

$^{130}\text{Te}(\text{p},\text{n}\gamma)$ 1975BIZY

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

1975BIZY: E=10 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $\gamma(\theta, \text{H}, \text{t})$.

Others:

1979HaZJ: $^{130}\text{Te}(\text{}^3\text{He}, 2\text{np})$ E=20-27 MeV. Based on a 70-keV transition of $T_{1/2} \approx 1 \mu\text{s}$ and $3 \mu\text{s}$, the authors suggest these isomers belong in ^{130}I .

1995Mu20: E=4-18 MeV. Measured cross sections.

[Additional information 1.](#)

The level scheme is based on (n, γ) results.

 ^{130}I Levels

E(level) [†]	$J^{\pi\ddagger}$	$T_{1/2}$	Comments
0.0	5 ⁺		
40.2 4	2 ⁺		
43.7 7	(1 to 4) ⁺		
44.2 11	(3) ⁻		
44.4 4	3 ⁺ , 4 ⁺		
49.0 5	4 ⁺		
69.6 3	(6) ⁻		
82.2 9	-		
85.1 3	(6) ⁻	229 ns 14	$g = -0.048 5$ $T_{1/2, g}$: $\gamma(\text{t})$ and $\gamma(\theta, \text{H}, \text{t})$; assigned by 1975BIZY to 202.9 level based on incorrect placement of 85.1 γ .
91.8 5	(4) ⁻		
93.9 5	3 ⁺		
111.2 7	(5) ⁻		
125.70 20	4 ⁺ , 5 ⁺		
180.1 7	(5, 6, 7) ⁻		
209.8 4	2 ⁺ , 3 ⁺		
223.9 5	3 ⁺		
244.9 4	(5) ⁻		
251.4 3	3 ⁺		
254.7 4	1 ⁺ , 2 ⁺ , 3 ⁺		
262.0 6	3 ⁺ , 4 ⁺		
295.7 7	(4, 5) ⁻		
349.9 5	(1 to 4) ⁺		
353.9 11	(2 to 5) ⁻		
374.5 5	(2, 3, 4) ⁺		
378.2 5	(4, 5) ⁻		
437.8? 11	2 ⁺ , 3 ⁺ , 4 ⁺		
460.7 8	-		
480.4 5	(4, 5) ⁻		
544.6 6	(2 to 5) ⁺		
682.2? 6	(3, 4, 5) ⁻		
698.8 10	(4, 5) ⁻		
761.0 6	(2 to 5) ⁻		
1078.5 9	(3, 4, 5) ⁻		

[†] From least-squares adjustment to $E\gamma$'s.

[‡] From Adopted Levels.

$^{130}\text{Te}(p,n\gamma)$ **1975BIZY (continued)** $\gamma(^{130}\text{I})$

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
(4.0)		44.2	(3) ⁻	40.2	2 ⁺
69.6 3	50.4 24	69.6	(6) ⁻	0.0	5 ⁺
81.5 5	23 3	125.70	4 ⁺ ,5 ⁺	44.4	3 ⁺ ,4 ⁺
85.1 3	42.1 19	85.1	(6) ⁻	0.0	5 ⁺
^x 87.2 6	2.4 3				
95.0 6	1.7 3	180.1	(5,6,7) ⁻	85.1	(6) ⁻
97.9 5	5.2 5	180.1	(5,6,7) ⁻	82.2	-
102.3 6	2.7 4	480.4	(4,5) ⁻	378.2	(4,5) ⁻
^x 109.8 6	3.4 4				
112.6 6	0.7 2	374.5	(2,3,4) ⁺	262.0	3 ⁺ ,4 ⁺
125.7 [†] 2	≈25 [†]	125.70	4 ⁺ ,5 ⁺	0.0	5 ⁺
125.7 [†] 2	≈4.8 [†]	251.4	3 ⁺	125.70	4 ⁺ ,5 ⁺
130.0 6	2.3 4	223.9	3 ⁺	93.9	3 ⁺
153.1 5	6.4 5	244.9	(5) ⁻	91.8	(4) ⁻
157.5 4	7.3 5	251.4	3 ⁺	93.9	3 ⁺
159.8 2	37.9 16	244.9	(5) ⁻	85.1	(6) ⁻
164.7 ^{†‡}	≈2.4 [†]	374.5	(2,3,4) ⁺	209.8	2 ⁺ ,3 ⁺
165.4 [†] 2	10 [†] 2	209.8	2 ⁺ ,3 ⁺	44.4	3 ⁺ ,4 ⁺
166.1 ^{†‡}	10 [†] 2	209.8	2 ⁺ ,3 ⁺	43.7	(1 to 4) ⁺
168.1 ^{†‡}	21 [†] 3	262.0	3 ⁺ ,4 ⁺	93.9	3 ⁺
169.6 ^{†‡}	62 [†] 6	209.8	2 ⁺ ,3 ⁺	40.2	2 ⁺
175.0 [†] 5	≈4 [†]	223.9	3 ⁺	49.0	4 ⁺
175.3 ^{†‡}	≈1.4 [†]	244.9	(5) ⁻	69.6	(6) ⁻
179.5 4	7.2 6	223.9	3 ⁺	44.4	3 ⁺ ,4 ⁺
183.7 ^{†‡}	32 [†] 6	223.9	3 ⁺	40.2	2 ⁺
184.5 [†] 2	66 [†] 6	295.7	(4,5) ⁻	111.2	(5) ⁻
184.7 ^{†‡}	2 [†] 1	480.4	(4,5) ⁻	295.7	(4,5) ⁻
201.7 [†] 4	≈5.3 [†]	682.2?	(3,4,5) ⁻	480.4	(4,5) ⁻
202.3 ^{†‡}	≈3.2 [†]	251.4	3 ⁺	49.0	4 ⁺
206.8 5	5.9 5	251.4	3 ⁺	44.4	3 ⁺ ,4 ⁺
211.2 2	26.1 12	251.4	3 ⁺	40.2	2 ⁺
214.5 2	38.4 17	254.7	1 ⁺ ,2 ⁺ ,3 ⁺	40.2	2 ⁺
217.7 6	2.5 4	262.0	3 ⁺ ,4 ⁺	44.4	3 ⁺ ,4 ⁺
^x 225.9 6					
235.5 3	15.6 9	480.4	(4,5) ⁻	244.9	(5) ⁻
238.1 6	4.9 5	698.8	(4,5) ⁻	460.7	-
^x 250.6 6	3.7 5				
260.5 [@] 6	3.9 4	262.0	3 ⁺ ,4 ⁺	0.0	5 ⁺
^x 270.4 6	2.2 3				
^x 277.2 6	2.7 4				
280.6 [#] 4	9.2 [#] 6	460.7	-	180.1	(5,6,7) ⁻
280.6 [#] 4	9.2 [#] 6	761.0	(2 to 5) ⁻	480.4	(4,5) ⁻
^x 283.9 6	3.2 3				
286.4 3	15.5 8	378.2	(4,5) ⁻	91.8	(4) ⁻
293.2 [†] 6	≈2.9 [†]	378.2	(4,5) ⁻	85.1	(6) ⁻
293.2 [†] 6	≈1.1 [†]	544.6	(2 to 5) ⁺	251.4	3 ⁺
306.2 6	4.5 4	349.9	(1 to 4) ⁺	43.7	(1 to 4) ⁺
309.7 [†] 3	13 [†] 3	349.9	(1 to 4) ⁺	40.2	2 ⁺
309.7 [†] 3	63 [†] 3	353.9	(2 to 5) ⁻	44.2	(3) ⁻
317.5 6	3.2 4	1078.5	(3,4,5) ⁻	761.0	(2 to 5) ⁻

Continued on next page (footnotes at end of table)

$^{130}\text{Te}(\text{p},\text{n}\gamma)$ 1975BIZY (continued) $\gamma(^{130}\text{I})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
320.8 6	3.0 4	544.6	(2 to 5) ⁺	223.9	3 ⁺
325.3 5	8.6 6	374.5	(2,3,4) ⁺	49.0	4 ⁺
330.2 5	7.0 5	374.5	(2,3,4) ⁺	44.4	3 ⁺ ,4 ⁺
^x 359.7 6	1.3 3				
^x 366.9 5	8.8 7				
^x 371.1 6	>2.0				
^x 375.7 6	3.6 5				
386.5 6	3.3 4	682.2?	(3,4,5) ⁻	295.7	(4,5) ⁻
394.1 8	>2	437.8?	2 ⁺ ,3 ⁺ ,4 ⁺	43.7	(1 to 4) ⁺
465.2 8	>18	761.0	(2 to 5) ⁻	295.7	(4,5) ⁻

† Multiply placed; $E_\gamma=125.7$ 2, $I_\gamma=29.8$ 15; $E_\gamma=165.4$ 2, $I_\gamma=22.4$ 11; $E_\gamma=169.2$ 2, $I_\gamma=83$ 3; $E_\gamma=175.0$ 5, $I_\gamma=5.4$ 5; $E_\gamma=184.5$ 2, $I_\gamma=100$; $E_\gamma=201.7$ 4, $I_\gamma=8.5$ 5; $E_\gamma=293.2$ 6, $I_\gamma=4.0$ 4; $E_\gamma=309.7$ 3, $I_\gamma=76$ 3. I_γ divided by adopted γ branchings.

‡ From level energy difference.

Multiply placed with undivided intensity.

@ Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

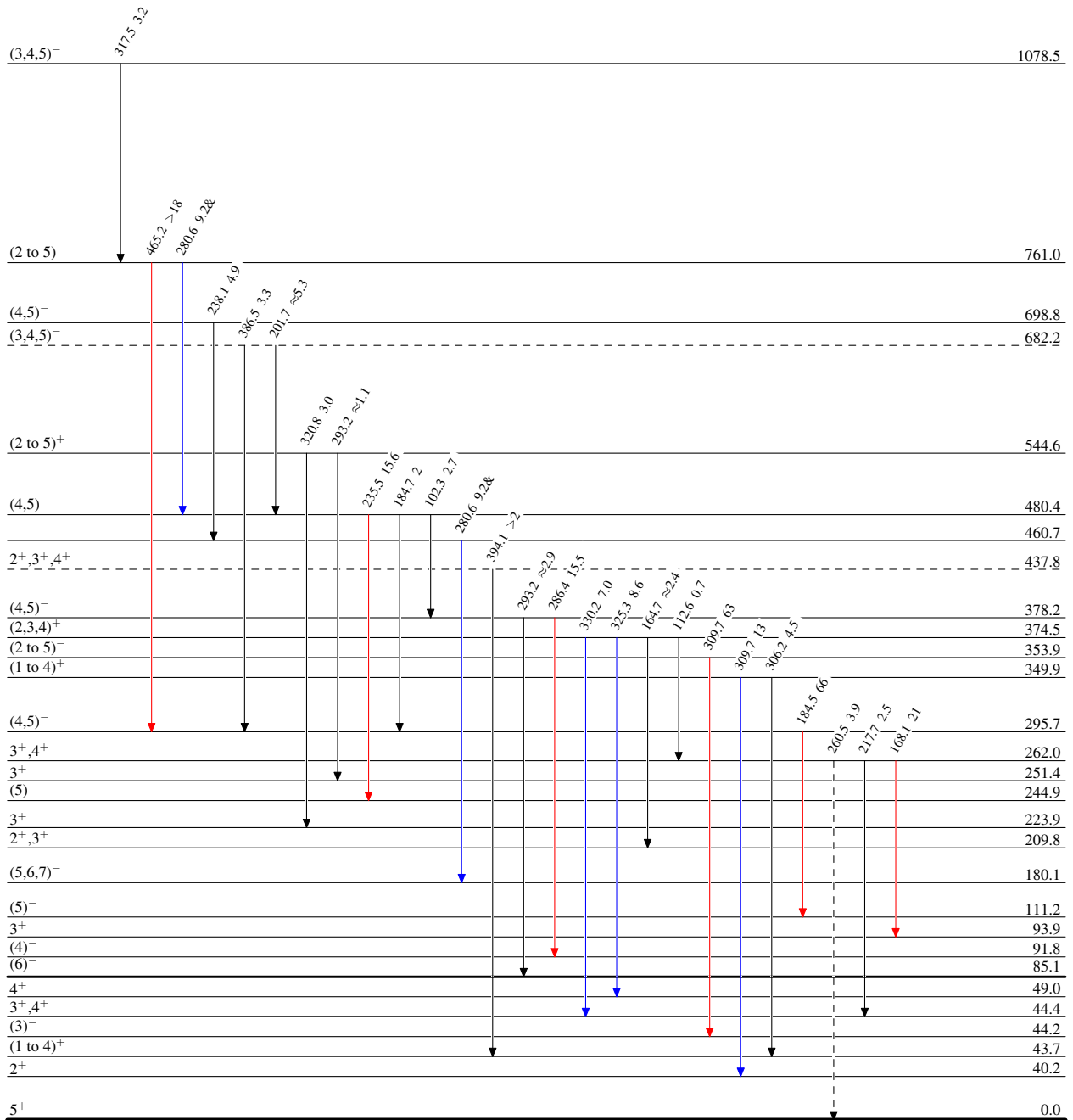
$^{130}\text{Te}(\text{p},\text{n}\gamma)$ 1975BIZY

Level Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend

- ▶ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - - ▶ γ Decay (Uncertain)



$^{130}_{53}\text{I}_{77}$

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Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend

- ▶ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - -▶ γ Decay (Uncertain)

