

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111,717 (2010)	1-Dec-2009

$Q(\beta^-) = -4.45 \times 10^3$ 10; $S(n) = 9.23 \times 10^3$ 10; $S(p) = 2.72 \times 10^3$ 10; $Q(\alpha) = 1.68 \times 10^3$ 10 [2012Wa38](#)

Note: Current evaluation has used the following Q record $-4.45\text{E}+3$ 109230 1020.72×10^3 101.68 $\times 10^3$ 10 [2003Au03](#), [2009AuZZ](#).

 ^{116}I LevelsCross Reference (XREF) Flags

A	^{116}Xe ε decay	D	(HI, xny)
B	^{116}I IT decay	E	$^{103}\text{Rh}(^{16}\text{O}, 3\text{n}\gamma)$
C	$^{106}\text{Cd}(^{12}\text{C}, \text{pn}\gamma)$		

E(level)	J^π	$T_{1/2}$	XREF	Comments
0.0	1^+	2.91 s 15	ABC	$\% \varepsilon + \% \beta^+ = 100$ $T_{1/2}$: from 1976Go02 . Others: 1969Ha03 , 1974Ha10 . J^π : log $ft = 4.4$ to 0^+ level.
0+x				
104.3 3				
214.2 4				
227.0 3	(3^+)			
320.3 5				
341.1 4	(4^+)			
376.5 4	(5^+)			
386.1 5				
430.4 ^d 5	(7^-)	3.27 μs	BCDE	J^π : (M1) γ from (8^-) and syst. Configuration= $((\pi \text{ g}_{9/2})^{-1}(\nu \text{ h}_{11/2}))$. $T_{1/2}$: from 1990Wu01 .
468.5 ^{&} 4	(8^-)		CDE	
479.8 4			E	
519.0 4			E	
560.0 ^b 5	(9^-)		E	
570.7 ^e 5	(8^-)		CDE	
571.6 4			E	
647.8+x			E	
664.5 5			E	
702.6+x			E	
791.7 ^d 5	(9^-)		CDE	
874.3 4	(8^+)		E	
1063.7 4	(9^+)		E	
1075.1 ^e 5	(10^-)		CDE	
1097.3 [‡] 4	(10^+)		DE	
1132.2 ^{&} 5	(10^-)		E	
1260.4+x ^c	(12^-)		E	
1316.3 ^b 6	(9^-)		E	
1345.5 [#] 5	(11^+)		DE	
1399.2 ^d 5	(11^-)		CDE	
1565.7 [‡] 5	(12^+)		DE	
1756.7 ^e 5	(12^-)		CDE	
1829.8 ^{&} 5	(12^-)		E	
1874.2 [#] 5	(13^+)		DE	
1933.2+x ^c			E	

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Adopted Levels, Gammas (continued) ^{116}I Levels (continued)

E(level)	J^π	XREF	E(level)	J^π	XREF	E(level)	J^π	XREF
2143.7 ^d 5	(13 ⁻)	CDE	3563.8+x ^c		E	6215.0 ^a 7	(24 ⁻)	DE
2185.8 ^b 7		E	3818.8 [‡] 6	(18 ⁺)	DE	6243.5 [@] 7	(23 ⁺)	E
2186.9 [‡] 5	(14 ⁺)	DE	3950.0 ^d 6	(17 ⁻)	E	6262.3 [#] 7	(23 ⁺)	DE
2532.7 [#] 5	(15 ⁺)	DE	4104.3 ^a 6	(18 ⁻)	DE	7081.7 [‡] 3	(24 ⁺)	D
2547.6 ^a 5	(14 ⁻)	DE	4197.5 [#] 6	(19 ⁺)	DE	7170.1 [@] 7	(25 ⁺)	E
2559.7 ^e 5	(14 ⁻)	E	4331.3 [@] 6	(19 ⁺)	E	7229.5 8		E
2689.3 6		E	4447.6 ^e 6	(18 ⁻)	E	7435.6 [#] 2	(25 ⁺)	D
2709.4+x ^c		E	4806.4 [‡] 7	(20 ⁺)	DE	8188.0 7		E
2936.0 [‡] 5	(16 ⁺)	DE	4980.0 ^a 7	(20 ⁻)	DE	8354.3 [‡] 2	(26 ⁺)	D
2998.9 ^d 5	(15 ⁻)	E	5186.6 [#] 6	(21 ⁺)	DE	8680.6 [#] 2	(27 ⁺)	D
3293.4 [#] 6	(17 ⁺)	DE	5248.0 [@] 7	(21 ⁺)	E	9691.3 [‡] 2	(28 ⁺)	D
3295.9 ^a 5	(16 ⁻)	DE	5887.7 ^a 7	(22 ⁻)	DE	10002.6 [#] 2	(29 ⁺)	D
3461.8 ^e 5	(16 ⁻)	E	5895.6 [‡] 2	(22 ⁺)	D	11124.3 [‡] 2	(30 ⁺)	D
3527.0 [@] 6	(17 ⁺)	E	5938.8 7	(22 ⁻)	E	11402.6 [#] 2	(31 ⁺)	D

[†] From assignment to band, in addition to specific arguments given.

[‡] Band(A): $\pi 1/2[550]\nu 3/2[541]$, $\alpha=0$.

[#] Band(a): $\pi 1/2[550]\nu 3/2[541]$, $\alpha=1$.

[@] Band(B): $\pi h_{11/2}\nu h_{11/2}$. At higher frequencies, crossing may be due to $\nu 5/2[532]$ pair in the presence of $\pi 1/2[550]\nu 3/2[541]$.

[&] Band(C): $\pi 3/2[422]\nu 3/2[541]$, $\alpha=0$.

^a Band(c): $\pi 1/2[550]\nu 5/2[413]$. coupled to $\pi 3/2[422]^2$ at low spins (16-20); above 20⁻, it is non-collective with 24⁻ as fully aligned 6 qp state: $\pi(h_{11/2}g_{7/2}^2)\nu(g_{7/2}h_{11/2}^2)$.

^b Band(D): $\pi 3/2[422]\nu 3/2[541]$, $\alpha=1$.

^c Band(E): $\pi h_{11/2}\nu g_{7/2}$. coupled to Xe core rotational states.

^d Band(F): $\pi 9/2[404]\nu 3/2[541]$, $\alpha=1$.

^e Band(f): $\pi 9/2[404]\nu 3/2[541]$, $\alpha=0$.

 $\gamma(^{116}\text{I})$

$E_i(\text{level})$	J_i^π	E_γ [‡]	I_γ [‡]	E_f	J_f^π	Mult. [†]	Comments
104.3		104.3 3	100	0.0	1 ⁺		
214.2		109.9 3	100	104.3			
227.0	(3 ⁺)	227.0 3	100	0.0	1 ⁺	E2	
320.3		106.1 3	100	214.2			
341.1	(4 ⁺)	114.1 3	100	227.0	(3 ⁺)	M1+E2	
376.5	(5 ⁺)	35.4 3		341.1	(4 ⁺)		
		149.5 3	100 9	227.0	(3 ⁺)	E2	
386.1		65.8 3	100	320.3			
430.4	(7 ⁻)	44.3 3	100	386.1			
468.5	(8 ⁻)	92.0 ^{&} 3	100	376.5	(5 ⁺)	E3	
479.8		138.7 3	100	341.1	(4 ⁺)	#	
519.0		39.2 3		479.8			
		50.5 3		468.5	(8 ⁻)		
		142.5 3	68 16	376.5	(5 ⁺)	#	
		177.9 3	100 18	341.1	(4 ⁺)		
560.0	(9 ⁻)	91.5 ^{&} 3	100	468.5	(8 ⁻)		
570.7	(8 ⁻)	140.3 3	100	430.4	(7 ⁻)	M1	
571.6		103.1 3	91 9	468.5	(8 ⁻)		Mult.: $\Delta J=1$ transition.

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Adopted Levels, Gammas (continued)

$\gamma(^{116}\text{I})$ (continued)						
$E_i(\text{level})$	J_i^π	$E_\gamma^{\ddagger}$	$I_\gamma^{\ddagger}$	E_f	J_f^π	Mult. [†]
571.6		195.1 3	100 8	376.5	(5 ⁺)	
647.8+x		647.8 ^a	100	0+x		
664.5		184.7 3	100 5	479.8		#
		288 ^a		376.5	(5 ⁺)	
791.7	(9 ⁻)	221.0 3	100	570.7	(8 ⁻)	M1+E2 [@]
874.3	(8 ⁺)	209.8 3	9.9 16	664.5		#
		302.7 3	50.5 24	571.6		#
		355.3 3	100.0 21	519.0		#
		405.8 3	6.8 10	468.5	(8 ⁻)	
1063.7	(9 ⁺)	189.4 3	100.0 24	874.3	(8 ⁺)	M1+E2
		595.2 3	18.7 13	468.5	(8 ⁻)	E1
1075.1	(10 ⁻)	283.4 3	100 8	791.7	(9 ⁻)	M1+E2 [@]
		504.4 3	16 3	570.7	(8 ⁻)	E2 [@]
1097.3	(10 ⁺)	33.6 3		1063.7	(9 ⁺)	M1+E2
		223.0 3	100.0 22	874.3	(8 ⁺)	E2
		537.3 3	16.2 14	560.0	(9 ⁻)	E1
1132.2	(10 ⁻)	572.7 ^a		560.0	(9 ⁻)	
		663.7 3	100 6	468.5	(8 ⁻)	E2
1260.4+x	(12 ⁻)	557.8 ^a		702.6+x		
		612.6 ^a		647.8+x		
1316.3	(9 ⁻)	756.3 ^a	100	560.0	(9 ⁻)	
1345.5	(11 ⁺)	248.2 3	100	1097.3	(10 ⁺)	M1+E2
1399.2	(11 ⁻)	324.1 3	100 10	1075.1	(10 ⁻)	M1+E2 [@]
		607.5 3	30 4	791.7	(9 ⁻)	E2 [@]
1565.7	(12 ⁺)	220.2 3	13.2 7	1345.5	(11 ⁺)	M1+E2
		468.4 3	100.0 20	1097.3	(10 ⁺)	E2
1756.7	(12 ⁻)	357.5 3	100 8	1399.2	(11 ⁻)	M1+E2 [@]
		681.6 3	43 5	1075.1	(10 ⁻)	E2 [@]
1829.8	(12 ⁻)	697.6 3	100 6	1132.2	(10 ⁻)	E2
		754.7 3	<6.4	1075.1	(10 ⁻)	E2
1874.2	(13 ⁺)	308.5 3	100 3	1565.7	(12 ⁺)	M1+E2
		528.7 3	46 4	1345.5	(11 ⁺)	E2
1933.2+x		672.8 ^a	100	1260.4+x	(12 ⁻)	
2143.7	(13 ⁻)	387.0 3	100 10	1756.7	(12 ⁻)	M1+E2 [@]
		744.5 3	67 10	1399.2	(11 ⁻)	E2 [@]
2185.8		869.5 ^a	100	1316.3	(9 ⁻)	
2186.9	(14 ⁺)	312.7 3	<2.47	1874.2	(13 ⁺)	M1+E2
		621.2 3	100.0 25	1565.7	(12 ⁺)	E2
2532.7	(15 ⁺)	345.8 3	72 3	2186.9	(14 ⁺)	M1+E2
		658.5 3	100 4	1874.2	(13 ⁺)	E2
2547.6	(14 ⁻)	403.9 3	50 9	2143.7	(13 ⁻)	M1+E2 [@]
		673.4 3	<9.9	1874.2	(13 ⁺)	E1
		717.8 3	100 9	1829.8	(12 ⁻)	E2
		790.9 3	58 6	1756.7	(12 ⁻)	E2
2559.7	(14 ⁻)	416.0 3	100 13	2143.7	(13 ⁻)	M1+E2 [@]
		803.0 3	82 13	1756.7	(12 ⁻)	E2
2689.3		859.5 3	100	1829.8	(12 ⁻)	
2709.4+x		776.2 ^a	100	1933.2+x		
2936.0	(16 ⁺)	749.1 3	100	2186.9	(14 ⁺)	E2
2998.9	(15 ⁻)	439.2 3	66 19	2559.7	(14 ⁻)	M1+E2 [@]

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Adopted Levels, Gammas (continued)

$\gamma(^{116}\text{I})$ (continued)						
$E_i(\text{level})$	J_i^π	$E_\gamma^\ddagger$	$I_\gamma^\ddagger$	E_f	J_f^π	Mult. [†]
2998.9	(15 ⁻)	855.2 3	100 22	2143.7	(13 ⁻)	E2
3293.4	(17 ⁺)	357.4 3	46 4	2936.0	(16 ⁺)	M1+E2
		760.7 3	100 4	2532.7	(15 ⁺)	E2
3295.9	(16 ⁻)	736.2 3	<3.8	2559.7	(14 ⁻)	E2
		748.3 3	100 4	2547.6	(14 ⁻)	E2
		763.2 3	<3.8	2532.7	(15 ⁺)	E1
3461.8	(16 ⁻)	462.9 3	84 24	2998.9	(15 ⁻)	M1+E2 [@]
		902.1 3	100 20	2559.7	(14 ⁻)	E2
3527.0	(17 ⁺)	994.3 3	100	2532.7	(15 ⁺)	E2
3563.8+x		854.4 ^a	100	2709.4+x		
3818.8	(18 ⁺)	882.8 3	100	2936.0	(16 ⁺)	E2
3950.0	(17 ⁻)	488.2 3	9.×10 ¹ 3	3461.8	(16 ⁻)	M1+E2
		951.1 3	100 22	2998.9	(15 ⁻)	E2
4104.3	(18 ⁻)	808.4 3	100	3295.9	(16 ⁻)	E2
4197.5	(19 ⁺)	378.7 3	31 4	3818.8	(18 ⁺)	M1+E2
		904.1 3	100 4	3293.4	(17 ⁺)	E2
4331.3	(19 ⁺)	804.3 3	100	3527.0	(17 ⁺)	E2
4447.6	(18 ⁻)	497.6 3	1.0×10 ² 4	3950.0	(17 ⁻)	M1+E2
		985.8 3	75 17	3461.8	(16 ⁻)	E2
4806.4	(20 ⁺)	987.6 3	100	3818.8	(18 ⁺)	E2
4980.0	(20 ⁻)	875.7 3	100	4104.3	(18 ⁻)	E2
5186.6	(21 ⁺)	989.1 3	100	4197.5	(19 ⁺)	E2
5248.0	(21 ⁺)	916.7 3	100	4331.3	(19 ⁺)	E2
5887.7	(22 ⁻)	907.7 3	100	4980.0	(20 ⁻)	E2
5895.6	(22 ⁺)	1089.6 1	100	4806.4	(20 ⁺)	
5938.8	(22 ⁻)	958.8 3	100	4980.0	(20 ⁻)	E2
6215.0	(24 ⁻)	276.2 3	28 3	5938.8	(22 ⁻)	E2
		327.3 3	100 11	5887.7	(22 ⁻)	E2
6243.5	(23 ⁺)	995.5 3	100	5248.0	(21 ⁺)	E2
6262.3	(23 ⁺)	1075.7 3	100	5186.6	(21 ⁺)	E2
7081.7	(24 ⁺)	1186.1 1	100	5895.6	(22 ⁺)	
7170.1	(25 ⁺)	907.8 3	100 19	6262.3	(23 ⁺)	E2
		926.6 3	83 16	6243.5	(23 ⁺)	E2
7229.5		1014.5 3	100	6215.0	(24 ⁻)	
7435.6	(25 ⁺)	1172.7 1	100	6262.3	(23 ⁺)	
8188.0		1017.9 3	100	7170.1	(25 ⁺)	
8354.3	(26 ⁺)	1272.6 1	100	7081.7	(24 ⁺)	
8680.6	(27 ⁺)	1245.6 1	100	7435.6	(25 ⁺)	
9691.3	(28 ⁺)	1337 1	100	8354.3	(26 ⁺)	
10002.6	(29 ⁺)	1322 1	100	8680.6	(27 ⁺)	
11124.3	(30 ⁺)	1433 1	100	9691.3	(28 ⁺)	
11402.6	(31 ⁺)	1400 1	100	10002.6	(29 ⁺)	

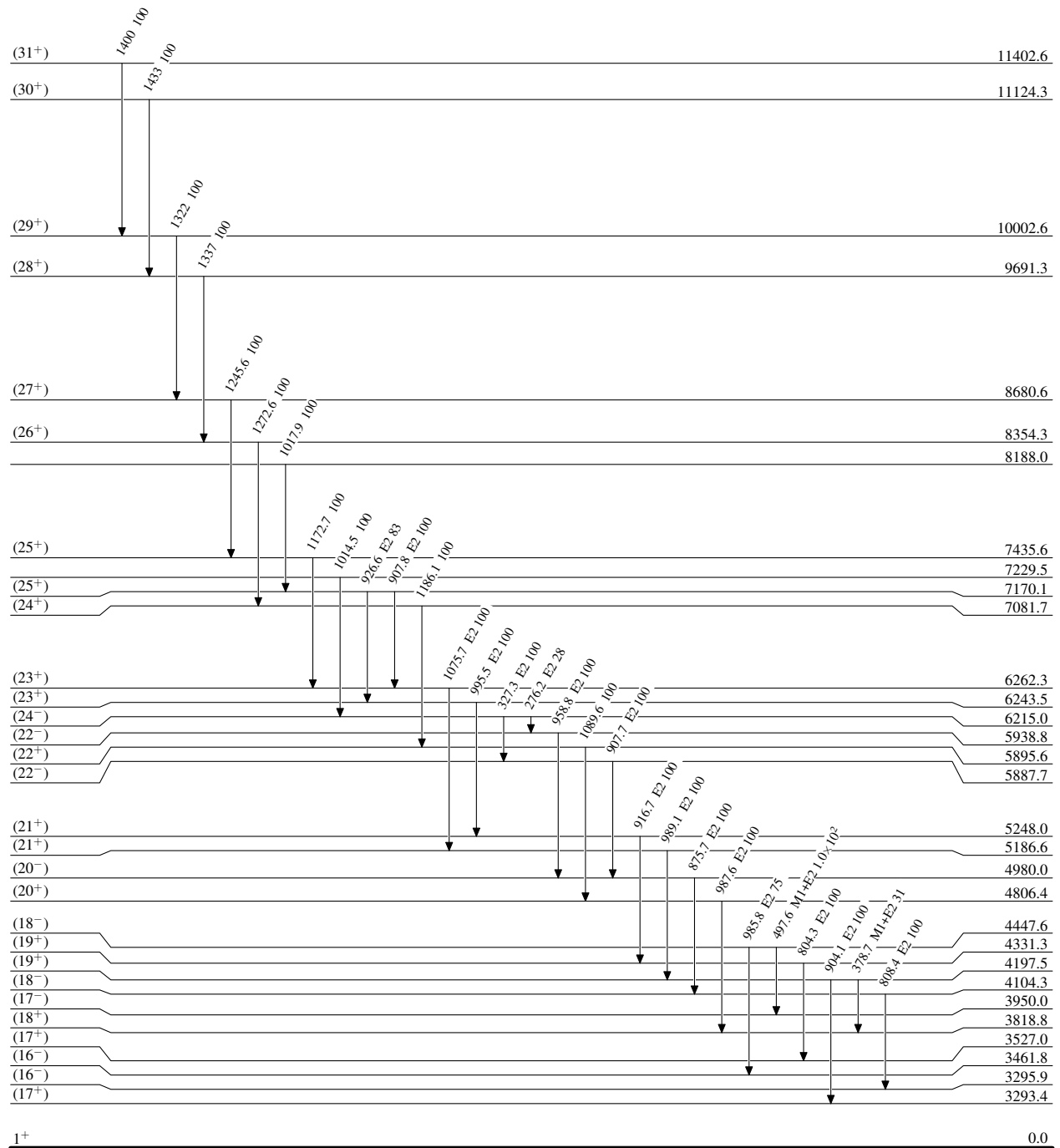
[†] From ($^{12}\text{C},\text{pn}\gamma$), (HI,xn γ) and $^{103}\text{Rh}(^{16}\text{O},3\text{n}\gamma)$.[‡] From $^{103}\text{Rh}(^{16}\text{O},3\text{n}\gamma)$.[#] $\Delta J=1$ transition from R(0°/117°).[@] For gate on 140.3 γ , $\Delta J=1$, M1 transition.

& Unresolved doublet.

^a From figure 1 of 2004Mo02; not listed in authors' table 1.

Adopted Levels, GammasLevel Scheme

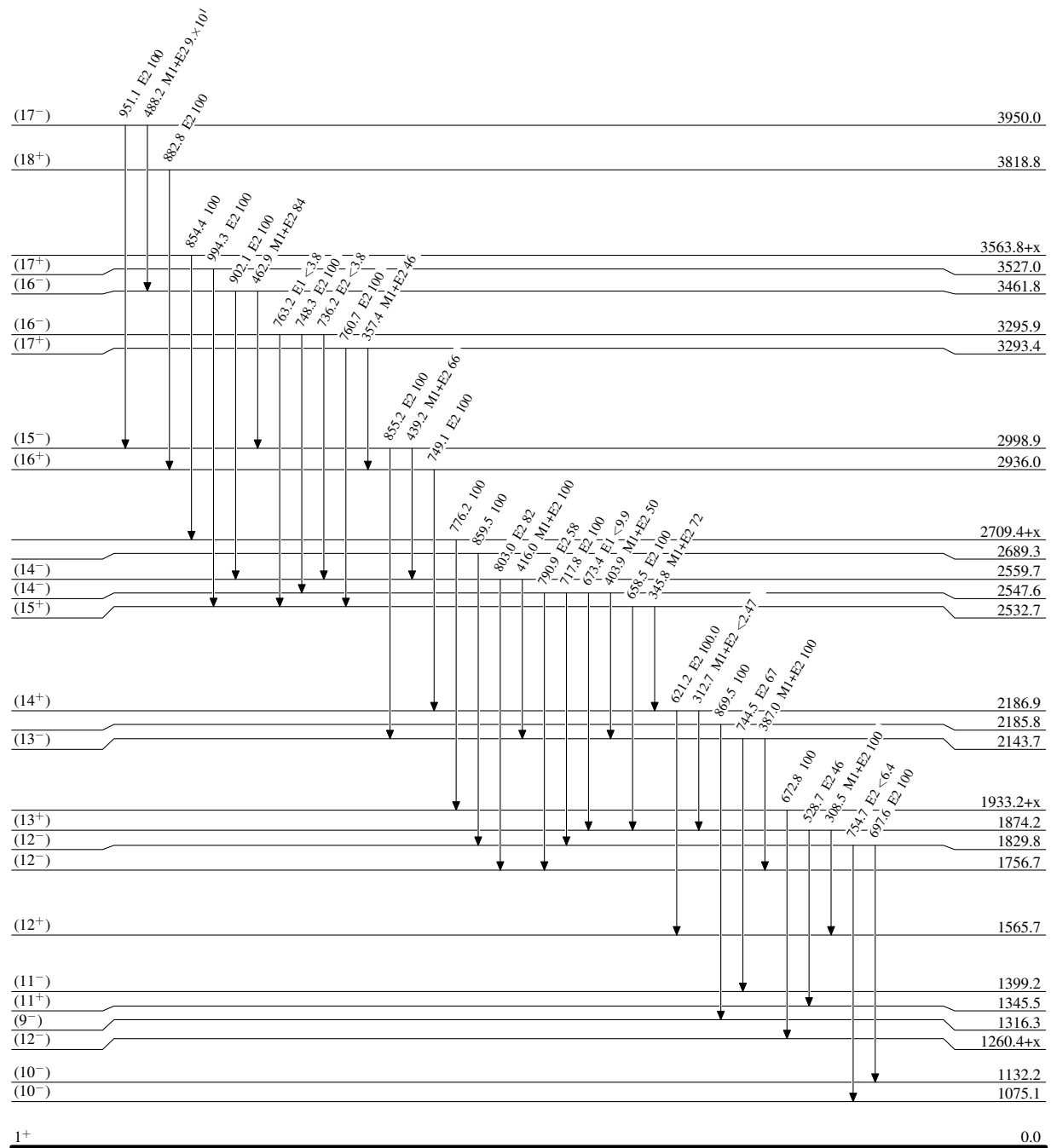
Intensities: Relative photon branching from each level



2.91 s 15

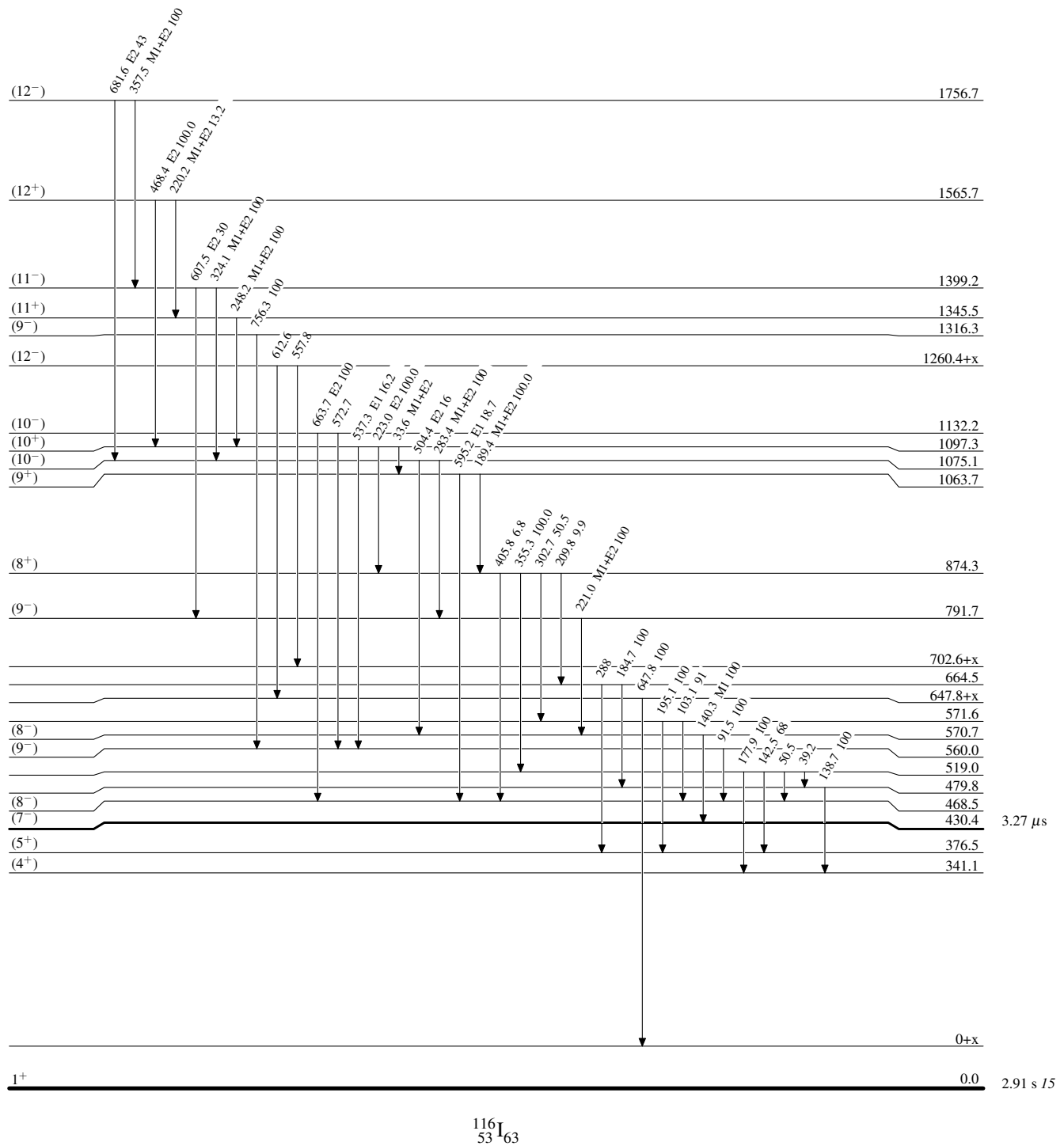
Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level



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

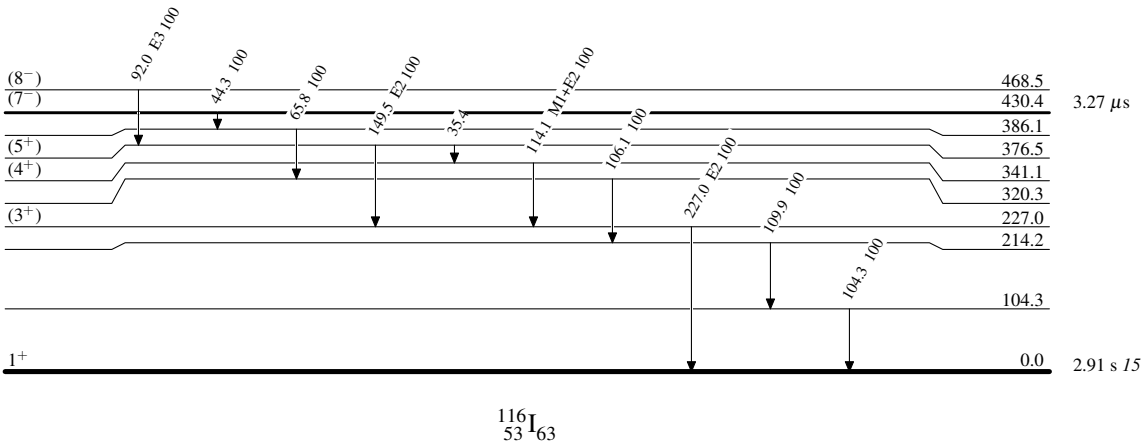
Intensities: Relative photon branching from each level

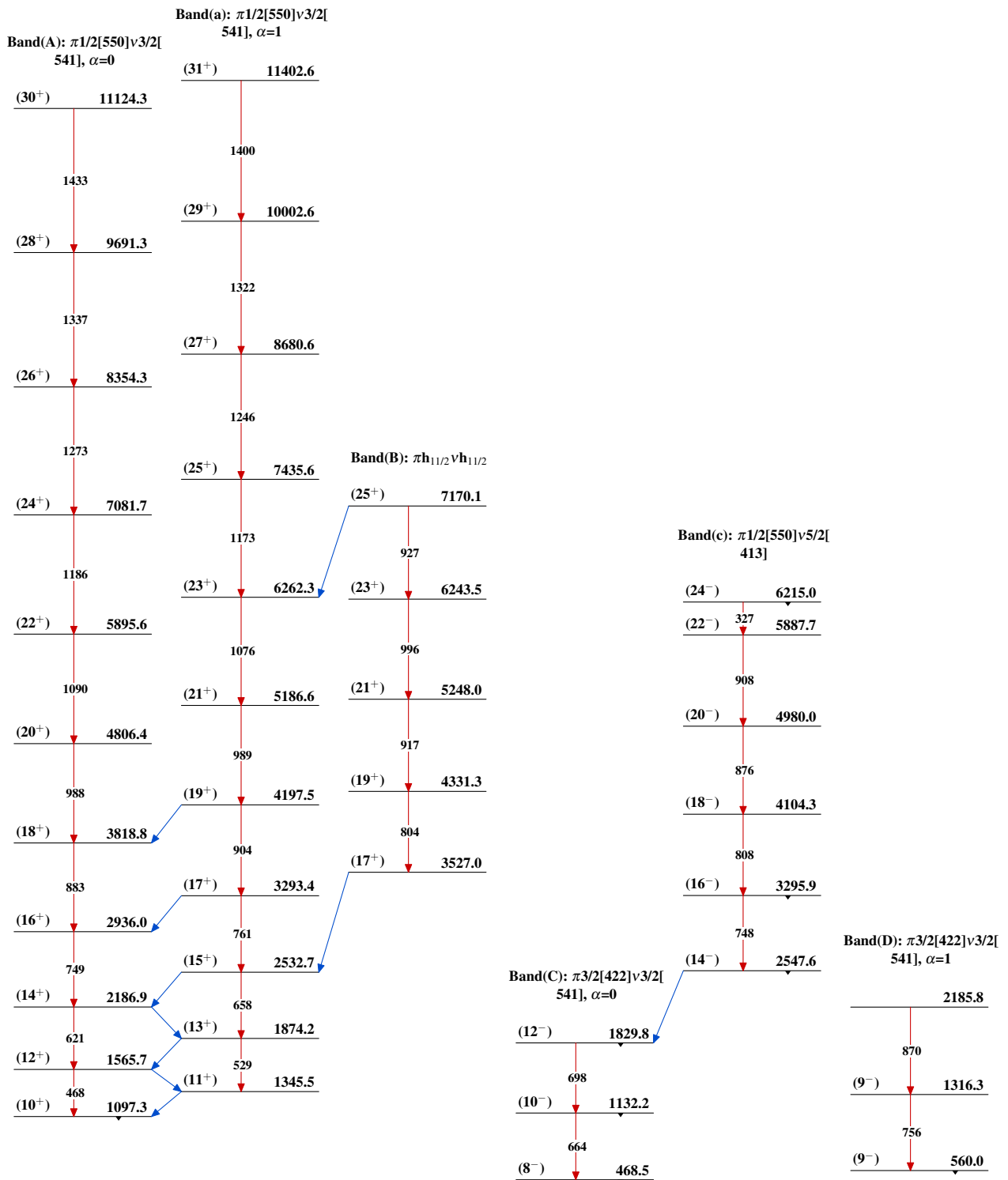


Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Adopted Levels, Gammas (continued)