^{130}Te(α,4nγ) 1984Lo19

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 93, 33 (2001)	11-May-2001

1984Lo19: E=42-51 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$.
1983Ku04: E=49-55 MeV (1983Ku04). Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$. A total of nine γ rays reported.
1984Ku14: E=48 MeV. Measured g factor by $\gamma(\theta$,H).
1965Mo10: E=48 MeV. Measured Eγ. Five γ rays reported in the g.s. band.

^{130}Xe Levels

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	Comments
0.0	0^+		
536.04 *11*	2^+		
1122.1 *3*	2^+		
1204.54 *17*	4^+		
1944.00 *21*	6^+		
2059.51 *23*	5^-		
2346.5	6^-		
2375.08 *23*	7^-		
2696.81 *24*	8^+		
2841.5[#] *3*	8^-		
2931.28 *25*	$(8)^+$		
2972.27 *25*	10^+	5.17 ns *11*	g=−0.158 *21* (1984Ku14) g: integral perturbed angular distribution method. $T_{1/2}$: from γ(t) (1984Ku14). Other: 5.9 ns *8* (1983Ku04).
3058.3 *3*			
3071.3 *3*	9^-		
3277.4 *3*	(9^+)		
3341.5 *4*			
3461.1 *3*	10^+		
3542.0[#] *3*	10^-		
3693.1[#] *3*	12^+		
3814.2 *4*	(11^+)		
3893.2 *3*	11^-		
3956.9 *4*			
4184.5 *4*			
4217.1 *4*	(12^+)		
4346.9 *3*	12^-		
4370.6 *4*			
4540.0 *3*	13^-		
4550.9 *4*	(13^+)		
4590.3 *4*	(14^+)		
4628.2 *4*			
4635.0 *4*	(13^+)		
4827.7 *4*	(13^-)		
4933.1 *5*	(14^+)		
4942.5 *3*	14^-		
4971.5 *4*	(15^-)		
5069.9 *4*	(14^+)		
5120.9 *4*	(14^+)		
5296.5 *4*			
5437.3 *11*			
5560.7 *4*			
5587.5 *4*	(16^+)		
5604.7 *4*	(16^-)		

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^{130}Te(α,4nγ) 1984Lo19 (continued)

^{130}Xe Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
5891.5 *5*		5959.8 *11*		6605.8 *5*	$(17^+,18^+)$
5953.0 *4*	(17^-)	6290.4 *5*	(17^+)	6643.2 *4*	(17,18)
				6971.2 *5*	(18,19)

† From least-squares fit to Eγ′s.
‡ From γ(θ) and probable band assignments.
# Input-output intensity balance problem.

γ(^{130}Xe)

E_γ	I_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α#	Comments
230.1 *2*	10 *2*	3071.3	9^-	2841.5	8^-	D+Q		A_2=−0.16 *2*, A_4=+0.03 *10*.
234.5 *2*	2.7 *6*	2931.28	$(8)^+$	2696.81	8^+			I_γ: for 234.5+235. A_2=+0.25 *3*, A_4=−0.04 *4*.
x235	2.7 *6*							I_γ: for 234.5+235.
275.42‡ *12*	23 *3*	2972.27	10^+	2696.81	8^+	E2	0.0554	A_2=+0.26 *2*, A_4=−0.11 *3*. Additional information 7.
287@	4.7@ *10*	2346.5	6^-	2059.51	5^-			
287@	4.7@ *10*	4827.7	(13^-)	4540.0	13^-			
305.1 *2*	2.0 *4*	3277.4	(9^+)	2972.27	10^+	D+Q		A_2=−0.59 *10*, A_4=−0.18 *20*.
315.52‡ *11*	20 *2*	2375.08	7^-	2059.51	5^-	Q		A_2=+0.26 *2*, A_4=−0.12 *2*. Additional information 5.
330.8 *2*	1.5 *7*	5891.5		5560.7				A_2<0.
346.2 *2*	2.0 *4*	3277.4	(9^+)	2931.28	$(8)^+$	D+Q		A_2=−0.83 *6*, A_4=+0.10 *10*.
351.1 *2*	1.0 *5*	3893.2	11^-	3542.0	10^-	D+Q		A_2=−0.55 *10*, A_4=−0.01 *20*.
361.5 *2*	0.7 *3*	3058.3		2696.81	8^+			
382.2 *2*	1.8 *9*	4933.1	(14^+)	4550.9	(13^+)	D+Q		A_2<0.
402.5 *2*	1.4 *7*	4942.5	14^-	4540.0	13^-	D+Q		A_2=−0.43 *20*, A_4=0.0 *3*.
x415	1.0 *5*							A_2=−0.25 *14*, A_4=+0.3 *2*.
431.3 *2*	≈3	2375.08	7^-	1944.00	6^+			I_γ: from adopted branching ratio. Iγ(431.3+431.5)=10 *2*.
431.5 *2*	≈7	4971.5	(15^-)	4540.0	13^-	(Q)		A_2=+0.18 *2*, A_4=+0.01 *2*.
453.6 *2*	2.0 *4*	4346.9	12^-	3893.2	11^-	D+Q		A_2=−0.39 *1*, A_4=+0.02 *2*.
466.5 *2*	8.0 *16*	2841.5	8^-	2375.08	7^-	D+Q		A_2=−0.93 *3*, A_4=+0.19 *4*.
470.8 *2*	5 *1*	3542.0	10^-	3071.3	9^-	D+Q		A_2=−0.34 *3*, A_4=0.07 *4*.
485.9 *2*	0.9 *4*	5120.9	(14^+)	4635.0	(13^+)	D+Q		A_2=−0.8 *4*, A_4=+0.3 *6*.
488.8 *2*	1.0 *5*	3461.1	10^+	2972.27	10^+			
500.0 *2*	12 *2*	3341.5		2841.5	8^-			A_2=+0.19 *4*, A_4=+0.01 *6*.
522.5 *2*	0.7 *3*	5959.8		5437.3				A_2<0.
536.04‡ *11*	100 *10*	536.04	2^+	0.0	0^+	Q		A_2=+0.22 *1*, A_4=−0.09 *2*. Additional information 1.
586.08‡ *25*		1122.1	2^+	536.04	2^+			
595.6 *2*	7.9 *16*	4942.5	14^-	4346.9	12^-	(Q)		A_2=+0.16 *4*, A_4=+0.02 *5*.
633.2 *2*	1.5 *7*	5604.7	(16^-)	4971.5	(15^-)	D+Q		A_2=−0.93 *5*, A_4=+0.02 *7*.
642.5 *2*	14 *2*	4184.5		3542.0	10^-			A_2=+0.20 *1*, A_4=−0.01 *1*.
646.8 *2*	8.6 *20*	4540.0	13^-	3893.2	11^-	(Q)		I_γ: from intensity-balance. Iγ=86 in 1984Lo19 seems a misprint. A_2=+0.38 *6*, A_4=−0.06 *8*.
662.1 *2*	1.5 *7*	5604.7	(16^-)	4942.5	14^-	(Q)		A_2=+0.20 *20*, A_4=+0.1 *3*.
668.50‡ *12*	96 *10*	1204.54	4^+	536.04	2^+	Q		A_2=+0.22 *1*, A_4=−0.10 *1*. Additional information 2.

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^{130}Te(α,4nγ) 1984Lo19 (continued)

$\gamma(^{130}Xe)$ (continued)

E_γ	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
677.5 *2*	0.5 *2*	4370.6		3693.1	12^+		
679.5 *2*	3.3 *7*	3956.9		3277.4	(9^+)		$A_2\approx-0.25$.
696.2 *2*	17 *2*	3071.3	9^-	2375.08	7^-	Q	$A_2=+0.32$ *2*, $A_4=-0.14$ *3*.
700.5 *2*	6 *1*	3542.0	10^-	2841.5	8^-	Q	$A_2=+0.17$ *4*, $A_4=-0.10$ *5*.
702.8 *2*	1.5 *7*	6290.4	(17^+)	5587.5	(16^+)		$A_2<0$.
720.84‡ *13*	17 *2*	3693.1	12^+	2972.27	10^+	Q	$A_2=+0.27$ *2*, $A_4=-0.12$ *2*. Additional information 8.
735.0 *2*	1.4 *7*	4628.2		3893.2	11^-		
736.7 *2*	4.9 *10*	4550.9	(13^+)	3814.2	(11^+)	(Q)	$A_2=+0.27$ *10*, $A_4=+0.12$ *14*.
739.52‡ *13*	57 *6*	1944.00	6^+	1204.54	4^+	Q	$A_2=+0.20$ *1*, $A_4=-0.11$ *1*. Additional information 3.
752.77‡ *14*	39 *4*	2696.81	8^+	1944.00	6^+	Q	$A_2=+0.25$ *1*, $A_4=-0.11$ *2*. Additional information 6.
756.0 *2*	4.5 *9*	4217.1	(12^+)	3461.1	10^+		$A_2>0$.
764.3 *2*	5 *1*	3461.1	10^+	2696.81	8^+	Q	$A_2=+0.27$ *2*, $A_4=-0.11$ *3*.
805.0 *2*	4 *1*	4346.9	12^-	3542.0	10^-	Q	$A_2=+0.27$ *2*, $A_4=-0.13$ *3*.
821.9 *2*	11 *2*	3893.2	11^-	3071.3	9^-	Q	$A_2=+0.25$ *1*, $A_4=-0.12$ *1*.
841.9 *2*	2.8 *6*	3814.2	(11^+)	2972.27	10^+	D+Q	$A_2\approx-0.6$.
846.8 *2*	≈4	4540.0	13^-	3693.1	12^+	(D)	$A_2=-0.04$ *20*, $A_4=+0.2$ *4*.
847	≈0.7	5437.3		4590.3	(14^+)		
852.8 *2*	4.1 *8*	5069.9	(14^+)	4217.1	(12^+)		$A_2\approx0.1$.
854.82‡ *19*	47 *5*	2059.51	5^-	1204.54	4^+	D	$A_2=-0.26$ *2*, $A_4=+0.03$ *2*. Additional information 4.
[x]883	1.4 *7*						
897.2 *2*	34 *4*	4590.3	(14^+)	3693.1	12^+	(Q)	$A_2=+0.18$ *5*, $A_4=-0.32$ *10*.
925.7 *2*	0.4 *2*	5560.7		4635.0	(13^+)		
934.5 *2*	5.5 *10*	4827.7	(13^-)	3893.2	11^-		$A_2>0$.
941.9 *2*	12 *3*	4635.0	(13^+)	3693.1	12^+	D+Q	$A_2=-0.94$ *7*, $A_4=+0.24$ *12*.
949.6 *2*	0.7 *3*	5296.5		4346.9	12^-		
981.5 *2*	7.6 *16*	5953.0	(17^-)	4971.5	(15^-)		$A_2>0$.
987.3 *2*	0.7 *3*	2931.28	$(8)^+$	1944.00	6^+		
997.2 *2*	5 *1*	5587.5	(16^+)	4590.3	(14^+)	(Q)	$A_2=+0.4$ *3*, $A_4=+0.2$ *5*.
1018.2@ *2*	2.6@ *6*	6605.8	$(17^+,18^+)$	5587.5	(16^+)		
1018.2@ *2*	2.6@ *6*	6971.2	(18,19)	5953.0	(17^-)		
1038.5 *2*	1.3 *6*	6643.2	(17,18)	5604.7	(16^-)		

† $\Delta I\gamma$: based on statement that uncertainties are typically a few percent for the strongest transitions and up to 50% for the weakest (1984Lo19).

‡ From 1983Ku04.

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.

@ Multiply placed with undivided intensity.

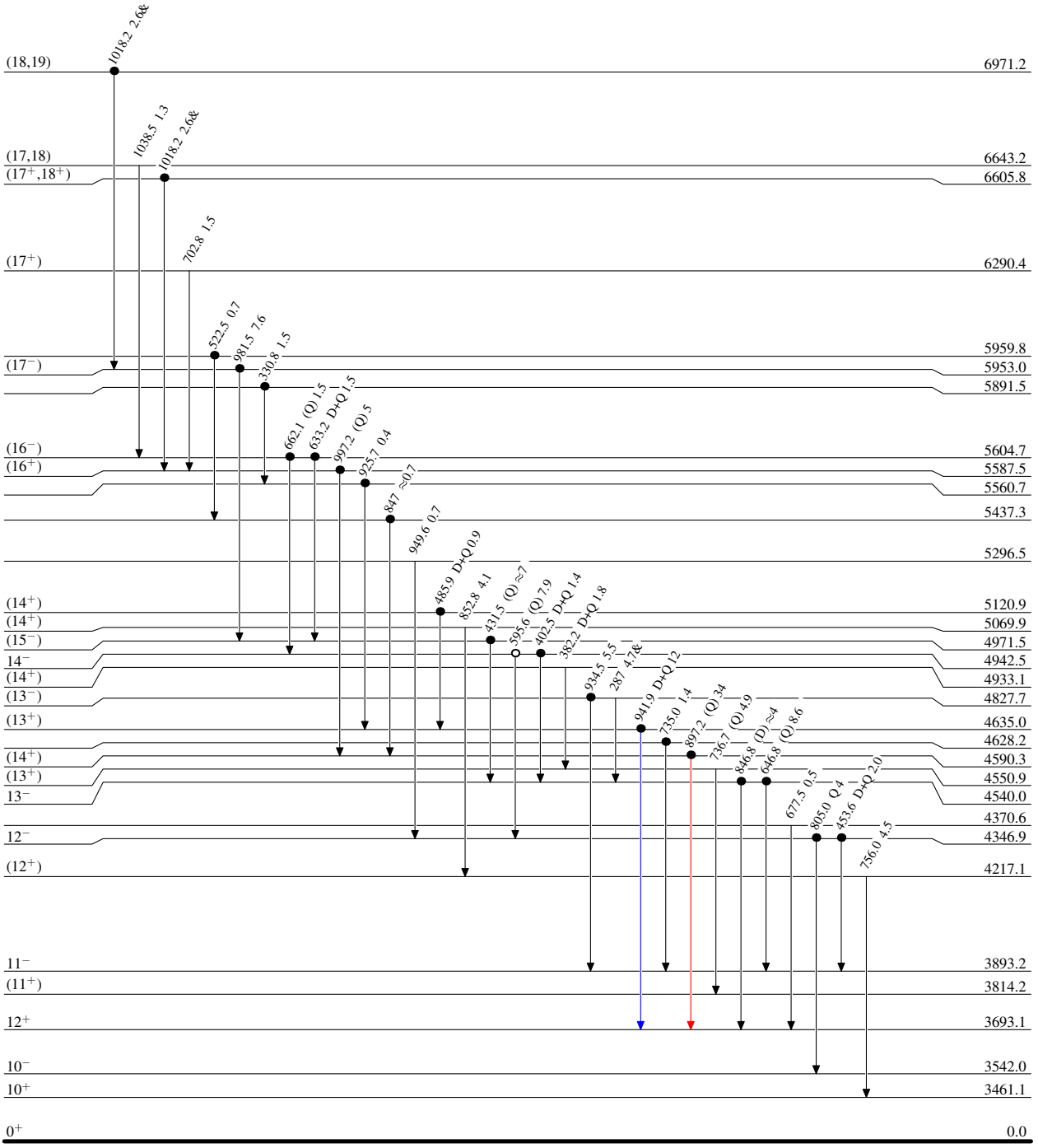
x γ ray not placed in level scheme.

^{130}Te(α,4nγ) 1984Lo19

Level Scheme

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)



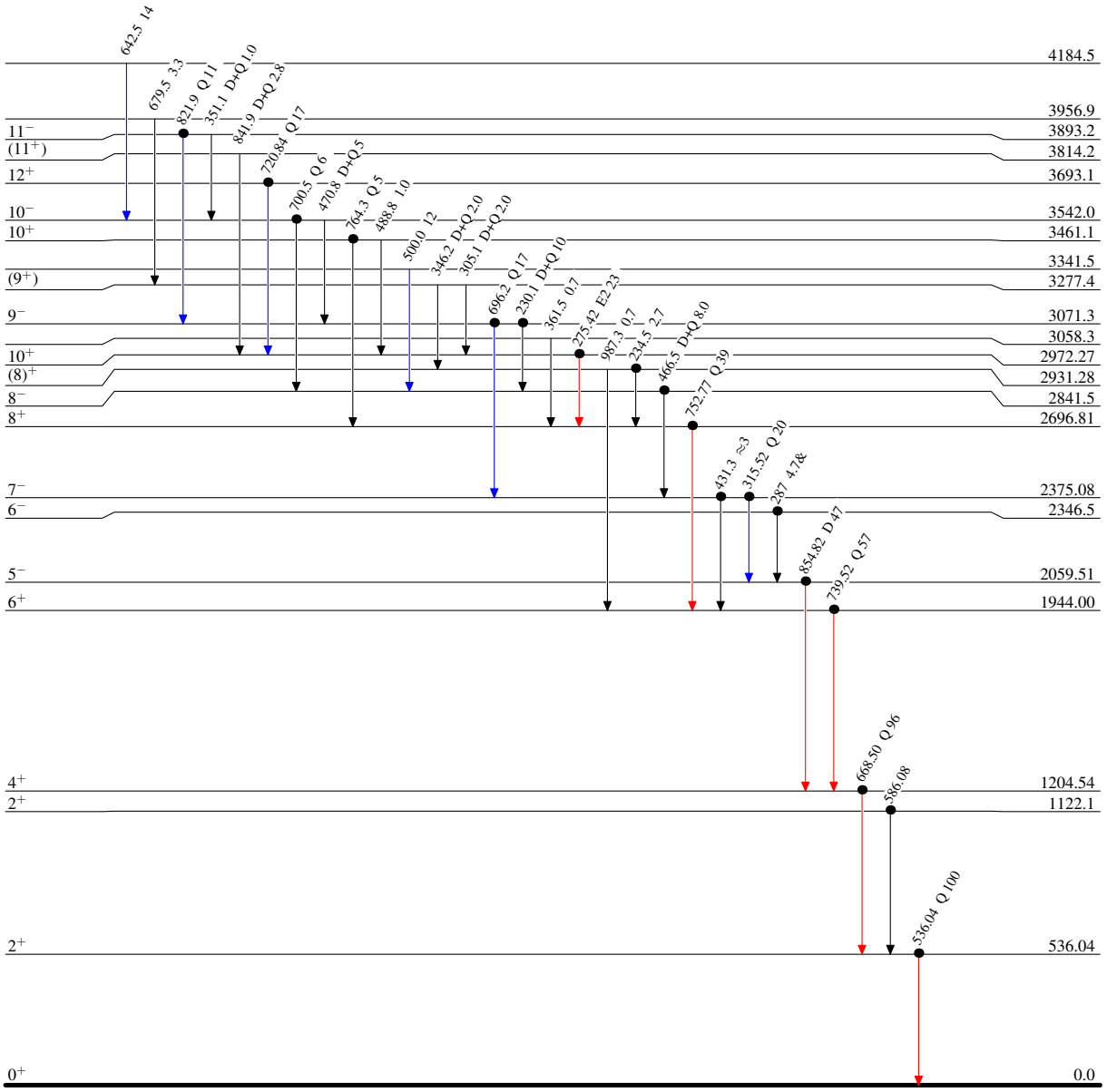
$^{130}_{54}Xe_{76}$

^{130}Te(α,4nγ) 1984Lo19

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



$^{130}_{54}Xe_{76}$