

Adopted Levels, Gammas

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

$Q(\beta^-) = -7.78 \times 10^3$ 10; $S(n) = 1.128 \times 10^4$ 4; $S(p) = 5.55 \times 10^3$ 4; $Q(\alpha) = 9.6 \times 10^2$ 3 2012Wa38

Note: Current evaluation has used the following Q record -7780 1010.128 $\times 10^{44}$ 5.55 $\times 10^3$ 3 970 30 2003Au03,2009AuZZ.

Band structure shown here is from 1997Se04. The study by 1997Mo23 seems much less complete and their assignments not in full agreement with the work of 1997Se04.

 ^{116}Te Levels

Cross Reference (XREF) Flags

A	$^{114}\text{Sn}(\alpha, 2n\gamma)$	E	(HI, xn γ)
B	$^{116}\text{I} \beta^+$ decay	F	$^{64}\text{Ni}(^{56}\text{Fe}, 2p2n\gamma)$
C	$^{106}\text{Pd}(^{12}\text{C}, 2n\gamma)$	G	$^{103}\text{Rh}(^{16}\text{O}, p2n\gamma)$
D	$^{116}\text{Sn}(^3\text{He}, 3n\gamma)$		

E(level) [†]	J π [‡]	T _{1/2}	XREF	Comments
0.0 ^{&}	0 ⁺	2.49 h 4	ABCDEFG	$\% \varepsilon + \% \beta^+ = 100$ T _{1/2} : weighted average of 2.50 h 2 (1961Fi05), 2.33 h 8 (1968Ra14). Other measurements: 1953Dr33, 1958Ku79, 1973Ka45.
678.92 ^{&} 3	2 ⁺		ABCDEFGG	E(level): The placement of the 678 γ and the 680 γ could be inversed as given in 1997Se04. J $^\pi$: E2 γ to 0 ⁺ .
1059.78 8			B	J $^\pi$: 0 ⁺ has been proposed by 1986KuZS (E0), but not confirmed by 1992ZiZW.
1219.10 ^e 5	2 ⁺		BCDE	J $^\pi$: probable $\varepsilon + \beta^+$ branch from 1 ⁺ and M1 γ to 2 ⁺ , probable head of γ band.
1359.39 ^{&} 15	4 ⁺		ABCDEFGG	J $^\pi$: stretched E2 γ to 2 ⁺ .
1637.59 ^e 5	3 ⁺		B D	J $^\pi$: M1 γ to 2 ⁺ , γ to the 1059 level, no γ to the g.s.
1746.0 8	4 ⁺		E	
1811.77 ^e 9	4 ⁺		B DE	J $^\pi$: E2 γ to 2 ⁺ , M1 to 4 ⁺ .
2002.24 ^{&} 25	6 ⁺		A CDEFG	J $^\pi$: stretched E2 γ to 4 ⁺ .
2080.94 5	(1,2 ⁺)		B	J $^\pi$: γ to 0 ⁺ g.s.
2119.1 3	3 ⁻ , 4 ⁻ , 5 ⁻		D	J $^\pi$: E1 γ to 4 ⁺ .
2339.87 ^e 22	(5) ⁺		DE G	J $^\pi$: (M1+E2) γ to 4 ⁺ , M1 γ to 6 ⁺ , J $^\pi$ =6 ⁺ in (HI, xn γ).
2556.1 4	3 ⁻ , 4 ⁻ , 5 ⁻		D	J $^\pi$: E1 γ to 4 ⁺ .
2564.5 ^e 4	(6) ⁺		D	J $^\pi$: M1 γ to (5) ⁺ , member of the γ band.
2773.1 ^{&} 4	8 ⁺		A CDEFG	J $^\pi$: stretched E2 γ to 6 ⁺ .
2966.2 4	(6) ⁻		D	J $^\pi$: (M1) γ to (5) ⁻ , (E1+M2) to 6 ⁺ , (M1,E2) from 7 ⁻ .
3027.3 ^b 4	7 ⁻		A CDEFG	J $^\pi$: E1 γ to 6 ⁺ .
3175.0 ^c 5	8 ⁻		CDEFG	J $^\pi$: M1 γ to (7) ⁻ .
3190.1 4	(7) ⁻		D G	J $^\pi$: E1 γ to 6 ⁺ .
3245.1 4	(7) ⁺		DE	J $^\pi$: E2 γ to (5) ⁺ , member of the γ band.
3341.8 5			D	
3429.9 ^b 8	9 ⁻		EFG	J $^\pi$: E1 γ to 8 ⁺ , M1 γ to (8) ⁻ .
3574.8 ^{&} 4	10 ⁺		CDEFG	J $^\pi$: stretched E2 γ to 8 ⁺ .
3683.8 [#] 11	10 ⁺		EF	
3698.8 8	10 ⁺		EFG	J $^\pi$: E2 γ to 8 ⁺ . γ from 12 ⁺ .
3746.5 [@] 11	(9) ⁻		EFG	
3751.9 ^d 4	10 ⁻		FG	
3993.7 ^c 6	10 ⁻		D FG	J $^\pi$: E2 γ to (8) ⁻ .
4228.2 ^b 10	(11) ⁻		EFG	J $^\pi$: E2 γ to 9 ⁻ .

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

E(level) [†]	J ^π [‡]	XREF	Comments
4328.5 [@] 15	(11 ⁻)	EFG	J ^π : from band assignment.
4339.5 ^{&} 9	12 ⁺	CDEFG	J ^π : E2 γ to 10 ⁺ .
4436.6 ^d 5	(12 ⁻)	FG	
4585.6 [#] 15	(12 ⁺)	EFG	
4704.7 ^c 12	12 ⁻	EFG	J ^π : E2 γ to 10 ⁻ .
4920.0 ^b 10	(13 ⁻)	EFG	J ^π : E2 γ to (11) ⁻ .
4995.2 [@] 18	(13 ⁻)	EFG	J ^π : from band assignment.
5110.5 ^{&} 10	14 ⁺	EFG	J ^π : E2 γ to 12 ⁺ .
5197.5 ^c 20	(14 ⁻)	EFG	J ^π : E2 γ to (12) ⁻ .
5236.3 ^d 5	(14 ⁻)	FG	
5472.6 [#] 6	(14 ⁺)	FG	
5621.9 ^{&} 11	16 ⁺	EFG	J ^π : E2 γ to 14 ⁺ .
5721.5 ^b 5	(15 ⁻)	FG	
5775.8 [@] 21	(15 ⁻)	EFG	J ^π : from band assignment.
6106.0 5	(16 ⁺)	F	
6128.8 ^c 5	(16 ⁻)	F	
6141.9 ^d 6	(16 ⁻)	FG	
6274.4 [#] 7	(16 ⁺)	FG	
6651.9 ^b 5	(17 ⁻)	F	
6659.3 [@] 5	(17)	EFG	
6673.2 ^{&} 5	18 ⁺	EFG	
7091.8 ^a 5	19 ⁻	EFG	
7160.4 [#] 17	(18 ⁺)	FG	
7173.7 ^d 10	(18 ⁻)	F	
7307.4 ^c 7	(18 ⁻)	FG	
7642.0 [@] 5	(19)	FG	
7642.1 ^{&} 6	20 ⁺	EFG	
7729.1 ^b 6	(19 ⁻)	FG	
8119.6 ^a 5	21 ⁻	EFG	
8123.3 [#] 17	(20 ⁺)	F	
8173.2 ^d 11	(20 ⁻)	F	
8667.6 ^a 6	22 ⁻	EFG	
8683.2 [@] 7	(21)	FG	
8995.5 ^a 6	23 ⁻	EFG	
9171.9 [#] 17	(22 ⁺)	F	
9204.9 ^d 13	(22 ⁻)	F	
9756.4 ^a 6	24 ⁻	FG	
9775.6 [@] 9	(23)	F	
10058.6 ^a 6	25 ⁻	EFG	
10303.6 [#] 17	(24 ⁺)	F	
10324.7 ^d 14	(24 ⁻)	F	
10949.6 [@] 10	(25)	F	
11129.8 ^a 6	27 ⁻	FG	
11494.4 [#] 18	(26 ⁺)	F	
11538.8 ^d 15	(26 ⁻)	F	

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

E(level) [†]	J ^π [‡]	XREF	E(level) [†]	J ^π [‡]	XREF	E(level) [†]	J ^π [‡]	XREF
12714.9 [#] 18	(28 ⁺)	F	15335.8 [#] 20	(32 ⁺)	F	19871 [#] 3	(38 ⁺)	F
12841.7 ^d 17	(28 ⁻)	F	15671 ^d 3	(32 ⁻)	F	21702 [#] 3	(40 ⁺)	F
13988.4 [#] 19	(30 ⁺)	F	16743.6 [#] 21	(34 ⁺)	F	23721 [#] 4	(42 ⁺)	F
14228.1 ^d 18	(30 ⁻)	F	18231.2 [#] 22	(36 ⁺)	F			

[†] From least-square fit to adopted γ .[‡] Based on $\gamma\gamma(\theta)$ (DCO) data, linear polarization data and band assignments.[#] Band(A): Band based on 10⁺. Configuration= $\pi[(g_{7/2}, d_{5/2})^2(g_{9/2})^{-2}(h_{11/2})^2] \otimes \nu[(g_{7/2}, d_{5/2})^{10}(h_{11/2})^4]$.[@] Band(B): Band based on 9⁻.[&] Band(C): g.s. band.^a Band(D): Band based on 19⁻.^b Band(E): Band based on 7⁻.^c Band(F): Band based on 8⁻.^d Band(G): Band based on 10⁻.^e Band(H): Gamma Band. $\gamma(^{116}\text{Te})$

E _i (level)	J ^π _i	E _γ [†]	I _γ [†]	E _f	J ^π _f	Mult. [‡]	δ	Comments
678.92	2 ⁺	678.92 3	100	0.0	0 ⁺	E2		
1059.78		380.88 8	100	678.92	2 ⁺			
1219.10	2 ⁺	540.21 4		678.92	2 ⁺	(M1+E2)		
		1218.9 3		0.0	0 ⁺			
1359.39	4 ⁺	680.78 22	100	678.92	2 ⁺	E2		
1637.59	3 ⁺	577.91 20	16 5	1059.78				
		958.66 3	100 15	678.92	2 ⁺	(M1)		
1746.0	4 ⁺	527.0 5	100	1219.10	2 ⁺	E2		
1811.77	4 ⁺	452.5 2	53 10	1359.39	4 ⁺	(M1+E2)		
		593.4 4	60 13	1219.10	2 ⁺	E2		
		1132.60 10	100 50	678.92	2 ⁺			
2002.24	6 ⁺	643.1 3	100	1359.39	4 ⁺	E2		
2080.94	(1,2 ⁺)	861.84 5	51 3	1219.10	2 ⁺			
		1402.01 5	100 5	678.92	2 ⁺			
		2081 1	6 6	0.0	0 ⁺			
2119.1	3 ⁻ , 4 ⁻ , 5 ⁻	759.7 3	100	1359.39	4 ⁺	E1		
2339.87	(5) ⁺	337.9 3	100 20	2002.24	6 ⁺	E2		E _γ : not given by 1997Se04.
		527.8 3	21 11	1811.77	4 ⁺	(M1+E2)		E _γ : not given by 1997Se04.
		980.5 3	59 12	1359.39	4 ⁺	(M1+E2)		E _γ : not given by 1997Se04.
2556.1	3 ⁻ , 4 ⁻ , 5 ⁻	1196.7 3	100	1359.39	4 ⁺	E1		
2564.5	(6) ⁺	224.6 3	100	2339.87	(5) ⁺	M1		
2773.1	8 ⁺	770.85 23	100	2002.24	6 ⁺	E2		
2966.2	(6) ⁻	847.1 3	100 50	2119.1	3 ⁻ , 4 ⁻ , 5 ⁻	(M1)		
		963.9 3	73 35	2002.24	6 ⁺	(E1+M2)		
3027.3	7 ⁻	1025.07 21	100	2002.24	6 ⁺	E1		
3175.0	8 ⁻	147.6 3	100	3027.3	7 ⁻	M1+E2	+0.078 20	
3190.1	(7) ⁻	1187.9 3	100	2002.24	6 ⁺	E1		E _γ : not given by 1997Se04.
3245.1	(7) ⁺	905.2 3	100	2339.87	(5) ⁺	(E2)		
3341.8		151.6 3	100	3190.1	(7) ⁻			
3429.9	9 ⁻	254.7 2	26 3	3175.0	8 ⁻	M1+E2	+0.19 6	
		656.0 2	100 10	2773.1	8 ⁺	E1(+M2)	0.00 3	
3574.8	10 ⁺	801.69 21	100	2773.1	8 ⁺	E2		

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Adopted Levels, Gammas (continued)

$\gamma(^{116}\text{Te})$ (continued)							
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	Mult. ‡	δ
3683.8	10 ⁺	910.8 2	100	2773.1	8 ⁺	E2	
3698.8	10 ⁺	925.0 2	100	2773.1	8 ⁺	E2	
3746.5	(9 ⁻)	973.1 2	100	2773.1	8 ⁺	(E1)	
3751.9	10 ⁻	578.5 2	100	3175.0	8 ⁻	E2	
3993.7	10 ⁻	818.7 3	100	3175.0	8 ⁻	E2	
4228.2	(11 ⁻)	530.5 5	12 2	3698.8	10 ⁺		
		798.1 2	100 11	3429.9	9 ⁻	E2	
4328.5	(11 ⁻)	581.5 2	100 10	3746.5	(9 ⁻)	E2	
		752.6 2	40 6	3574.8	10 ⁺	(E1)	
4339.5	12 ⁺	640.7 2	14.3 17	3698.8	10 ⁺		
		764.5 2	100 10	3574.8	10 ⁺	E2	
4436.6	(12 ⁻)	684.7 2	100	3751.9	10 ⁻	(E2)	
4585.6	(12 ⁺)	902.2 2	100	3683.8	10 ⁺	E2	
4704.7	12 ⁻	477 1	9 3	4228.2	(11 ⁻)	E2	
		710.2 2	100 13	3993.7	10 ⁻	E2	
4920.0	(13 ⁻)	690.9 3	100	4228.2	(11 ⁻)	E2	
4995.2	(13 ⁻)	666.0 2	100	4328.5	(11 ⁻)	E2	
5110.5	14 ⁺	770.3 2	100	4339.5	12 ⁺	E2	
5197.5	(14 ⁻)	278.6 2	100 5	4920.0	(13 ⁻)	(M1,E2)	
		493.3 3	97 5	4704.7	12 ⁻	E2	
5236.3	(14 ⁻)	799.7 2	100	4436.6	(12 ⁻)	(E2)	
5472.6	(14 ⁺)	887.6 3	100	4585.6	(12 ⁺)	(E2)	
5621.9	16 ⁺	511.0 2	100	5110.5	14 ⁺	E2	
5721.5	(15 ⁻)	525.8 2	80 5	5197.5	(14 ⁻)	(M1,E2)	
		804.9 2	100 5	4920.0	(13 ⁻)	(E2)	
5775.8	(15 ⁻)	780.3 2	100	4995.2	(13 ⁻)	E2	
6106.0	(16 ⁺)	995.5 2	100	5110.5	14 ⁺	(E2)	
6128.8	(16 ⁻)	933.3 2	100	5197.5	(14 ⁻)	(E2)	
6141.9	(16 ⁻)	905.5 3	100	5236.3	(14 ⁻)	(E2)	
6274.4	(16 ⁺)	801.8 3	100	5472.6	(14 ⁺)	E2	
6651.9	(17 ⁻)	930.4 2	100	5721.5	(15 ⁻)	(E2)	
6659.3	(17)	886.4 2	100	5775.8	(15 ⁻)	(E2)	
6673.2	18 ⁺	1054.5 2	100	5621.9	16 ⁺	E2	
7091.8	19 ⁻	418.7 2	100	6673.2	18 ⁺	E1(+M2)	-0.025 26
7160.4	(18 ⁺)	886.0	100	6274.4	(16 ⁺)	(E2)	
7173.7	(18 ⁻)	1031.8 8		6141.9	(16 ⁻)	(E2)	
7307.4	(18 ⁻)	1178.6 5	100	6128.8	(16 ⁻)	(E2)	
7642.0	(19)	982.6 2	100	6659.3	(17)	(E2)	
7642.1	20 ⁺	968.9 2	100	6673.2	18 ⁺	E2	
7729.1	(19 ⁻)	1077.2 2	100	6651.9	(17 ⁻)	(E2)	
8119.6	21 ⁻	477.5 2	100	7642.1	20 ⁺	E1	
		1027.9 2		7091.8	19 ⁻	E2	
8123.3	(20 ⁺)	962.9 3	100	7160.4	(18 ⁺)	E2	
8173.2	(20 ⁻)	999.6 3	100	7173.7	(18 ⁻)	(E2)	
8667.6	22 ⁻	547.9 2	100	8119.6	21 ⁻	M1(+E2)	-0.035 50
8683.2	(21)	1041.1 4	100	7642.0	(19)	(E2)	
8995.5	23 ⁻	875.9 2	100	8119.6	21 ⁻	E2	
9171.9	(22 ⁺)	1048.6 3	100	8123.3	(20 ⁺)	(E2)	
9204.9	(22 ⁻)	1031.6 8	100	8173.2	(20 ⁻)	(E2)	
9756.4	24 ⁻	761.0 2	100	8995.5	23 ⁻	M1,E2	
		1088.8 2	6.8 3	8667.6	22 ⁻	E2	
9775.6	(23)	1092.4 5	100	8683.2	(21)	(E2)	
10058.6	25 ⁻	302.2 2	100	9756.4	24 ⁻	M1+E2	+0.14 5
10303.6	(24 ⁺)	1131.7 3	100	9171.9	(22 ⁺)	(E2)	
10324.7	(24 ⁻)	1119.8 5	100	9204.9	(22 ⁻)	(E2)	
10949.6	(25)	1174.0 5	100	9775.6	(23)	(E2)	

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Adopted Levels, Gammas (continued) $\gamma(^{116}\text{Te})$ (continued)

$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	Mult. ‡
11129.8	27 ⁻	1071.2 2	100	10058.6	25 ⁻	E2
11494.4	(26 ⁺)	1190.8 4	100	10303.6	(24 ⁺)	(E2)
11538.8	(26 ⁻)	1214.1 4	100	10324.7	(24 ⁻)	(E2)
12714.9	(28 ⁺)	1220.5 4	100	11494.4	(26 ⁺)	(E2)
12841.7	(28 ⁻)	1302.9 7	100	11538.8	(26 ⁻)	(E2)
13988.4	(30 ⁺)	1273.5 6	100	12714.9	(28 ⁺)	(E2)
14228.1	(30 ⁻)	1386.4 6	100	12841.7	(28 ⁻)	(E2)
15335.8	(32 ⁺)	1347.4 5	100	13988.4	(30 ⁺)	(E2)
15671?	(32 ⁻)	1443.1 [#] 20	100	14228.1	(30 ⁻)	(E2)
16743.6	(34 ⁺)	1407.8 6	100	15335.8	(32 ⁺)	(E2)
18231.2	(36 ⁺)	1487.6 8	100	16743.6	(34 ⁺)	(E2)
19871	(38 ⁺)	1639.4 14	100	18231.2	(36 ⁺)	(E2)
21702	(40 ⁺)	1831.6 16	100	19871	(38 ⁺)	(E2)
23721	(42 ⁺)	2019.1 20	100	21702	(40 ⁺)	(E2)

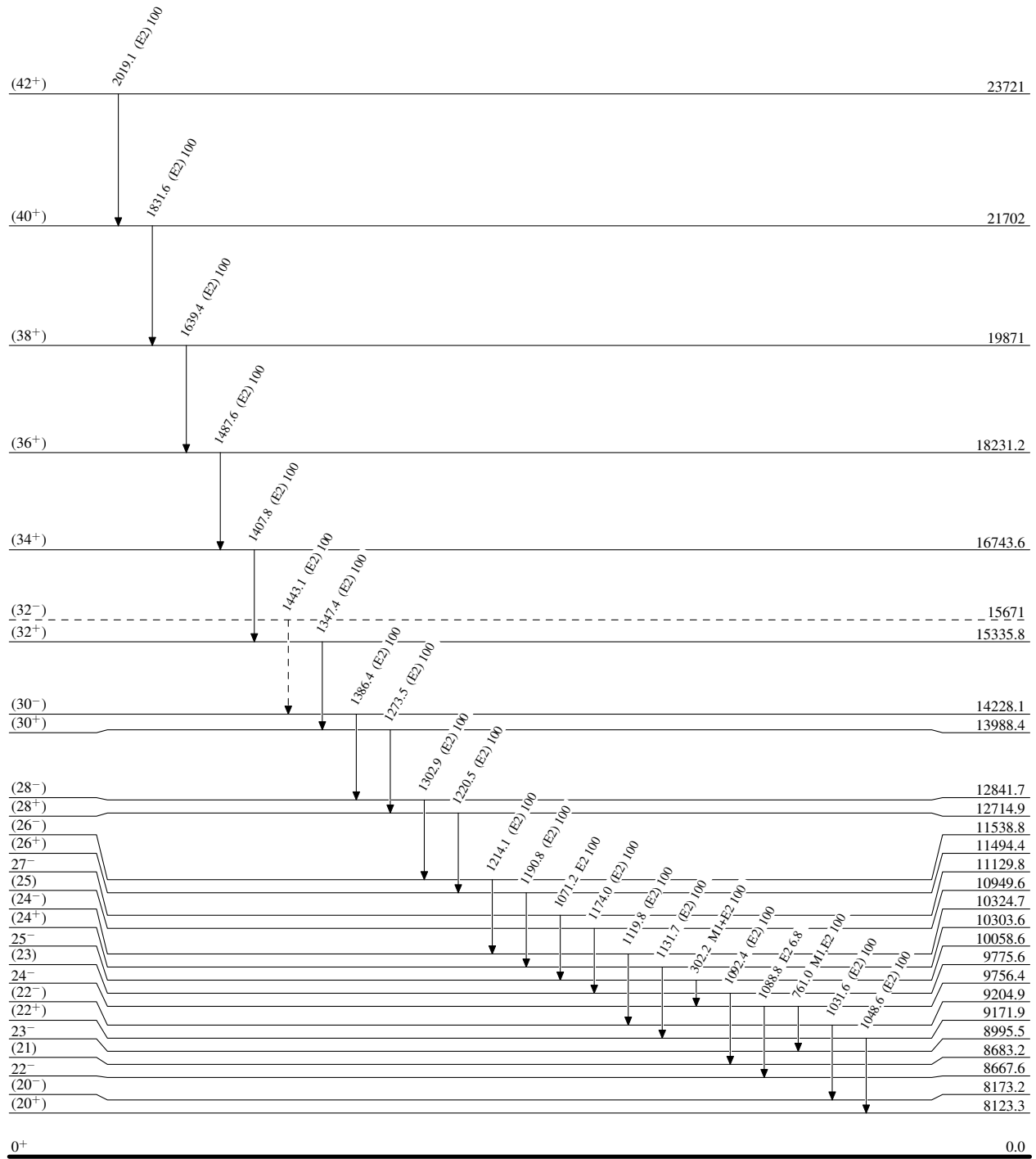
[†] From average of all references.[‡] From $\alpha(\text{K})\text{exp}$ in ($^3\text{He}, 3n\gamma$) and DCO.[#] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

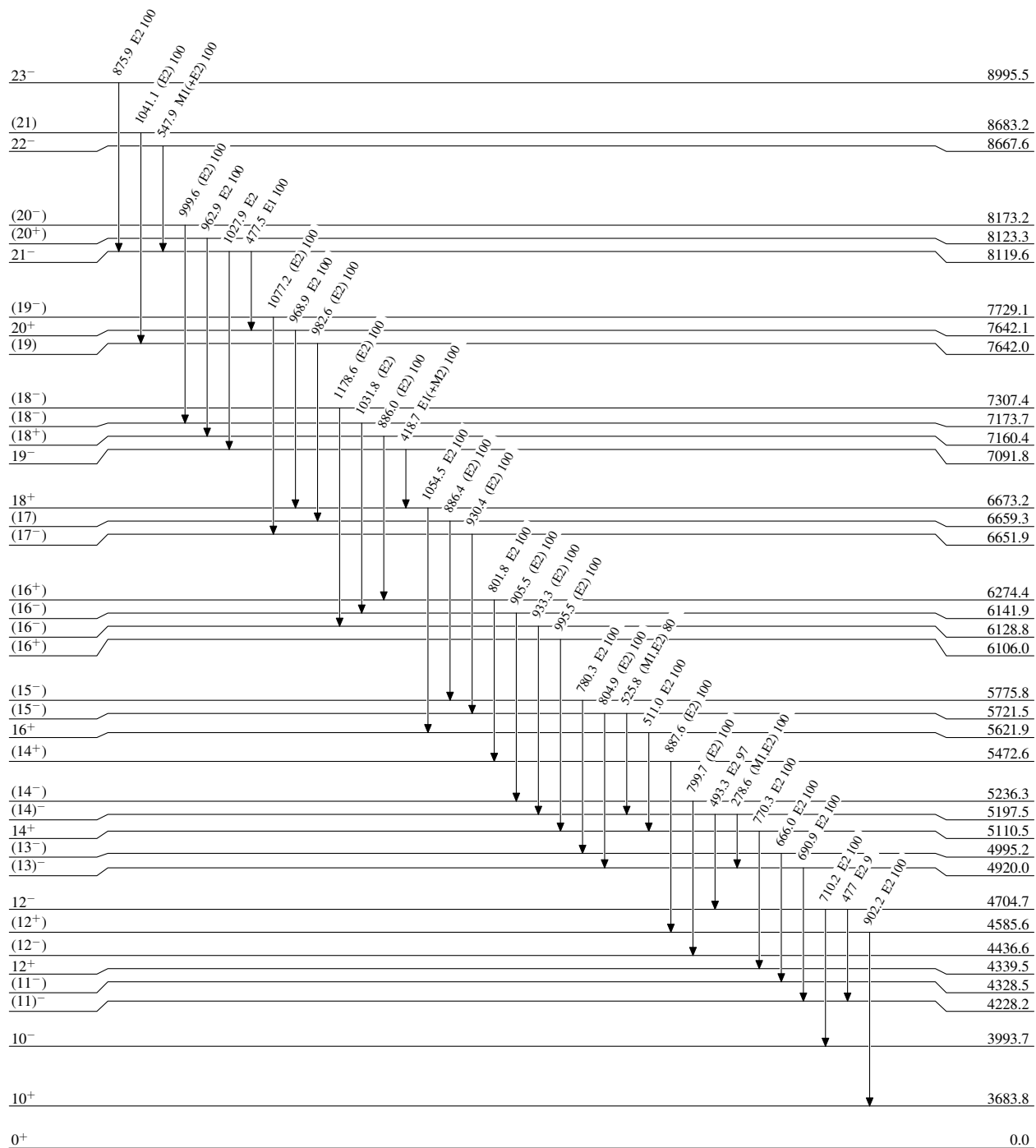
Level Scheme

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)

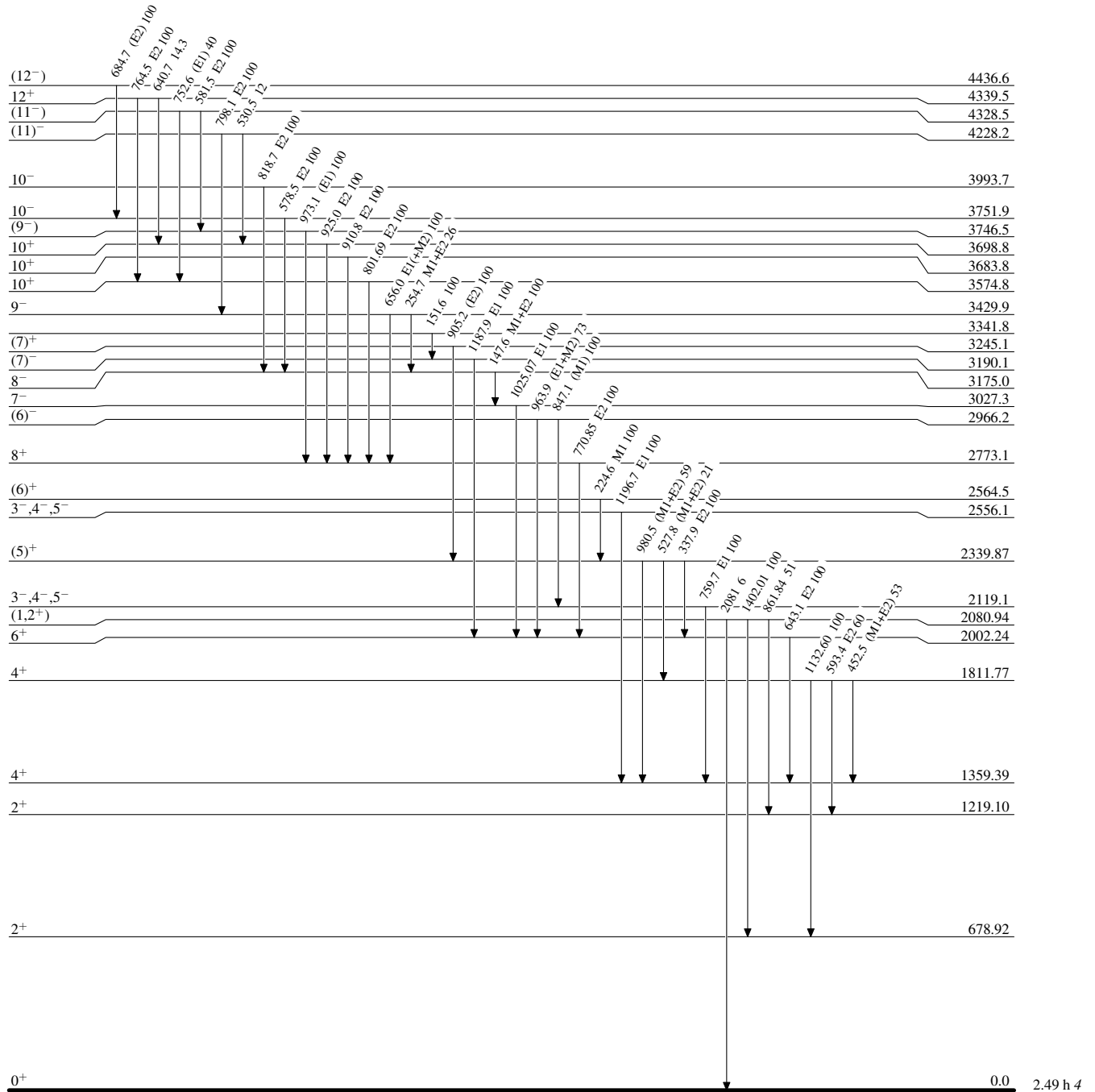
Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level



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

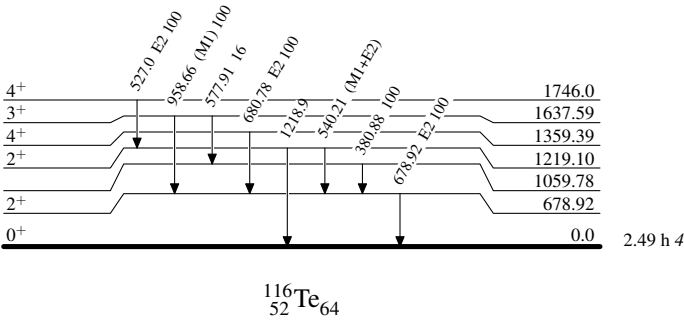
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



Adopted Levels, Gammas**Band(A): Band based on**
 10^+

(42 ⁺)	23721
↓ 2019	
(40 ⁺)	21702
↓ 1832	
(38 ⁺)	19871
↓ 1639	
(36 ⁺)	18231.2
↓ 1488	
(34 ⁺)	16743.6
↓ 1408	
(32 ⁺)	15335.8
↓ 1347	
(30 ⁺)	13988.4
↓ 1274	
(28 ⁺)	12714.9
↓ 1220	
(26 ⁺)	11494.4
↓ 1191	
(24 ⁺)	10303.6
↓ 1132	
(22 ⁺)	9171.9
↓ 1049	
(20 ⁺)	8123.3
↓ 963	
(18 ⁺)	7160.4
↓ 886	
(16 ⁺)	6274.4
↓ 802	
(14 ⁺)	5472.6
↓ 888	
(12 ⁺)	4585.6
↓ 902	
(10 ⁺)	3683.8

Band(B): Band based on
(9⁻)

(25)	10949.6
↓ 1174	
(23)	9775.6
↓ 1092	
(21)	8683.2
↓ 1041	
(19)	7642.0
↓ 983	
(17)	6659.3
↓ 886	
(15 ⁻)	5775.8
↓ 780	
(13 ⁻)	4995.2
↓ 666	
(11 ⁻)	4328.5
↓ 582	
(9 ⁻)	3746.5

Band(C): g.s. band

20 ⁺	7642.1
↓ 969	
18 ⁺	6673.2
↓ 1054	
16 ⁺	5621.9
↓ 511	
14 ⁺	5110.5
↓ 770	
12 ⁺	4339.5
↓ 764	
10 ⁺	3574.8
↓ 802	
8 ⁺	2773.1
↓ 771	
6 ⁺	2002.24
↓ 643	
4 ⁺	1359.39
↓ 681	
2 ⁺	678.92
↓ 679	
0 ⁺	0.0

Band(D): Band based on 19⁻

27 ⁻	11129.8
↓ 1071	
25 ⁻	10058.6
↓ 302	
24 ⁻	9756.4
↓ 1089	
23 ⁻	8995.5
↓ 761	
22 ⁻	8667.6
↓ 548	
21 ⁻	8119.6
↓ 876	
19 ⁻	7091.8
↓ 1028	

Band(E): Band based on 7⁻

(19 ⁻)	7729.1
↓ 1077	
(17 ⁻)	6651.9
↓ 930	
(15 ⁻)	5721.5
↓ 805	
(13 ⁻)	4920.0
↓ 691	
(11 ⁻)	4228.2
↓ 798	
9 ⁻	3429.9
↓ 3027.3	
7 ⁻	3027.3

Band(F): Band based on 8⁻

(18 ⁻)	7307.4
↓ 1179	
(16 ⁻)	6128.8
↓ 933	
(14 ⁻)	5197.5
↓ 493	
12 ⁻	4704.7
↓ 710	
10 ⁻	3993.7
↓ 819	
8 ⁻	3175.0

Adopted Levels, Gammas (continued)

