^{124}Te(p,nγ) 1997DaZY,1982Bu12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Katakura, Z. D. Wu	NDS 109, 1655 (2008)	1-Apr-2008

1982Bu12: E=3.9-6.0 MeV, enriched target, semi γ, γγ coin, γ(θ), γγ(t), excitation functions.
1997DaZY: E=3.8-6.9 MeV, enriched target(0.3-0.8mg/cm^2), measured γ, γγ coin by using four HPGe detectors, and ce spectra by using Si(Li) electron spectrometers. Only low-lying negative parity part level scheme was given.

^{124}I Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	2$^-$	4.1760 d *3*	$T_{1/2}$: from Adopted Levels.
55.48 *5*	(3$^+$)	52 ns *5*	$T_{1/2}$: from (123γ)(108γ,114γ)(t).
123.04 *6*	(4$^-$)	9.6 ns *10*	Jπ: 1997DaZY gives 4$^-$ without any discussions. 1982Bu12 gave 2$^-$ or 3$^-$ from γ(θ) data, but A_2 value is consistent with DJ = 2. $T_{1/2}$: from (152γ,168γ,174γ)(123γ)(t).
150.55 *9*	(+)		
163.39 *9*	(+)		
169.59 *15*	(+)		
184.20 *7*	(3$^-$)		
246.92 *13*			
250.55 *13*			
255.90 *11*			
265.96 *10*			
275.41 *17*	(5$^-$)		
287.3 *8*	(6$^-$)		
289.02 *13*	(2,4)		
291.14 *16*	(3$^-$,4$^-$,5$^-$)		
297.03 *9*	(3$^-$)		
323.6 *6*			
336.79 *15*			
345.56 *21*			
353.55 *19*			
361.92 *14*	(2$^-$,3$^-$,4$^-$)		
369.60 *14*			
380.18 *13*			
404.56 *20*	(4$^-$,5$^-$,6$^-$)		
442.77 *16*	(−)		
443.35 *18*			
446.87 *12*	(1$^-$,3$^-$)		
448.73 *18*			
466.8 *5*			
492.96 *16*	(−)		
496.69 *13*	(1$^-$,2$^-$,3$^-$)		
543.40 *17*			
591.7 *3*			
596.38 *16*	(1$^-$,2$^-$,3$^-$)		
604.89 *17*			
609.4 *4*			
622.8 *7*			
654.19 *21*			
664.86 *22*			
748.0 *6*			
761.6 *11*			
765.1 *4*			
766.3 *7*			
781.73 *18*			

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^{124}Te(p,nγ) 1997DaZY,1982Bu12 (continued)

^{124}I Levels (continued)

E(level)[†]
783.0 *6*
909.7 *4*
926.08? *21*
985.4 *6*

† From a least-squares fit to Eγ's.
‡ From Adopted Levels.

γ(^{124}I)

γ(θ) data from 1982Bu12

Eγ	A_2	Eγ	A_2
55.50	-0.086 *14*	233.40	-0.22 *5*
123.05	+0.041 *17*	290.08	+0.02 *5*
152.5+154.3	-0.15 *4*	297.06+298.11	-0.124 *15*
184.18	-0.25 *4*	312.42	-0.10 *4*
200.0+200.75	-0.157 *14*	411.5+412.27	+0.12 *6*
210.5	-0.03 *3*	446.85	-0.15 *3*

derived on the assumption that A_4=0

Relative Photon Branchings from 1997DaZY

Level	Eγ	Branchings	Level	Eγ	Branchings
184.2	61.1	50 *6*	496.7	199.5	13 *3*
	184.2	100		312.5	100
287.6	12.1	2 *1*		496.7	63 *5*
	164.3	100	596.5	234.6	14 *5*
297.0	112.9	14 *2*		299.4	39 *7*
	173.9	30 *3*		412.3	100
	297.0	100		596.4	81 *5*
362.0	238.8	20 *4*	622.8	499.9	28 *7*
	362.0	100		622.7	100
405.0	117.2	15 *2*	748.1	343.0	100
	281.9	100		424.3	27 *6*
442.9	119.2	43 *3*		451.2	55 *10*
	145.9	68 *5*		564.0	85 *15*
	167.3	100	766.4	319.3	100
	258.7	50 *5*		766.4	79 *14*
	319.8	32 *6*	781.8	285.1	58 *13*
493.3	217.8	75 *7*		781.9	100
	309.3	100	783.0	290.1	33 *8*
				340.1	17 *6*
				598.8	100

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^{124}Te(p,nγ) 1997DaZY,1982Bu12 (continued)

γ(^{124}I) (continued)

E_γ †	I_γ #	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	α e	Comments
12.10 @		287.3	(6⁻)	275.41	(5⁻)			
50.10 *15*	1.8 *3*	297.03	(3⁻)	246.92				
55.50 *5*	100.0 *20*	55.48	(3⁺)	0.0	2⁻	(E1)	1.05	B(E1)(W.u.)=1.49×10^{-5} *15*
61.18 *7*	2.76 *25*	184.20	(3⁻)	123.04	(4⁻)			
62.5 f *2*	<0.81 f	442.77	(⁻)	380.18				
62.5 f *2*	<0.81 f	654.19		591.7				
71.72 *20*	0.23 *12*	255.90		184.20	(3⁻)			
77.28 *15*	0.51 *18*	446.87	(1⁻,3⁻)	369.60				
x79.63 *10*	3.3 *5*							
80.90 *15*	1.4 *4*	336.79		255.90				
87.15 a *20*	1.2 *4*	250.55		163.39	(⁺)			
92.52 *10*	3.5 *4*	255.90		163.39	(⁺)			
95.10 *10*	6.2 *6*	150.55	(⁺)	55.48	(3⁺)	(M1,E2)	1.5 *7*	
96.37 *15*	4.0 *5*	246.92		150.55	(⁺)			
107.92 *10*	7.8 *4*	163.39	(⁺)	55.48	(3⁺)	(M1,E2)	1.0 *4*	
110.10 *20*	0.37 *15*	446.87	(1⁻,3⁻)	336.79				
111.94 *10*	0.52 b *15*	604.89		492.96	(⁻)			
112.90 @	1.1 c *3*	297.03	(3⁻)	184.20	(3⁻)			
114.2 a *2*	10 *3*	169.59	(⁺)	55.48	(3⁺)	(M1,E2)	0.8 *3*	
117.20 @	0.16 c *8*	404.56	(4⁻,5⁻,6⁻)	287.3	(6⁻)			
119.15 @	0.26 c *10*	442.77	(⁻)	323.6				
123.05 *7*	13.4 *6*	123.04	(4⁻)	0.0	2⁻	(M1,E2)	0.63 *22*	
129.60 *15*	0.91 *15*	380.18		250.55				
133.74 *20*	0.33 *15*	297.03	(3⁻)	163.39	(⁺)			
138.60 *20*	1.24 *15*	289.02	(2,4)	150.55	(⁺)			
145.91 @	0.41 c *17*	442.77	(⁻)	297.03	(3⁻)			
152.5 a *3*	3.2 *10*	275.41	(5⁻)	123.04	(4⁻)	(M1) d	0.231	
154.3 & *5*	1.1 b *2*	443.35		289.02	(2,4)			
159.8 & *3*	0.4 *2*	448.73		289.02	(2,4)			
164.30 @		287.3	(6⁻)	123.04	(4⁻)			
167.3 & *3*	0.6 b *2*	442.77	(⁻)	275.41	(5⁻)	(M1) d	0.179	
168.10 *15*	1.4 b *3*	291.14	(3⁻,4⁻,5⁻)	123.04	(4⁻)	(M1) d	0.177	
173.90 *15*	3.0 *6*	297.03	(3⁻)	123.04	(4⁻)	(M1) d	0.161	
x176.58 *15*	1.29 *25*							
x179.23 *20*	0.32 *15*							
181.44 *20*	0.54 *15*	543.40		361.92	(2⁻,3⁻,4⁻)			
184.18 *10*	6.2 *4*	184.20	(3⁻)	0.0	2⁻	(M1) d	0.17 *4*	
x188.62	2.5 *5*							
200.0 *5*	5.0 b *18*	496.69	(1⁻,2⁻,3⁻)	297.03	(3⁻)			
200.45 @		323.6		123.04	(4⁻)			
200.8 *5*	3.0 b *12*	466.8		265.96				
203.9 *2*	0.24 *10*	492.96	(⁻)	289.02	(2,4)			
210.50 *10*	7.6 *5*	265.96		55.48	(3⁺)			
216.7 & *4*	0.66 b *20*	380.18		163.39	(⁺)			
217.60 *20*	1.26 b *25*	492.96	(⁻)	275.41	(5⁻)			
219.07 *20*	1.5 *3*	369.60		150.55	(⁺)			
x222.2 *2*	2.9 *4*							
x228.3 *3*	0.7 *3*							
233.40 *20*	3.6 *3*	289.02	(2,4)	55.48	(3⁺)			
234.60 @	0.38 c *21*	596.38	(1⁻,2⁻,3⁻)	361.92	(2⁻,3⁻,4⁻)			

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^{124}Te(p,nγ) 1997DaZY,1982Bu12 (continued)

γ(^{124}I) (continued)

E_γ [†]	I_γ [#]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [e]	Comments
238.4[&] *4*	2.2[b] *5*	591.7		353.55				
238.9[&] *3*	1.2[b] *3*	361.92	(2⁻,3⁻,4⁻)	123.04	(4⁻)			
242.92 *25*	0.6 *3*	604.89		361.92	(2⁻,3⁻,4⁻)			
250.3 *3*	2.5 *4*	250.55		0.0	2⁻			
258.74 *25*	0.5 *3*	442.77	(⁻)	184.20	(3⁻)	(M1,E2)[d]	0.060 *5*	
[x]263.80 *20*	1.3 *3*							
265.80 *25*	0.7 *3*	265.96		0.0	2⁻			
273.80 *15*	1.5 *4*	443.35		169.59	(⁺)			
[x]278.60 *25*	0.7 *3*							
281.6 *3*	1.1 *4*	404.56	(4⁻,5⁻,6⁻)	123.04	(4⁻)	(M1,E2)[d]	0.047 *3*	
284.96 *20*	0.9 *3*	781.73		496.69	(1⁻,2⁻,3⁻)			
290.08 *20*	3.8 *4*	345.56		55.48	(3⁺)			
290.10[@]		783.0		492.96	(⁻)			
297.06 *15*	7.6 *12*	297.03	(3⁻)	0.0	2⁻	(M1,E2)[d]	0.0401 *15*	
298.11 *20*	3.8 *10*	353.55		55.48	(3⁺)			
299.20 *25*	1.9 *7*	596.38	(1⁻,2⁻,3⁻)	297.03	(3⁻)			
309.30[@]	1.7[c] *5*	492.96	(⁻)	184.20	(3⁻)	(M1,E2)[d]	0.0356 *9*	
312.42 *15*	4.0 *4*	496.69	(1⁻,2⁻,3⁻)	184.20	(3⁻)	(M1,E2)[d]	0.0346 *8*	
[x]314.48 *20*	2.2 *3*							
318.2 *4*	1.67 *25*	765.1		446.87	(1⁻,3⁻)			
319.30[@]		766.3		446.87	(1⁻,3⁻)			
[x]319.8 *3*	3.2 *3*							
319.80[@]	0.19[c] *10*	442.77	(⁻)	123.04	(4⁻)			E_γ: Maybe the same as unplaced Eγ=319.8(1982Bu12) gamma-ray, but the intensity is different much.
340.10[@]		783.0		442.77	(⁻)			
343.04[@]		748.0		404.56	(4⁻,5⁻,6⁻)			
[x]352.03 *20*	2.84 *25*							
[x]355.68 *25*	0.94 *25*							
361.86 *20*	4.0 *4*	361.92	(2⁻,3⁻,4⁻)	0.0	2⁻	(M1,E2)[d]	0.0228 *5*	
[x]366.59 *20*	0.60 *25*							
369.6 *3*	0.20 *10*	369.60		0.0	2⁻			
373.83 *15*	3.5 *4*	543.40		169.59	(⁺)			
377.5 *3*	0.60 *25*	781.73		404.56	(4⁻,5⁻,6⁻)			
380.15 *20*	1.0 *3*	380.18		0.0	2⁻			
388.16 *25*	3.0 *5*	654.19		265.96				
389.0[&] *5*	0.9[b] *4*	985.4		596.38	(1⁻,2⁻,3⁻)			
393.20 *20*	2.3 *4*	448.73		55.48	(3⁺)			
399.0 *3*	1.6 *4*	664.86		265.96				
411.5[&] *5*	1.4[b] *5*	765.1		353.55				
412.27 *20*	2.7 *5*	596.38	(1⁻,2⁻,3⁻)	184.20	(3⁻)	(M1,E2)[d]	0.0159 *9*	
[x]415.36	0.7 *4*							
424.30[@]		748.0		323.6				
446.85 *15*	10.0 *10*	446.87	(1⁻,3⁻)	0.0	2⁻	(M1)[d]	0.0137	
451.20[@]		748.0		297.03	(3⁻)			
482.8 *2*	1.0 *2*	926.08?		443.35				
486.20[@]		761.6		275.41	(5⁻)			
[x]486.54 *25*	2.2 *4*							
496.7 *3*	1.6 *7*	496.69	(1⁻,2⁻,3⁻)	0.0	2⁻	(M1(+E2))[d]	0.0096 *9*	

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^{124}Te(p,nγ) 1997DaZY,1982Bu12 (continued)

γ(^{124}I) (continued)

E_γ [†]	I_γ [#]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]
499.90 [@]		622.8		123.04	(4$^-$)	
[x]502.62 *25*	0.85 *5*					
[x]506.7 *3*	1.33 *5*					
521.3 *3*	0.4 [b] *3*	926.08?		404.56	(4$^-$,5$^-$,6$^-$)	
531.0 *3*	2.2 *8*	781.73		250.55		
541.8 *4*	2.2 *8*	664.86		123.04	(4$^-$)	
547.9 *4*	2.1 *8*	909.7		361.92	(2$^-$,3$^-$,4$^-$)	
553.9 *4*	1.7 *9*	609.4		55.48	(3$^+$)	
564.00 [@]		748.0		184.20	(3$^-$)	
[x]578.0 *4*	1.7 *9*					
[x]586.1 *4*	0.8 *9*					
596.4 *4*	3.3 *11*	596.38	(1$^-$,2$^-$,3$^-$)	0.0	2$^-$	(M1(+E2)) [d]
598.7 *4*	2.5 *13*	654.19		55.48	(3$^+$)	
598.80 [@]		783.0		184.20	(3$^-$)	
622.70 [@]		622.8		0.0	2$^-$	
650.8 *4*	2.3 *12*	926.08?		275.41	(5$^-$)	
[x]657.5 *4*	2.4 *11*					
664.7 *4*	1.9 *11*	664.86		0.0	2$^-$	
[x]698.6 *4*	2.2 *12*					
[x]722.5 *5*	2.3 *12*					
[x]733.9 *5*	1.7 *12*					
740.0 *5*	1.8 *12*	909.7		169.59	(+)	
766.40 [@]		766.3		0.0	2$^-$	
781.85 [@]	1.6 [c] *8*	781.73		0.0	2$^-$	
[x]808.3 *5*	2.3 *13*					
[x]917.5 *4*	3.1 *15*					
[x]951.3 *5*	2.0 *13*					
[x]977.2 *5*	1.6 *13*					
[x]1027.1 *5*	3.0 *14*					

[†] From 1982Bu12, except those noted.
[‡] From γ+ce intensity imbalance normalizing so that the measured fractional γ-decay coefficient of 446.9 keV transition is 0.987 (M1 theory), unless otherwise indicated.
[#] From 1982Bu12. Values are relative to I(55.50γ)=100 at E(p)=6 MeV and θ=90°.
[@] From 1997DaZY.
[&] Observed in coincidence measurements.
[a] Complex peak with γ from contaminations, intensity was obtained by subtracting those contribution.
[b] Deduced from coincidence measurements.
[c] Renormalized by evaluator from relative photo branching from each level to relative to I(55.50γ)=100.
[d] From measured α(K)exp (1997DaZy). The α(K)exp values are not explicitly given, only shown on a figure.
[e] 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.
[f] Multiply placed with undivided intensity.
[x] γ ray not placed in level scheme.

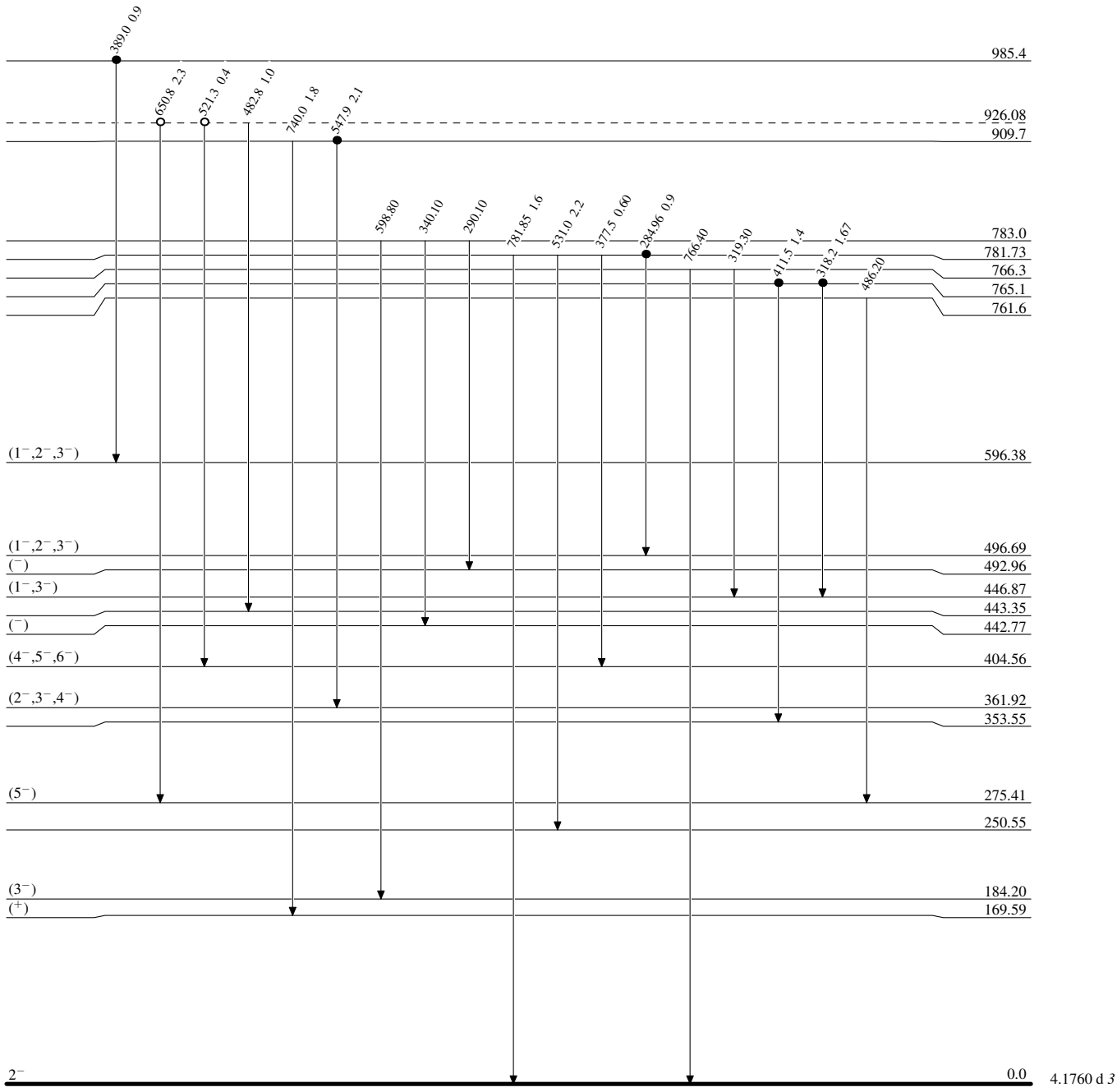
^{124}Te(p,nγ) 1997DaZY,1982Bu12

Level Scheme

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence
- Coincidence (Uncertain)



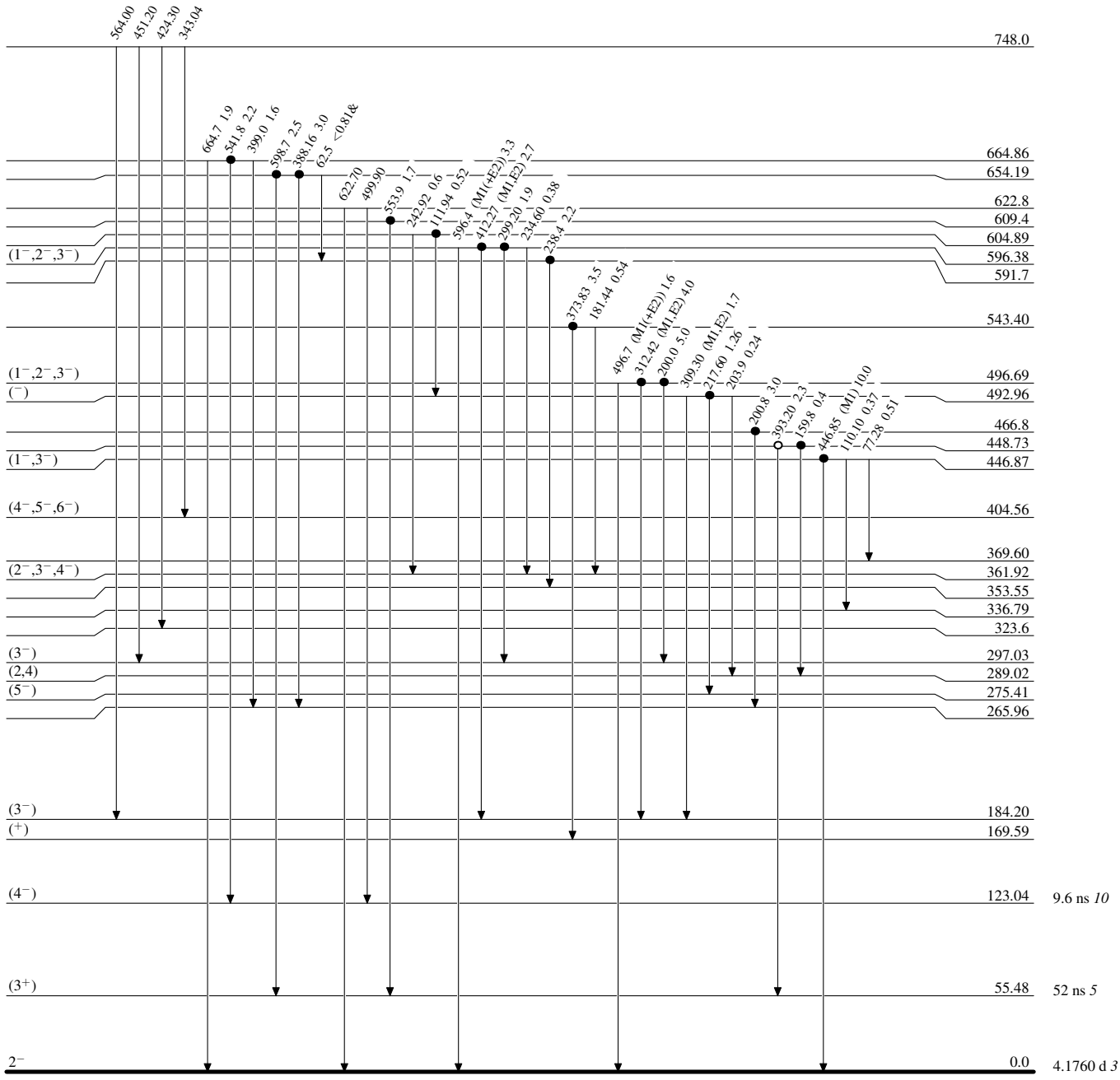
$^{124}_{53}I_{71}$

^{124}Te(p,nγ) 1997DaZY,1982Bu12

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
Coincidence
Coincidence (Uncertain)

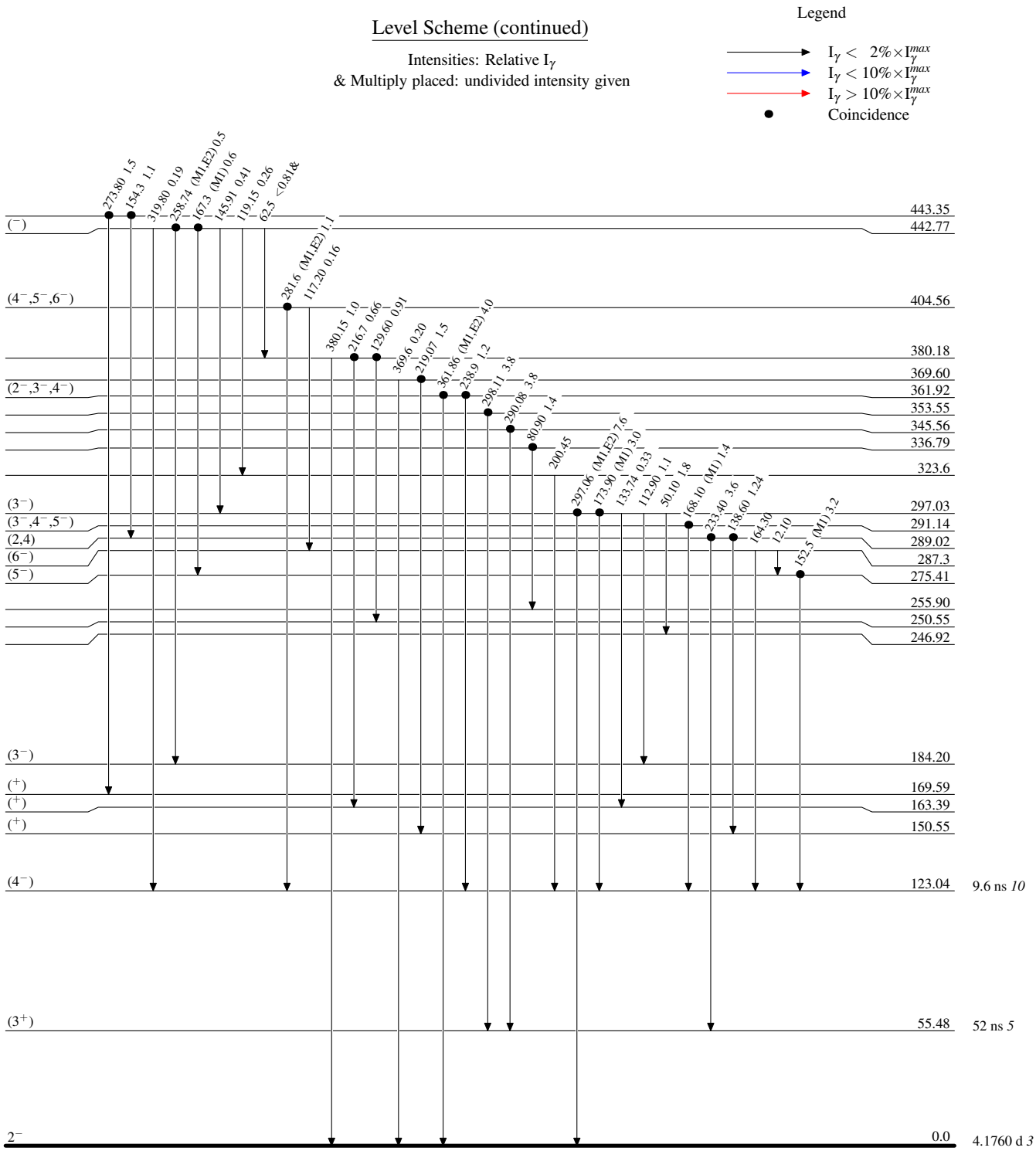


$^{124}_{53}I_{71}$

^{124}Te(p,nγ) 1997DaZY,1982Bu12

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

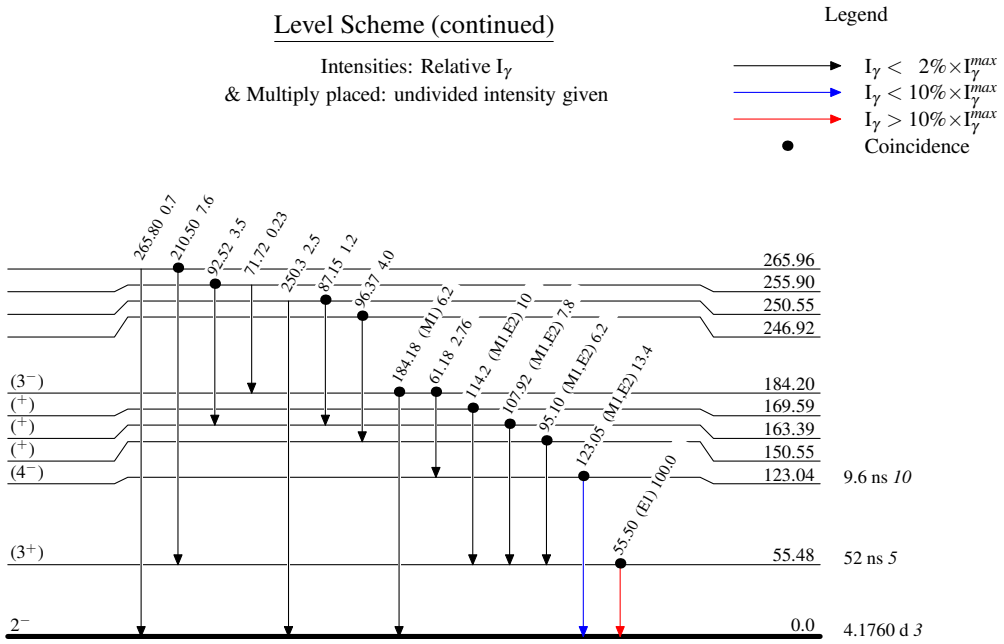


$^{124}_{53}I_{71}$

^{124}Te(p,nγ) 1997DaZY,1982Bu12

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given



$^{124}_{53}I_{71}$