^{130}Te(α,nγ) 1983Lo08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov and A. Rodionov, F. G. Kondev	NDS 112, 855 (2011)	31-Oct-2010

1983Lo08: ^{130}Te(α,nγ), E=14.1-18.0 MeV; measured Eγ, Iγ, Ice, Eα, $\gamma(\theta)$, γ(t); deduced levels, α(exp), J^π. Cyclotron.
The level scheme is based on $\gamma\gamma$-coincidence and excitation function measurements.

^{133}Xe Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0	3/2$^+$	5.2475 d *5*	$T_{1/2}$: from Adopted Levels.
233.30 *20*	11/2$^-$	2.198 d *13*	$T_{1/2}$: from Adopted Levels.
262.79 *13*	1/2$^+$		
529.96 *14*	5/2$^+$		
607.87 *17*	5/2$^+$		
680.15 *16*	3/2$^+$		
743.8 *3*	(9/2$^-$)		
875.32 *18*	7/2$^+$		
911.72 *14*	3/2$^+$		
928.6 *3*	15/2$^-$		
1052.40 *16*	5/2$^+$		
1071.04 *17*	7/2$^+$		
1169.6 *3*	13/2$^-$		
1350.59 *16*	(5/2$^+$)		
1386.25 *21*	9/2$^+$		
1590.37 *24*	(5/2$^+$)		
1609.33 *23*	9/2$^+$		
1701.4 *3*	(7/2$^+$)		
1716.5 *4*	(15/2$^-$)		
1743.9 *3*	(13/2$^+$)		
1789.64 *24*	11/2$^+$		
1861.8 *3*	(9/2$^+$)		
1876.4 *4*	19/2$^-$		
2062.0 *3*	(13/2)$^+$		
2092.9 *3*	11/2$^-$		
2123.8 *4*	23/2$^-$		

[†] From a least-squares fit to Eγ's.
[‡] As suggested in 1983Lo08.

γ(^{133}Xe)

E$_\gamma$[‡]	I$_\gamma$[#]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[@]	α[†]	Comments
180.3 *2*	5.0 *15*	1789.64	11/2$^+$	1609.33	9/2$^+$	M1	0.1585	α(K)exp=0.19 *8* α(K)=0.1362 *20*; α(L)=0.0178 *3*; α(M)=0.00361 *6*; α(N+..)=0.000840 *12* α(N)=0.000747 *11*; α(O)=9.34×10^{-5} *14* $\gamma(\theta)$: A_2=−0.8 *3*, A_4=0.9 *4*.
233.3 *2*	2.0 *6*	233.30	11/2$^-$	0.0	3/2$^+$			I$_\gamma$: isomeric transition.
247.4 *2*	9 *2*	2123.8	23/2$^-$	1876.4	19/2$^-$	E2	0.0785	$\gamma(\theta)$: A_2=+0.53 *4*, A_4=−0.21 *5*. Mult.: Q, ΔJ=2 from $\gamma(\theta)$; ≠E2 from RUL.
262.8 *2*	26 *4*	262.79	1/2$^+$	0.0	3/2$^+$	M1	0.0576	α(K)exp=0.028 *7* α(K)=0.0496 *7*; α(L)=0.00640 *9*; α(M)=0.001299 *19*; α(N+..)=0.000303 *5*

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^{130}Te(α,nγ) 1983Lo08 (continued)

$\gamma(^{133}Xe)$ (continued)

E_γ[‡]	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N)=0.000269 *4*; α(O)=3.37×10^{-5} *5* $\gamma(\theta)$: A_2=−0.09 *2*, A_4=−0.04 *2*.
357.6 *2*	9 *2*	1743.9	(13/2$^+$)	1386.25	9/2$^+$	(E2)	0.0241	α(K)exp=0.025 *18* α(K)=0.0200 *3*; α(L)=0.00321 *5*; α(M)=0.000661 *10*; α(N+..)=0.0001502 *22* α(N)=0.0001345 *19*; α(O)=1.571×10^{-5} *23* $\gamma(\theta)$: A_2=+0.45 *14*, A_4=−0.03 *18*.
381.8 *2*	5.0 *15*	911.72	3/2$^+$	529.96	5/2$^+$	M1+E2	0.0208 *12*	α(K)=0.0177 *13*; α(L)=0.00249 *10*; α(M)=0.000509 *23*; α(N+..)=0.000117 *4* α(N)=0.000105 *4*; α(O)=1.268×10^{-5} *18* Mult.: from RUL. $\gamma(\theta)$: A_2=+0.1 *4*, A_4=0.1 *5*.
403.4 *2*	8 *2*	1789.64	11/2$^+$	1386.25	9/2$^+$	M1+E2	0.0179 *12*	$\gamma(\theta)$: A_2=−0.35 *5*, A_4=0.02 *7*. Mult.: ΔJ=1; M1+E2 from RUL.
417.4 *2*	7 *3*	680.15	3/2$^+$	262.79	1/2$^+$	(M1)	0.01748	α(K)exp=0.010 *6* α(K)=0.01508 *22*; α(L)=0.00192 *3*; α(M)=0.000388 *6*; α(N+..)=9.05×10^{-5} *13* α(N)=8.04×10^{-5} *12*; α(O)=1.009×10^{-5} *15* $\gamma(\theta)$: A_2=−0.04 *15*, A_4=0.18 *20*.
452.7 *2*	14 *3*	2062.0	(13/2)$^+$	1609.33	9/2$^+$	(E2)	0.01190	α(K)exp=0.014 *9* α(K)=0.01003 *14*; α(L)=0.001493 *21*; α(M)=0.000306 *5*; α(N+..)=7.00×10^{-5} *10* α(N)=6.26×10^{-5} *9*; α(O)=7.45×10^{-6} *11* $\gamma(\theta)$: A_2=0.2 *2*, A_4=−0.2 *3*.
463.2 *2*	10 *2*	1071.04	7/2$^+$	607.87	5/2$^+$	M1	0.01346	α(K)exp=0.010 *4* α(K)=0.01163 *17*; α(L)=0.001472 *21*; α(M)=0.000298 *5*; α(N+..)=6.95×10^{-5} *10* α(N)=6.17×10^{-5} *9*; α(O)=7.75×10^{-6} *11* $\gamma(\theta)$: A_2=−0.52 *10*, A_4=−0.12 *15*.
510.5 *2*		743.8	(9/2$^-$)	233.30	11/2$^-$	M1+E2	0.0095 *11*	E_γ: taken rounded-off value of 1976Me16 by 1983Lo08 (not measured). Mult.: from RUL.
530.0 *2*	100 *10*	529.96	5/2$^+$	0.0	3/2$^+$	M1+E2	0.0086 *10*	α(K)exp=0.006 *1* α=0.0086 *10*; α(K)=0.0074 *10*; α(L)=0.00099 *7*; α(M)=0.000201 *12*; α(N+..)=4.7×10^{-5} *4* α(N)=4.1×10^{-5} *3*; α(O)=5.1×10^{-6} *5* $\gamma(\theta)$: A_2=0.23 *4*, A_4=0.12 *6*.
546.9 *2*	26 *4*	1716.5	(15/2$^-$)	1169.6	13/2$^-$	(M1)	0.00893 *13*	α(K)exp=0.017 *3* α=0.00893 *13*; α(K)=0.00772 *11*; α(L)=0.000972 *14*; α(M)=0.000197 *3*; α(N+..)=4.59×10^{-5} *7* α(N)=4.07×10^{-5} *6*; α(O)=5.12×10^{-6} *8* $\gamma(\theta)$: A_2=−0.01 *8*, A_4=−0.33 *11*.
607.9 *2*	64 *10*	607.87	5/2$^+$	0.0	3/2$^+$	M1	0.00691 *10*	α(K)exp=0.0023 *6* α=0.00691 *10*; α(K)=0.00597 *9*; α(L)=0.000749 *11*; α(M)=0.0001515 *22*; α(N+..)=3.53×10^{-5} *5* α(N)=3.14×10^{-5} *5*; α(O)=3.95×10^{-6} *6* $\gamma(\theta)$: A_2=−0.51 *3*, A_4=0.04 *4*.
648.9 *2*	6.0 *15*	911.72	3/2$^+$	262.79	1/2$^+$	M1	0.00590 *9*	α(K)exp=0.011 *7* α=0.00590 *9*; α(K)=0.00510 *8*; α(L)=0.000639 *9*; α(M)=0.0001292 *19*; α(N+..)=3.01×10^{-5} *5*

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^{130}Te(α,nγ) 1983Lo08 (continued)

γ(^{133}Xe) (continued)

E_γ[‡]	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N)=2.68×10^{-5} *4*; α(O)=3.37×10^{-6} *5* $\gamma(\theta)$: A_2=−0.29 *12*, A_4=−0.12 *18*.
680.1 *2*	18 *4*	680.15	3/2$^+$	0.0	3/2$^+$	M1	0.00527 *8*	α(K)exp=0.004 *2* α=0.00527 *8*; α(K)=0.00456 *7*; α(L)=0.000570 *8*; α(M)=0.0001152 *17*; α(N+..)=2.69×10^{-5} *4* α(N)=2.39×10^{-5} *4*; α(O)=3.00×10^{-6} *5* $\gamma(\theta)$: A_2=0.01 *3*, A_4=0.13 *4*.
695.3 *2*	150 *15*	928.6	15/2$^-$	233.30	11/2$^-$	E2	0.00377 *6*	α(K)exp=0.0035 *6* α=0.00377 *6*; α(K)=0.00323 *5*; α(L)=0.000436 *7*; α(M)=8.87×10^{-5} *13*; α(N+..)=2.05×10^{-5} *3* α(N)=1.82×10^{-5} *3*; α(O)=2.23×10^{-6} *4* $\gamma(\theta)$: A_2=0.20 *3*, A_4=−0.03 *5*.
706.6 *2*	16 *3*	2092.9	11/2$^-$	1386.25	9/2$^+$	E1	0.001369 *20*	α(K)exp≤0.001 α=0.001369 *20*; α(K)=0.001188 *17*; α(L)=0.0001451 *21*; α(M)=2.92×10^{-5} *4*; α(N+..)=6.79×10^{-6} α(N)=6.04×10^{-6} *9*; α(O)=7.54×10^{-7} *11* $\gamma(\theta)$: A_2=−0.40 *16*, A_4=−0.6 *2*.
734.0 *2*	47 *7*	1609.33	9/2$^+$	875.32	7/2$^+$	M1+E2	0.0038 *6*	α(K)exp=0.0046 *14* α=0.0038 *6*; α(K)=0.0033 *5*; α(L)=0.00043 *5*; α(M)=8.6×10^{-5} *10*; α(N+..)=2.01×10^{-5} *23* α(N)=1.79×10^{-5} *21*; α(O)=2.2×10^{-6} *3* $\gamma(\theta)$: A_2=0.22 *7*, A_4=−0.07 *10*.
789.6 *2*	10 *2*	1052.40	5/2$^+$	262.79	1/2$^+$	(E2)	0.00277 *4*	α(K)exp=0.004 *4* α=0.00277 *4*; α(K)=0.00238 *4*; α(L)=0.000315 *5*; α(M)=6.39×10^{-5} *9*; α(N+..)=1.478×10^{-5} *21* α(N)=1.316×10^{-5} *19*; α(O)=1.618×10^{-6} *23* $\gamma(\theta)$: A_2=0.13 *11*, A_4=−0.19 *16*.
790.8 *2*	4.0 *12*	1861.8	(9/2$^+$)	1071.04	7/2$^+$	D+Q		$\gamma(\theta)$: A_2=−0.56 *5*, A_4=0.27 *7*. Mult.: ΔJ=1 from $\gamma(\theta)$.
820.6 *2*	6.0 *15*	1350.59	(5/2$^+$)	529.96	5/2$^+$	M1+E2	0.0030 *5*	$\gamma(\theta)$: A_2=0.67 *6*, A_4=−0.87 *9*. Mult.: from RUL.
856.3 *2*	44 *7*	1386.25	9/2$^+$	529.96	5/2$^+$	E2	0.00229 *4*	α(K)exp=0.0024 *9* α=0.00229 *4*; α(K)=0.00197 *3*; α(L)=0.000258 *4*; α(M)=5.23×10^{-5} *8*; α(N+..)=1.211×10^{-5} *17* α(N)=1.078×10^{-5} *16*; α(O)=1.330×10^{-6} *19* $\gamma(\theta)$: A_2=0.21 *3*, A_4=−0.12 *4*.
875.3 *2*	99 *10*	875.32	7/2$^+$	0.0	3/2$^+$	E2	0.00218 *3*	α(K)exp=0.0014 *7* α=0.00218 *3*; α(K)=0.00188 *3*; α(L)=0.000245 *4*; α(M)=4.96×10^{-5} *7*; α(N+..)=1.149×10^{-5} *16* α(N)=1.023×10^{-5} *15*; α(O)=1.262×10^{-6} *18* $\gamma(\theta)$: A_2=0.23 *3*, A_4=−0.01 *4*.
911.7 *2*	20 *4*	911.72	3/2$^+$	0.0	3/2$^+$	M1+E2	0.0023 *4*	$\gamma(\theta)$: A_2=−0.4 *3*, A_4=0.0 *5*. Mult.: from RUL.
936.3 *2*	38 *6*	1169.6	13/2$^-$	233.30	11/2$^-$	M1	0.00249 *4*	α(K)exp=0.0009 *6* α=0.00249 *4*; α(K)=0.00216 *3*; α(L)=0.000267 *4*; α(M)=5.39×10^{-5} *8*; α(N+..)=1.257×10^{-5} *18*

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^{130}Te(α,nγ) 1983Lo08 (continued)

$\gamma(^{133}Xe)$ (continued)

E_γ[‡]	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N)=1.117×10^{-5} *16*; α(O)=1.406×10^{-6} *20* $\gamma(\theta)$: A_2=−0.83 *2*, A_4=0.07 *2*.
947.8 *2*	31 *5*	1876.4	19/2$^-$	928.6	15/2$^-$	E2	0.00182 *3*	α(K)exp=0.003 *3* α=0.00182 *3*; α(K)=0.001570 *22*; α(L)=0.000203 *3*; α(M)=4.10×10^{-5} *6*; α(N+..)=9.52×10^{-6} *14* α(N)=8.47×10^{-6} *12*; α(O)=1.048×10^{-6} *15* $\gamma(\theta)$: A_2=0.34 *4*, A_4=−0.18 *5*.
1052.4 *2*	11 *2*	1052.40	5/2$^+$	0.0	3/2$^+$			$\gamma(\theta)$: A_2=0.12 *6*, A_4=−0.13 *8*. Mult.: ΔJ=1,2; D,Q from RUL.
1060.4 *2*	4.0 *12*	1590.37	(5/2$^+$)	529.96	5/2$^+$	D		$\gamma(\theta)$: A_2=0.05 *15*, A_4=−0.03 *20*. Mult.: ΔJ=0, D+Q from RUL.
1071.0 *2*	10 *2*	1071.04	7/2$^+$	0.0	3/2$^+$	(E2)		$\gamma(\theta)$: A_2=0.04 *2*, A_4=−0.14 *3*.
1093.5 *2*	6.0 *15*	1701.4	(7/2$^+$)	607.87	5/2$^+$	D		$\gamma(\theta)$: A_2=−0.1 *3*, A_4=−0.0 *4*.
1350.6 *2*	11 *2*	1350.59	(5/2$^+$)	0.0	3/2$^+$	M1+E2	0.00101 *12*	α(K)exp=0.0016 *16* α=0.00101 *12*; α(K)=0.00085 *10*; α(L)=0.000104 *12*; α(M)=2.11×10^{-5} *23*; α(N+..)=3.74×10^{-5} *7* α(N)=4.4×10^{-6} *5*; α(O)=5.5×10^{-7} *7*; α(IPF)=3.25×10^{-5} *10* Mult.: α(K)exp allows mult.=D,E2; ≠E1 from level scheme and $\gamma(\theta)$ in ^{133}I β^- decay.

† Additional information 1.
‡ From 1983Lo08, except as noted.
# From 1983Lo08. Under comment to Table V, evaluators assumed ΔIγ=10 % for Iγ≥100; ΔIγ=15 % for 100>Iγ≥ 25; ΔIγ=20% for 25>Iγ≥ 10; ΔIγ=25 % for 10>Iγ≥ 5; ΔIγ=30 % for Iγ<5.
@ From $\gamma(\theta)$ and α(K)exp in 1983Lo08.

^{130}Te(α,nγ) **1983Lo08**

Level Scheme

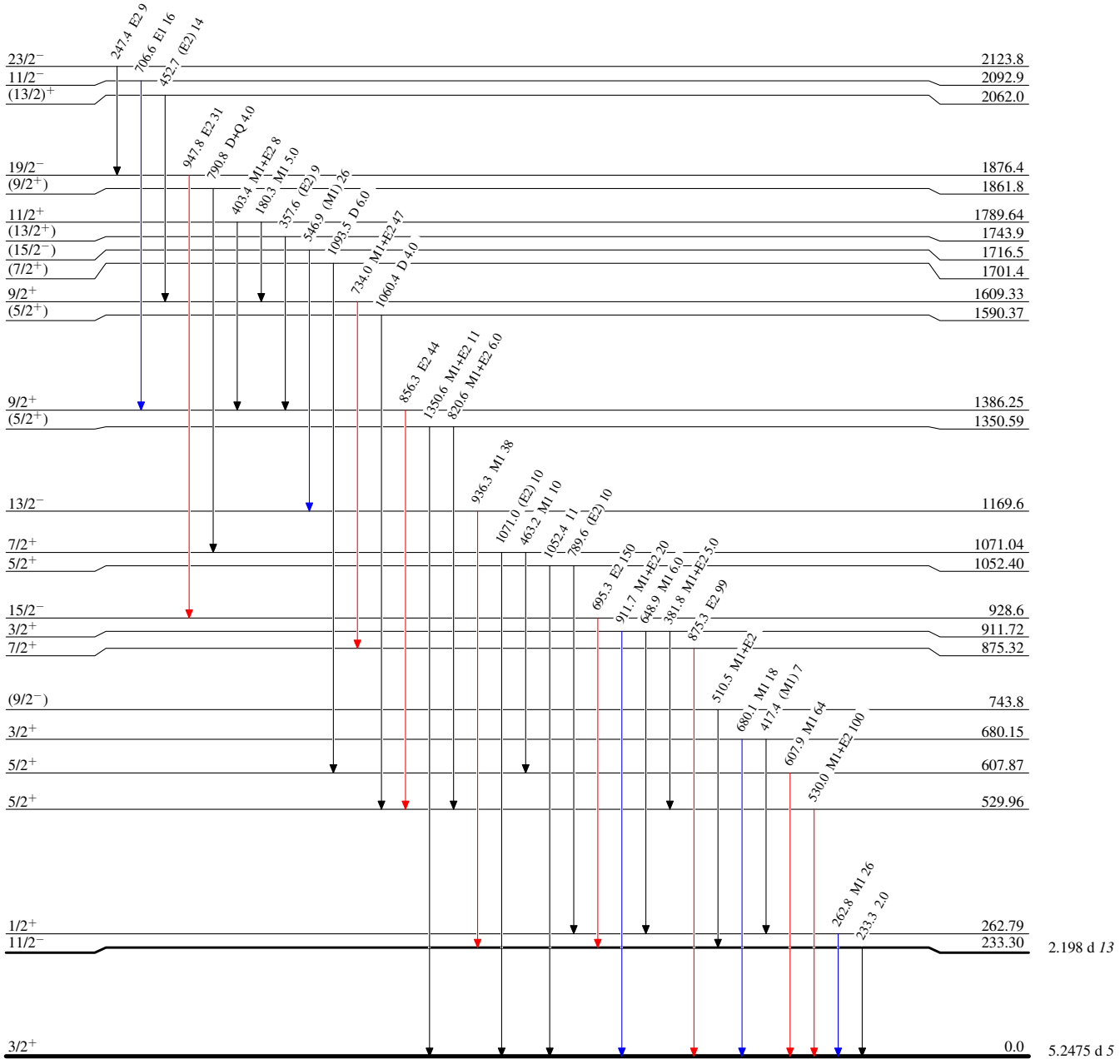
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{133}_{54}Xe_{79}$