these two orbitals, which lies above the Σ=1 coupling, in agreement with the expectations of 1958Ga27.

[o] Band(K): $K^\pi=2^-$ Bandhead. Probable conf=π7/2[404]-ν3/2[521].

[p] Band(L): $K^\pi=1^+$ Bandhead. Conf=π7/2[523]-ν5/2[523].

$\gamma(^{156}Ho)$

E_i(level)	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult.	δ	α‡	Comments
52.37	1^-	52.37	100	0	4^-	M3		4.17×10^3	B(M3)(W.u.)=1.9 *4* B(M3)(W.u.) value computed assuming %IT=100.
82.23	2^-	29.86	100 *7*	52.37	1^-	M1+E2	0.033 *6*	15.0 *4*	B(M1)(W.u.)=0.036 *7*; B(E2)(W.u.)=23 *10* Mult.,δ: From L and M subshell ratios in ^{156}Er ε decay.
		82.18#	6.6 *16*	0	4^-	E2		5.98	B(E2)(W.u.)=8.8 *25*
91.0	1^+	8.72 *5*	100	82.23	2^-	E1		11	Mult.: See the discussion in the ^{156}Er ε Decay data set.
117.58	1^+	26.55 *10*	0.20 *5*	91.0	1^+	M1+E2	0.12	35.1 *7*	B(M1)(W.u.)=1.9×10^{-5} *5*; B(E2)(W.u.)=0.21 *6* Mult.,δ: See the discussion in the ^{156}Er ε Decay Data Set.
		35.37	100	82.23	2^-	E1		0.968	B(E1)(W.u.)=4.4×10^{-5} *5* E_γ,Mult.: From 1999KaZV, ^{156}Er ε decay.
		65.16#	≈0.65	52.37	1^-	E1		0.977	B(E1)(W.u.)≈4.5×10^{-8} E_γ,Mult.: From 1999KaZV, ^{156}Er ε decay.
215.74	1^-	133.51	100	82.23	2^-	M1		1.145	Mult.: From α(K)exp and K/L ratio in ^{156}Er ε decay (1982Vy06).
268.12	1	185.89	100	82.23	2^-				
303.52		221.33† *5*	100	82.23	2^-				
434.2	1	352.0 *10*	100	82.23	2^-				
504.95		253.86† *5*	28 *7*	251.09					
		387.37† *5*	100 *11*	117.58	1^+				
571.64		320.55† *5*	100	251.09					
91.0+y	(9^-)	91		0+y	(8^-)	E2			DCO=1.02 *19*.
171.5+y	(10^-)	81		91.0+y	(9^-)				
185.5+y	(10^-)	94		91.0+y	(9^-)				
187.0+y		96		91.0+y	(9^-)				
320.0+y	(11^-)	101		219.0+y					
		133		187.0+y					
		134		185.5+y	(10^-)	M1+E2			DCO=0.67 *3*.
		149		171.5+y	(10^-)				
		229		91.0+y	(9^-)				
530.2+y	(12^-)	211		320.0+y	(11^-)	M1+E2			DCO=0.58 *1* for 211+212.
660.1+y	(13^-)	130		530.2+y	(12^-)	M1+E2			DCO=0.57 *5*.
		340		320.0+y	(11^-)	E2			DCO=0.96 *6*.
660.5+y	(10^+)	130		530.2+y	(12^-)				DCO=0.45 *5*.
		340		320.0+y	(11^-)	[E1]			DCO=0.59 *6*.
		383		277.5+y		E2			DCO=0.98 *8* for 382+383.
849.1+y	(11^+)	189		660.5+y	(10^+)				
		529		320.0+y	(11^-)	[E1]			DCO=1.19 *23*. Mult.: Assigned (E2/M1) by 1998Cu01.
923.8+y	(14^-)	264		660.1+y	(13^-)	M1+E2			DCO=0.60 *4*.
		394		530.2+y	(12^-)	E2			DCO=0.93 *8*.
1044.0+y	(12^+)	195		849.1+y	(11^+)	M1+E2			DCO=0.66 *10*.

$\gamma(^{156}$Ho) (continued)

E_i(level)	J^π_i	E_γ	E_f	J^π_f	Mult.	Comments
1044.0+y	(12⁺)	382#	660.5+y	(10⁺)	E2	DCO=0.98 *8* for 382+383.
		514	530.2+y	(12⁻)		
		724	320.0+y	(11⁻)	[E1]	DCO=0.69 *6*. Mult.: Assigned (M1) by 1998Cu01.
1135.7+y	(15⁻)	212#	923.8+y	(14⁻)	M1+E2	DCO=0.58 *1* for 211+212.
		476	660.1+y	(13⁻)	E2	DCO=0.98 *1*.
1267.0+y	(13⁺)	223	1044.0+y	(12⁺)	M1+E2	DCO=0.66 *7*.
		418	849.1+y	(11⁺)	E2	DCO=1.04 *13*.
		606	660.1+y	(13⁻)		DCO=0.94 *11*.
		737	530.2+y	(12⁻)	[E1]	DCO=1.15 *10*. Mult.: Assigned M1 by 1998Cu01.
1436.3+y	(16⁻)	300	1135.7+y	(15⁻)	M1+E2	DCO=0.55 *1*.
		512	923.8+y	(14⁻)	E2	DCO=0.95 *6*.
1505.7+y	(14⁺)	239	1267.0+y	(13⁺)	M1+E2	DCO=0.57 *5*.
		462	1044.0+y	(12⁺)	E2	DCO=1.03 *7*.
		582	923.8+y	(14⁻)	[E1]	DCO=0.90 *10*. Mult.: Assigned (M1) by 1998Cu01.
		844	660.1+y	(13⁻)	[E1]	DCO=0.62 *4*. Mult.: Assigned (M1) by 1998Cu01.
1719.2+y	(17⁻)	284	1436.3+y	(16⁻)	M1+E2	DCO=0.59 *6*.
		583	1135.7+y	(15⁻)	E2	DCO=1.03 *7*.
1769.6+y	(15⁺)	263	1505.7+y	(14⁺)	M1+E2	DCO=0.51 *3*.
		502	1267.0+y	(13⁺)	E2	DCO=0.93 *11*.
		634	1135.7+y	(15⁻)		
		847	923.8+y	(14⁻)	[E1]	DCO=0.84 *8*. Mult.: Assigned M1 by 1998Cu01.
2037.2+y	(16⁺)	267	1769.6+y	(15⁺)		
		532	1505.7+y	(14⁺)	E2	DCO=1.00 *4*.
		598	1436.3+y	(16⁻)		
		903	1135.7+y	(15⁻)		
2045.9+y	(18⁻)	327	1719.2+y	(17⁻)	M1+E2	DCO=0.61 *4*.
		610	1436.3+y	(16⁻)	E2	DCO=1.04 *9*.
2337.6+y	(17⁺)	300	2037.2+y	(16⁺)		
		568	1769.6+y	(15⁺)	E2	DCO=1.12 *8*.
		901	1436.3+y	(16⁻)	[E1]	DCO=0.36 *4*. Mult.: Assigned M1 by 1998Cu01.
2387.8+y	(17⁺)	952	1436.3+y	(16⁻)	D	DCO=1.0<.
2390.0+y	(19⁻)	344	2045.9+y	(18⁻)		
		671	1719.2+y	(17⁻)	E2	DCO=1.00 *13*.
2640.1+y	(18⁺)	303	2337.6+y	(17⁺)		
		602	2037.2+y	(16⁺)	E2	DCO=1.01 *5*.
		921	1719.2+y	(17⁻)		
2685.1+y	(18⁺)	966	1719.2+y	(17⁻)	(E1)	DCO=0.55 *19*.

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$\gamma(^{156}Ho)$ (continued)

E_i(level)	J^π_i	E_γ	E_f	J^π_f	Mult.	Comments
2738.7+y	(20^-)	348	2390.0+y	(19^-)		
		693	2045.9+y	(18^-)	E2	DCO=0.92 *11*.
2907.4+y	(19^+)	520	2387.8+y	(17^+)		
		861	2045.9+y	(18^-)	(E1)	DCO=0.45 *3*.
2969.6+y	(19^+)	329	2640.1+y	(18^+)		
		631	2337.6+y	(17^+)	E2	DCO=0.89 *3*.
		925	2045.9+y	(18^-)		
3133.6+y	(21^-)	394	2738.7+y	(20^-)		
		744	2390.0+y	(19^-)	E2	DCO=0.97 *7*.
3197.0+y	(20^+)	290	2907.4+y	(19^+)	M1+E2	DCO=0.59 *10*.
		512	2685.1+y	(18^+)	E2	DCO=0.92 *11*.
		807	2390.0+y	(19^-)	(E1)	DCO=0.49 *8*.
3315.9+y	(20^+)	346	2969.6+y	(19^+)		
		676	2640.1+y	(18^+)	E2	DCO=0.87 *6*.
		926	2390.0+y	(19^-)		
3448.8+y	(21^+)	252	3197.0+y	(20^+)	M1+E2	DCO=0.54 *7*.
		541	2907.4+y	(19^+)	E2	DCO=0.91 *16*.
		710	2738.7+y	(20^-)	(E1)	DCO=0.52 *4*.
3496.3+y	(22^-)	362	3133.6+y	(21^-)		
		758	2738.7+y	(20^-)	E2	DCO=1.08 *12*.
3668.8+y	(21^+)	352	3315.9+y	(20^+)		
		699	2969.6+y	(19^+)	E2	DCO=0.91 *7*.
3764.6+y	(22^+)	316	3448.8+y	(21^+)	M1+E2	DCO=0.47 *7*.
		568	3197.0+y	(20^+)	E2	DCO=0.94 *19*.
3930.5+y	(23^-)	433	3496.3+y	(22^-)		
		797	3133.6+y	(21^-)	E2	DCO=0.98 *19*.
4057.3+y	(23^+)	293	3764.6+y	(22^+)	M1+E2	DCO=0.52 *8*.
		561	3496.3+y	(22^-)		
		608	3448.8+y	(21^+)	E2	DCO=0.95 *10*.
4066.8+y	(22^+)	396	3668.8+y	(21^+)		
		752	3315.9+y	(20^+)	E2	DCO=0.97 *7*.
4297.2+y	(24^-)	366	3930.5+y	(23^-)		
		802	3496.3+y	(22^-)	E2	DCO=0.90 *12*.
4413.3+y	(24^+)	356	4057.3+y	(23^+)	M1+E2	DCO=0.48 *17*.
		649	3764.6+y	(22^+)	E2	DCO=1.45 *28*.
4439.8+y	(23^+)	372	4066.8+y	(22^+)		
		772	3668.8+y	(21^+)	E2	DCO=0.96 *7*.
4749.6+y	(25^+)	337	4413.3+y	(24^+)		
		692	4057.3+y	(23^+)	E2	DCO=0.91 *11*.
4750.8+y	(25^-)	454	4297.2+y	(24^-)		
		820	3930.5+y	(23^-)	E2	DCO=1.06 *25*.
4922.8+y	(24^+)	856	4066.8+y	(22^+)	E2	DCO=0.83 *9*.
5123.2+y	(26^-)	373	4750.8+y	(25^-)		

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Adopted Levels, Gammas (continued)

$\gamma(^{156}Ho)$ (continued)

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Mult.	Comments
5123.2+y	(26^-)	826	4297.2+y	(24^-)		
5139.7+y	(26^+)	390	4749.6+y	(25^+)		
		726	4413.3+y	(24^+)	E2	DCO=0.87 *10*.
5301.8+y	(25^+)	862	4439.8+y	(23^+)		
5525.3+y	(27^+)	385	5139.7+y	(26^+)		
		776	4749.6+y	(25^+)	E2	DCO=0.97 *14*.
5587.5+y	(27^-)	464	5123.2+y	(26^-)		
		836	4750.8+y	(25^-)		
5853.8+y	(26^+)	931	4922.8+y	(24^+)	E2	DCO=0.97 *14*.
5939.5+y	(28^+)	414	5525.3+y	(27^+)		
		800	5139.7+y	(26^+)	E2	DCO=0.61 *7*.
5978.3+y	(28^-)	390	5587.5+y	(27^-)		
		856	5123.2+y	(26^-)		
6214.8+y	(27^+)	913	5301.8+y	(25^+)		
6393.3+y	(29^+)	868	5525.3+y	(27^+)	E2	DCO=0.87 *12*.
6464.5+y	(29^-)	877	5587.5+y	(27^-)		
6809.8+y	(28^+)	956	5853.8+y	(26^+)	E2	DCO=1.20 *28*.
6818.5+y	(30^+)	879	5939.5+y	(28^+)	E2	DCO=1.00 *17*.
6884.3+y	(30^-)	906	5978.3+y	(28^-)		
7066.8+y	(29^+)	852	6214.8+y	(27^+)		
7328.3+y	(31^+)	935	6393.3+y	(29^+)	E2	DCO=1.02 *13*.
7402.5+y	(31^-)	938	6464.5+y	(29^-)		
7701+y	(30^+)	891	6809.8+y	(28^+)		
7745.5+y	(32^+)	927	6818.5+y	(30^+)	E2	DCO=1.07 *27*.
7854.4+y	(32^-)	970	6884.3+y	(30^-)		
8291+y	(33^+)	963	7328.3+y	(31^+)		
8411+y	(33^-)	1009	7402.5+y	(31^-)		
8611+y	(32^+)	910	7701+y	(30^+)		
8682+y	(34^+)	937	7745.5+y	(32^+)		
8890+y	(34^-)	1036	7854.4+y	(32^-)		
9290+y	(35^+)	999	8291+y	(33^+)		
9489+y	(35^-)	1078	8411+y	(33^-)		
9628+y	(36^+)	946	8682+y	(34^+)		
9994+y	(36^-)	1104	8890+y	(34^-)		
10248+y	(37^+)	958	9290+y	(35^+)		
227.9+z	(13)	228	0+z	(12)	M1	DCO=0.40 *2*.
484.1+z	(14)	256	227.9+z	(13)		
		484	0+z	(12)		
761.7+z	(15)	278	484.1+z	(14)		
		534	227.9+z	(13)		
1056.7+z	(16)	295	761.7+z	(15)		
		572	484.1+z	(14)	E2	DCO=0.91 *7*.
1367.1+z	(17)	310	1056.7+z	(16)		

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$\gamma(^{156}Ho)$ (continued)

E_i(level)	J^π_i	E_γ	E_f	J^π_f	Mult.	Comments
1367.1+z	(17)	606	761.7+z	(15)	E2	DCO=1.09 *5*.
1691.0+z	(18)	324	1367.1+z	(17)		
		634	1056.7+z	(16)		
2023.9+z	(19)	657	1367.1+z	(17)		
2365.2+z	(20)	674	1691.0+z	(18)		
2700.1+z	(21)	676	2023.9+z	(19)	E2	DCO=1.21 *9*.
2823.5+z	(21)	800	2023.9+z	(19)	E2	DCO=1.31 *18*.
2984.3+z	(22)	161	2823.5+z	(21)		
		619	2365.2+z	(20)	E2	DCO=1.16 *10*.
3043.2+z	(22)	678	2365.2+z	(20)		
3234.3+z	(23)	250	2984.3+z	(22)		
		411	2823.5+z	(21)		
		534	2700.1+z	(21)		
3379.1+z	(23)	679	2700.1+z	(21)		
3501.4+z	(24)	267	3234.3+z	(23)		
		517	2984.3+z	(22)		
3781.2+z	(24)	738[#]	3043.2+z	(22)		
3789.2+z	(25)	288	3501.4+z	(24)		
		555	3234.3+z	(23)		
4064.1+z	(25)	685	3379.1+z	(23)		
4103.7+z	(26)	315	3789.2+z	(25)		
		602	3501.4+z	(24)		
4443.3+z	(27)	340	4103.7+z	(26)		
		654	3789.2+z	(25)		
4803.1+z	(27)	739	4064.1+z	(25)		
4804.0+z	(28)	361	4443.3+z	(27)		
		700	4103.7+z	(26)		
5191.3+z	(29)	748	4443.3+z	(27)		
5598.0+z	(30)	794	4804.0+z	(28)		
5612+z	(29)	809	4803.1+z	(27)		
6030.3+z	(31)	839	5191.3+z	(29)		
6477.0+z	(32)	879	5598.0+z	(30)		
6951.3+z	(33)	921	6030.3+z	(31)		
7436+z	(34)	959	6477.0+z	(32)		
7945+z	(35)	994	6951.3+z	(33)		
8467+z	(36)	1031	7436+z	(34)		
9016+z	(37)	1071	7945+z	(35)		
161.9+u	(12)	162	0+u	(11)		
324.1+u	(13)	163	161.9+u	(12)		
		324	0+u	(11)		
541.5+u	(14)	218	324.1+u	(13)		
		379	161.9+u	(12)		
758.1+u	(15)	217	541.5+u	(14)		
		434	324.1+u	(13)		

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Adopted Levels, Gammas (continued)

$\gamma(^{156}Ho)$ (continued)

E_i(level)	J^π_i	E_γ	E_f	J^π_f	E_i(level)	J^π_i	E_γ	E_f	J^π_f	E_i(level)	J^π_i	E_γ	E_f	J^π_f
1023.9+u	(16)	266	758.1+u	(15)	2557.7+u	(21)	666	1891.6+u	(19)	3953+v	(32)	880	3073+v	(30)
		482	541.5+u	(14)	2902.8+u	(22)	345	2557.7+u	(21)	4890+v	(34)	937	3953+v	(32)
1285.9+u	(17)	262	1023.9+u	(16)			674	2228.8+u	(20)	5878+v	(36)	988	4890+v	(34)
		528	758.1+u	(15)	3285.7+u	(23)	728	2557.7+u	(21)	6911+v	(38)	1033	5878+v	(36)
1592.1+u	(18)	306	1285.9+u	(17)	3581.8+u	(24)	679	2902.8+u	(22)	624+w	(26)	624	0+w	(24)
		568	1023.9+u	(16)	4039.7+u	(25)	754	3285.7+u	(23)	1304+w	(28)	680	624+w	(26)
1891.6+u	(19)	299	1592.1+u	(18)	4828.7+u	(27)	789	4039.7+u	(25)	2068+w	(30)	764	1304+w	(28)
		606	1285.9+u	(17)	696+v	(24)	696	0+v	(22)	2922+w	(32)	854	2068+w	(30)
2228.8+u	(20)	337	1891.6+u	(19)	1450+v	(26)	754	696+v	(24)	3843+w	(34)	921	2922+w	(32)
		637	1592.1+u	(18)	2242+v	(28)	792	1450+v	(26)	4814+w	(36)	971	3843+w	(34)
2557.7+u	(21)	329	2228.8+u	(20)	3073+v	(30)	831	2242+v	(28)	5821+w	(38)	1007	4814+w	(36)

† γ reported by 2003KaZQ in ε decay, but not explicitly placed by them. Placement is that of the evaluator.

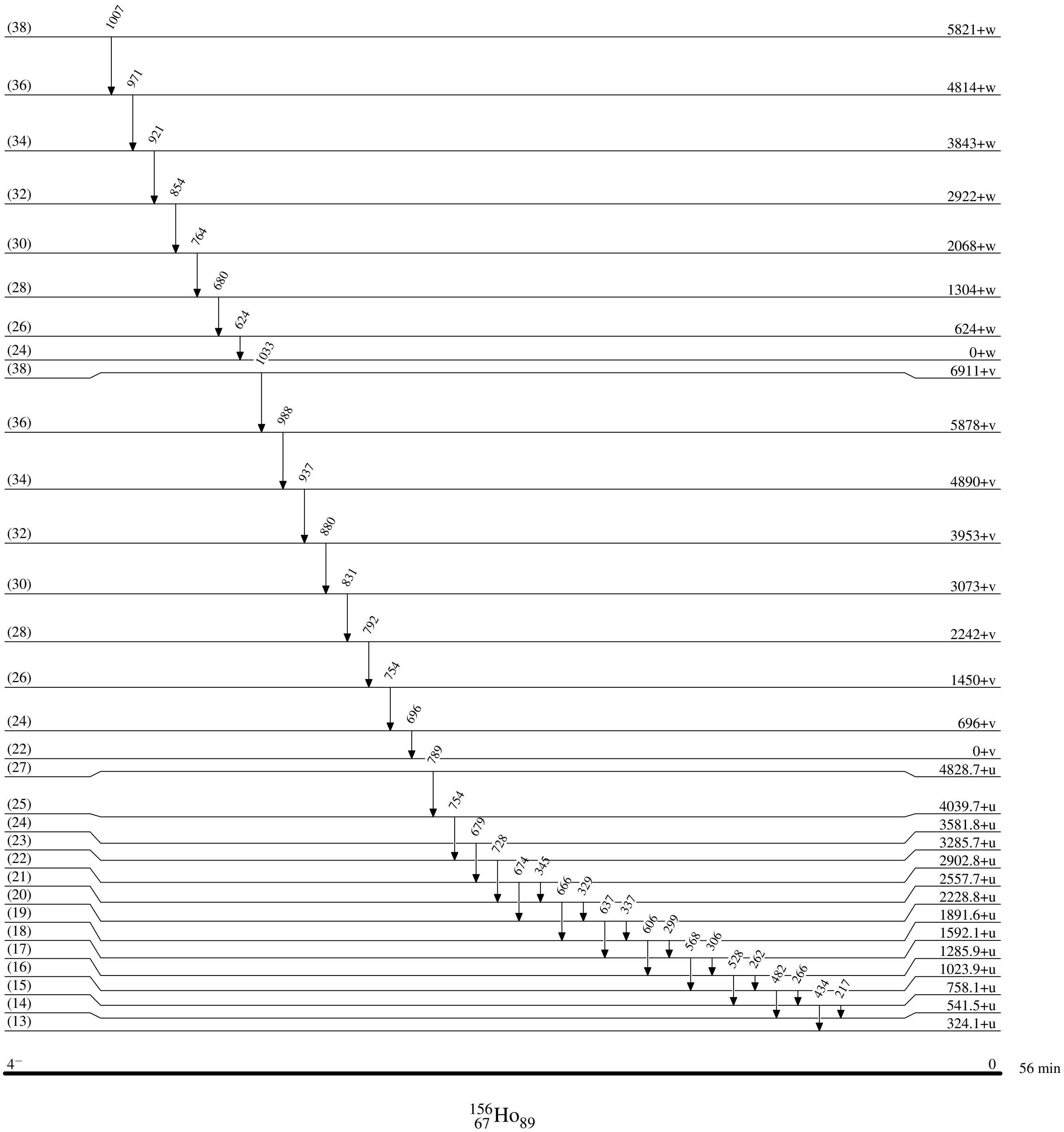
‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

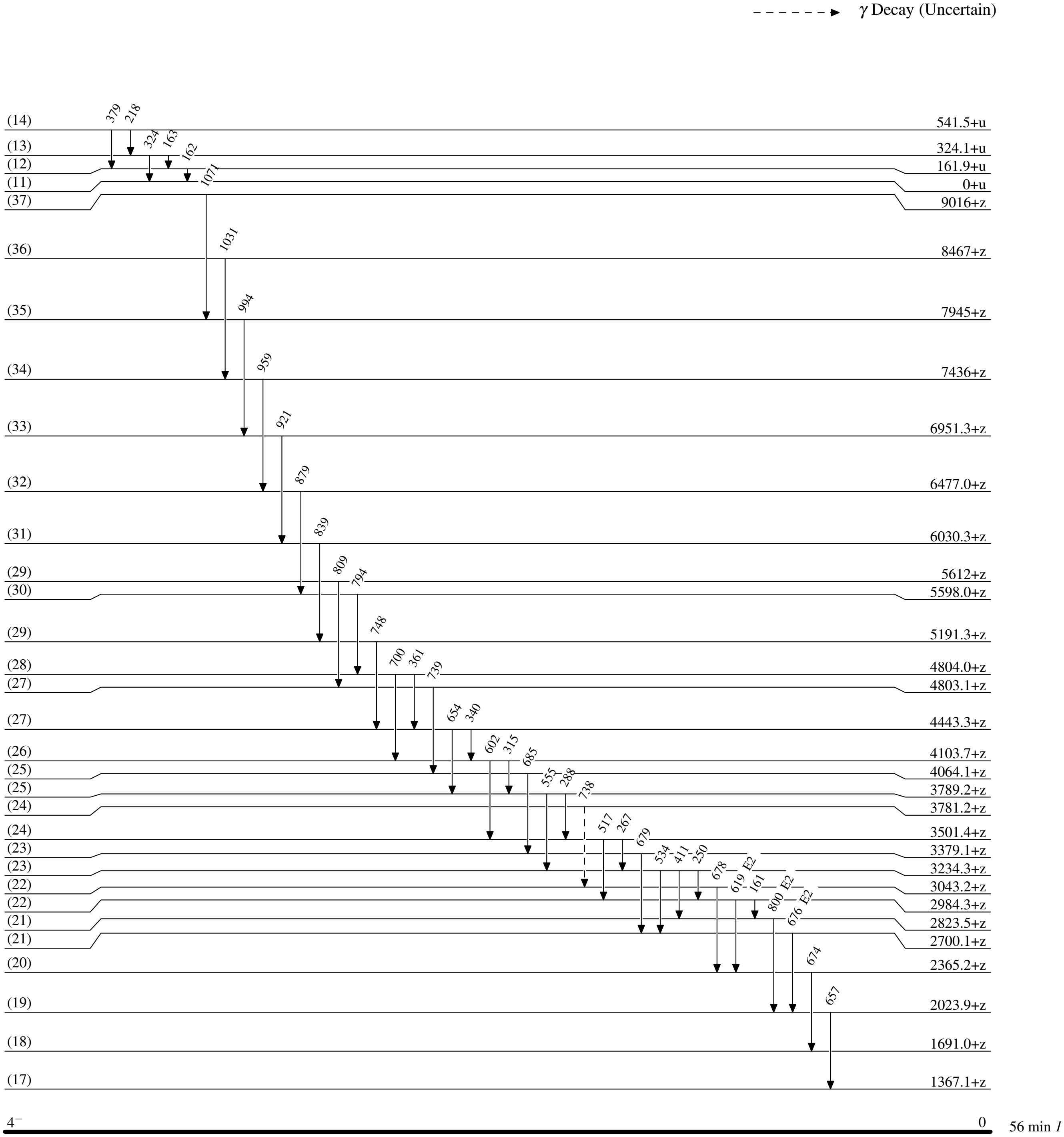
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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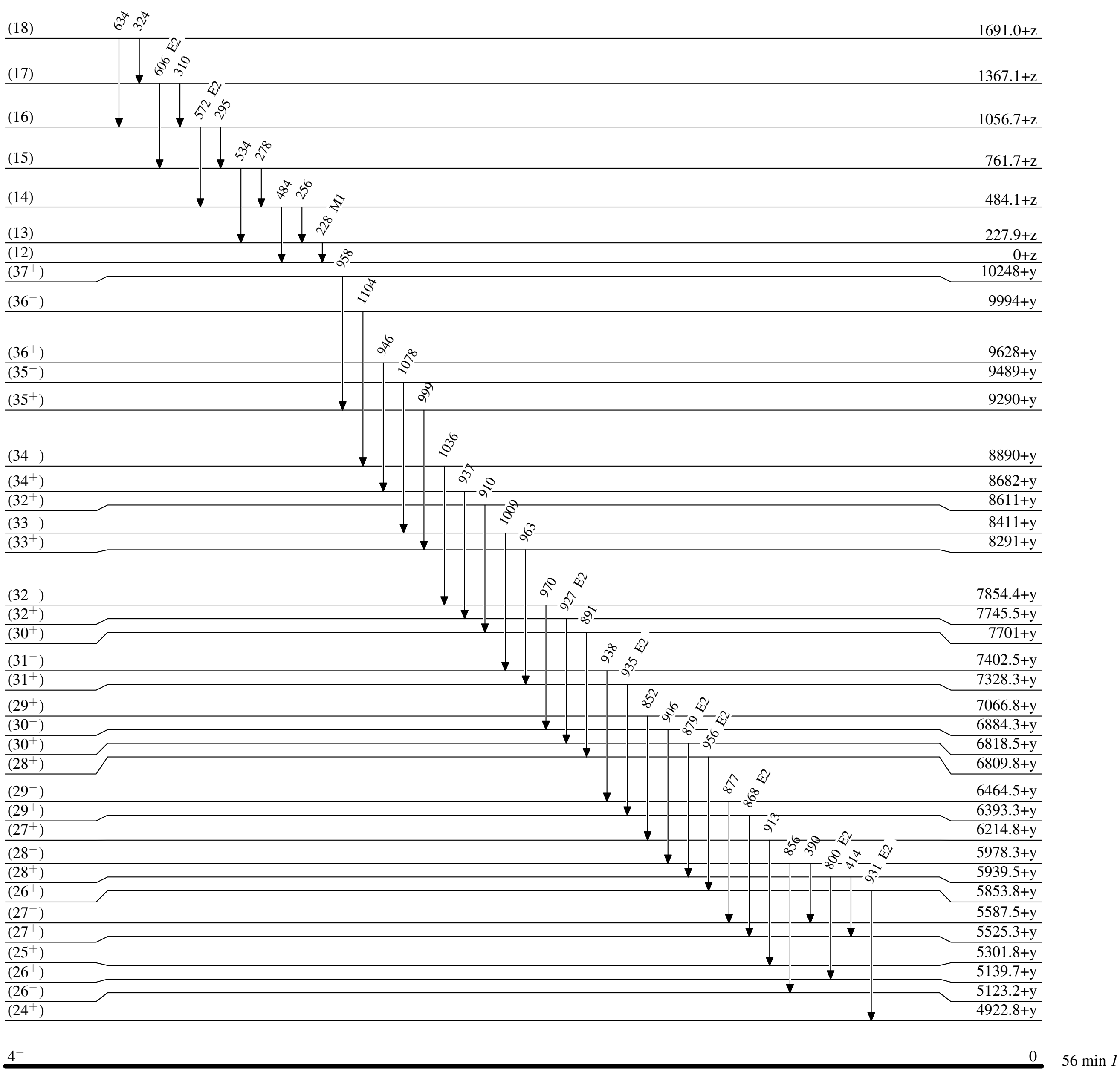
Adopted Levels, Gammas

Level Scheme (continued)

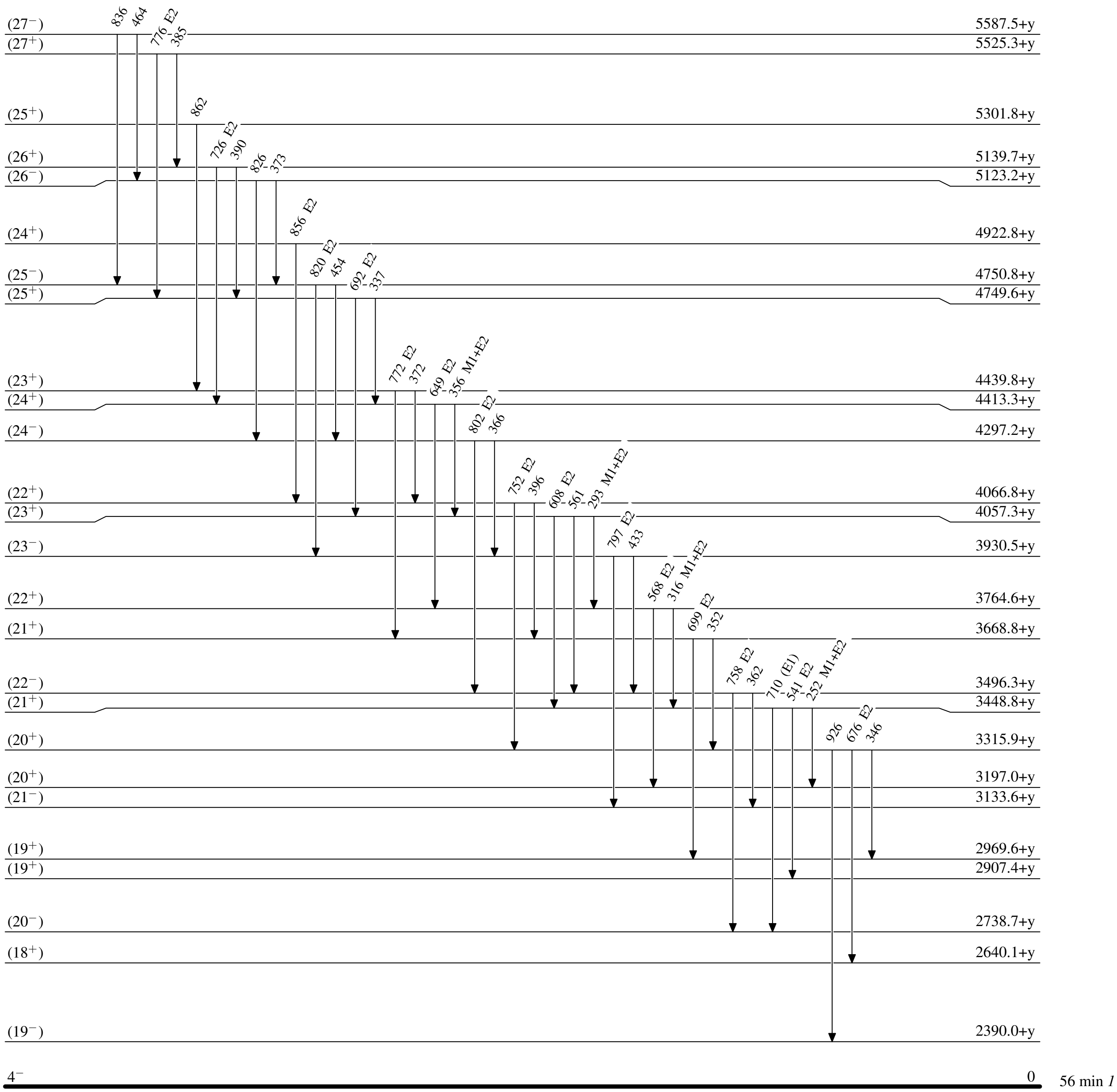
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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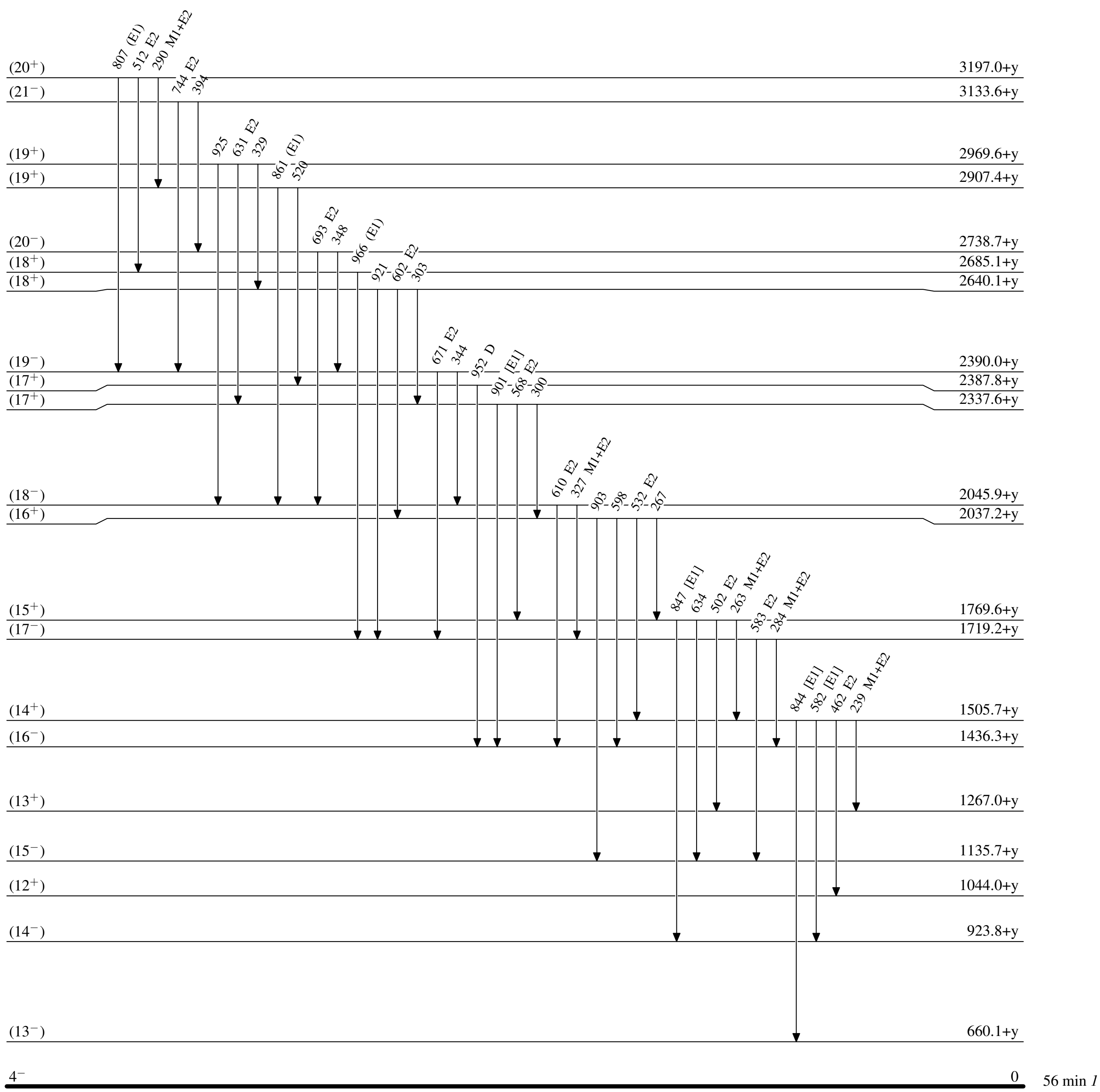
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



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Adopted Levels, Gammas

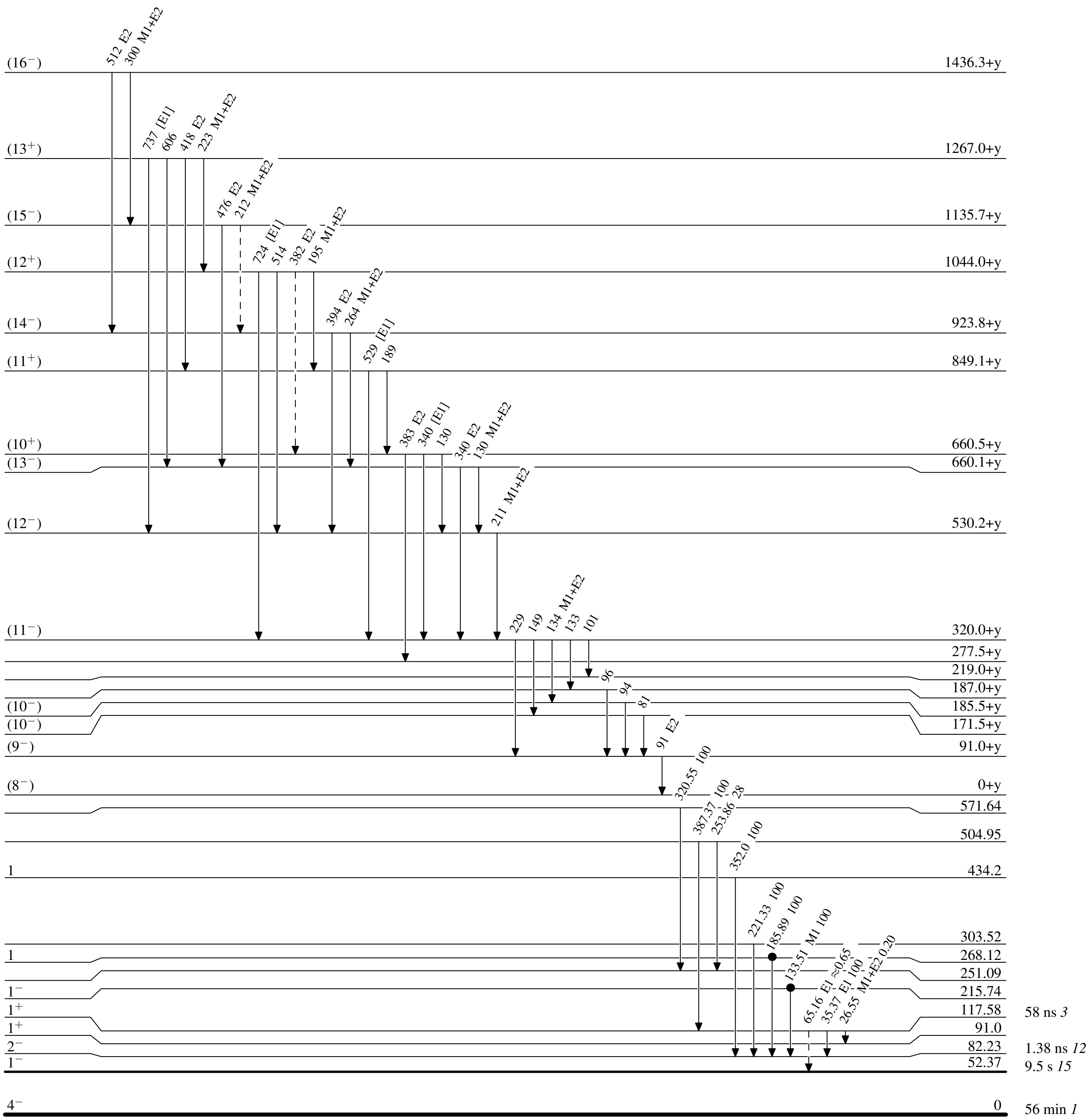
Level Scheme (continued)

Intensities: Relative photon branching from each level

Legend

γ Decay (Uncertain)

Coincidence



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Adopted Levels, Gammas

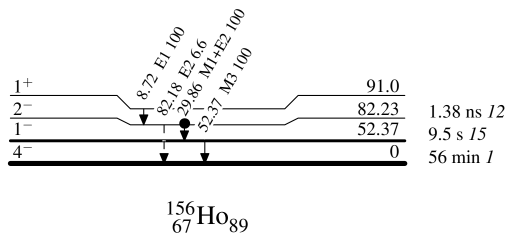
Level Scheme (continued)

Intensities: Relative photon branching from each level

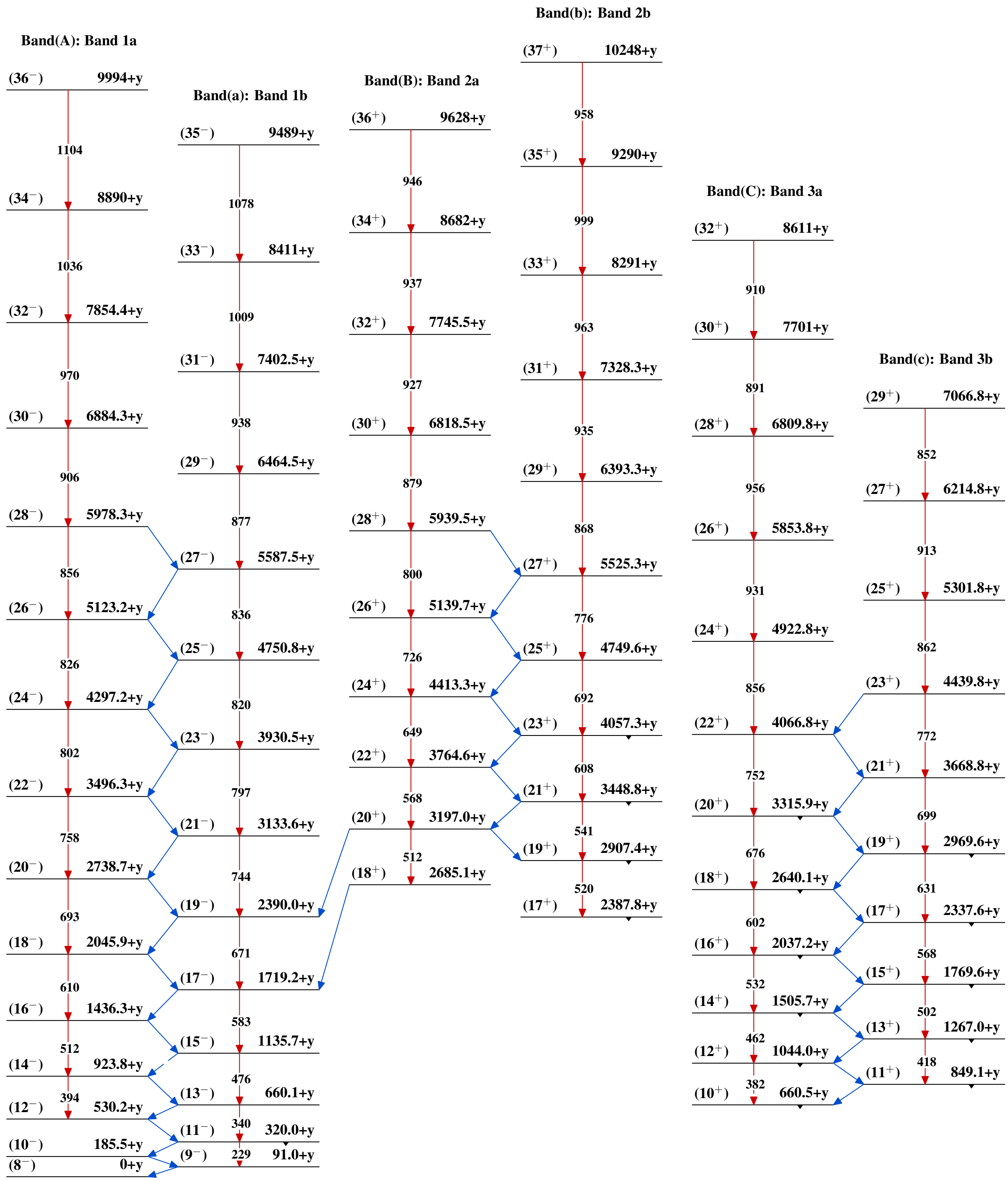
Legend

γ Decay (Uncertain)

Coincidence



Adopted Levels, Gammas



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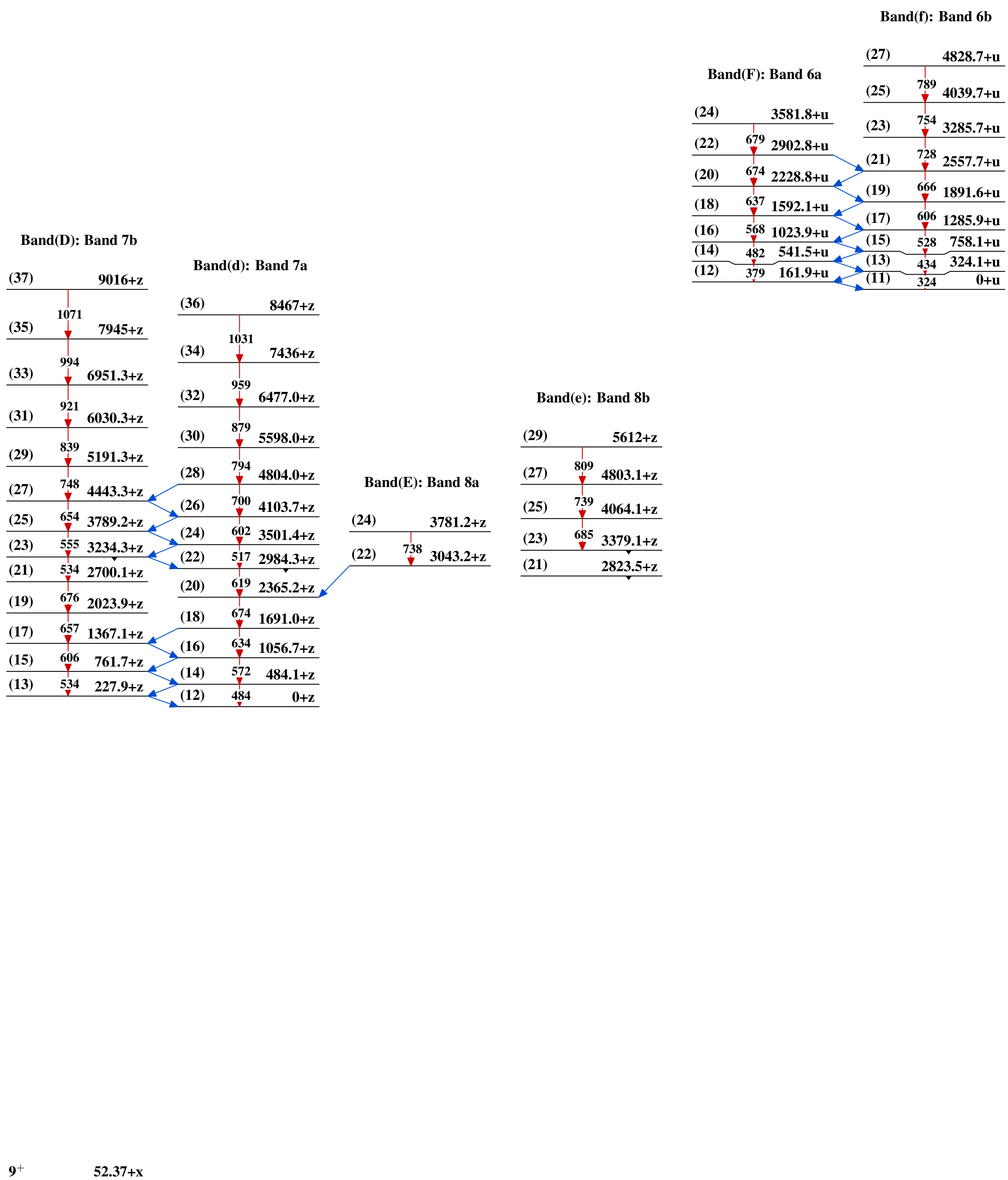
Adopted Levels, Gammas (continued)



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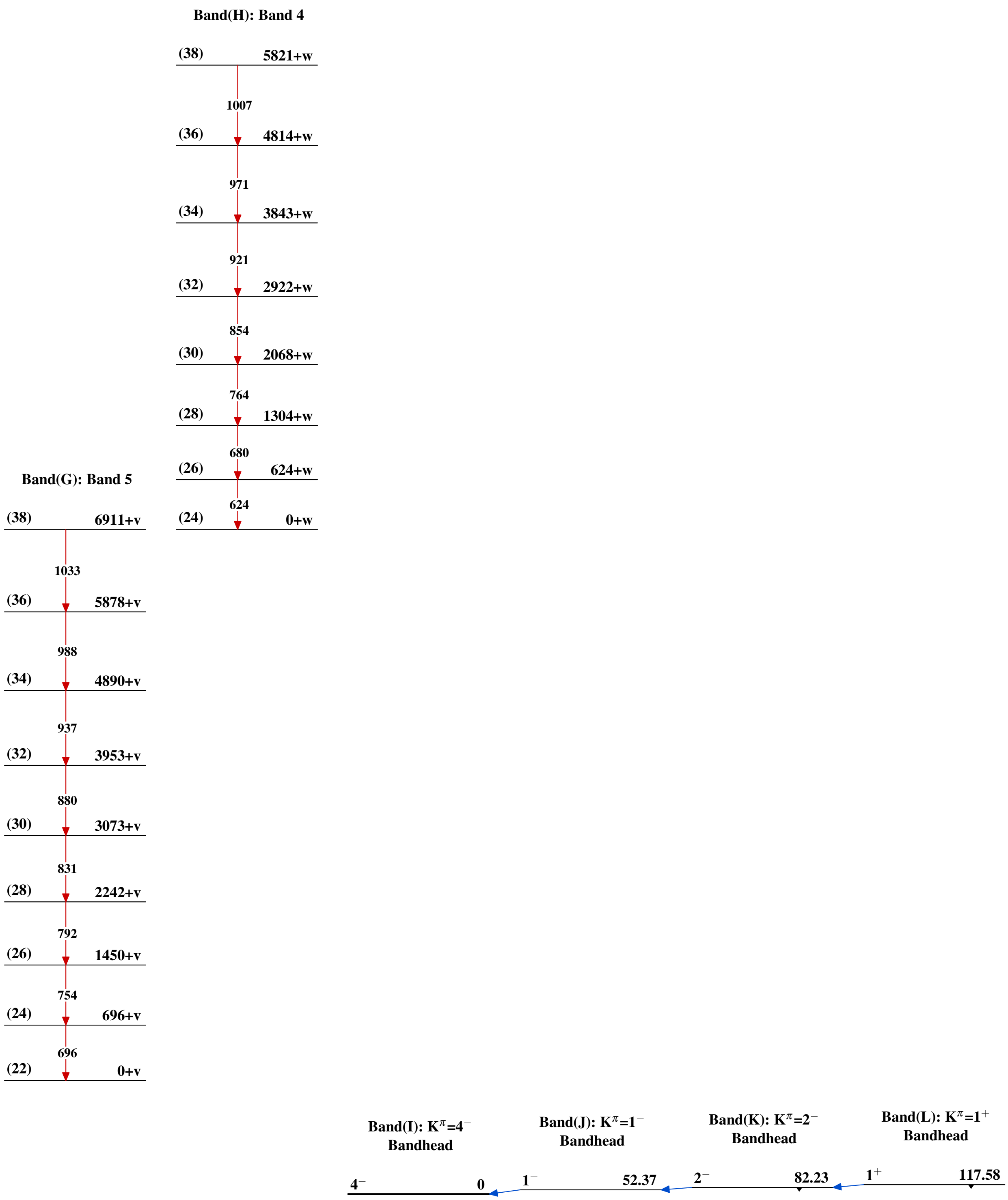
Adopted Levels, Gammas (continued)



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