

$^{130}\text{Te}(^{64}\text{Ni}, ^{67}\text{Ni}\gamma)$ **1998Zh09**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. Hashizume	NDS 112, 1647 (2011)	1-Oct-2009

1998Zh09: $^{130}\text{Te}(^{64}\text{Ni}, ^A\text{Ni}+y\text{n}\gamma)$ E=275 MeV; A=64,y=3: A=65,y=2: A=66,y=1(multinucleon transfer reactions); enriched target(88%); semi array, $\gamma\gamma\gamma$ coin, $\gamma(t)$, $\gamma(\theta)$.

Isotope identification was made through cross coincidences observed between γ 's from Te and Ni partner products.

^{127}Te Levels

E(level) [#]	J ^{π} @&	T _{1/2}	Comments
0.0 [†]	3/2 ⁺	9.35 h 7	T _{1/2} : from Adopted Levels.
88.26 [‡] 8	11/2 ⁻	106.1 d 7	Additional information 1. T _{1/2} : from Adopted Levels.
340.76 [‡] 10	(9/2 ⁻)		
631.56 [‡] 15	7/2 ⁻		
685.10 [†] 10	7/2 ⁺		
785.66 [‡] 10	15/2 ⁻		
785.86 [‡] 15	7/2 ⁻		
1353.10 [†] 15	(11/2 ⁺)		
1464.04 [‡] 14	19/2 ⁻		
1544.88 [‡] 14	(17/2 ⁻)		
1616.30 [†] 18	(15/2 ⁺)		
1856.36 [‡] 16	(21/2 ⁻)		
1955.71 [†] 14	(21/2 ⁺)		
2314.29 [†] 16	(23/2 ⁺)		
2417.25 [‡] 17	(23/2 ⁻)		
3131.29 19			

[†] Band(A): band built on the 3/2⁺ state.

[‡] Band(B): band built on the 11/2⁻ state.

[#] From a least-squares fit to E(γ 's).

@ **1998Zh09** interpreted the three strong γ 's (392.3, 697.4 and 678.2 keV) as yrast cascade γ 's from (21/2⁻) to (11/2⁻). This is supported by the systematic trend of excited states in ^{129}Te and ^{131}Te studied in the same report. These levels were compared to the excited ^{133}Te states calculated from shell model. The level energies of positive parity bands which decay to the 3/2⁺ state and those of neighboring even nuclei with 0⁺, 2⁺, 4⁺ and 6⁺ of vibrational states have good correspondence (**1998Zh09**).

& The π 's assignments on 1856.36 and 1955.71 levels are different in the table and in the level scheme in **1998Zh09**. From systematics, evaluator adopts π 's from the level scheme in **1998Zh09**.

$\gamma(^{127}\text{Te})$

E _{γ}	I _{γ}	E _i (level)	J _i ^{π}	E _f	J _f ^{π}
252.5 I	39 4	340.76	(9/2 ⁻)	88.26	11/2 ⁻
263.2 I	9.6 I	1616.30	(15/2 ⁺)	1353.10	(11/2 ⁺)
290.8 I	14 I	631.56	7/2 ⁻	340.76	(9/2 ⁻)
358.6 I	8.0 8	2314.29	(23/2 ⁺)	1955.71	(21/2 ⁺)
392.3 I	36 4	1856.36	(21/2 ⁻)	1464.04	19/2 ⁻
411.0 I	20 2	1955.71	(21/2 ⁺)	1544.88	(17/2 ⁻)
445.1 I	11 I	785.86	7/2 ⁻	340.76	(9/2 ⁻)

Continued on next page (footnotes at end of table)

$^{130}\text{Te}(^{64}\text{Ni}, ^{67}\text{Ni}\gamma)$ 1998Zh09 (continued) $\gamma(^{127}\text{Te})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	
457.9	1	20 2	2314.29	(23/2 ⁺)	1856.36	(21/2 ⁻)	
491.5	1	25 3	1955.71	(21/2 ⁺)	1464.04	19/2 ⁻	
668.0	1	19 2	1353.10	(11/2 ⁺)	685.10	7/2 ⁺	
678.2	1	100 10	1464.04	19/2 ⁻	785.66	15/2 ⁻	Q
685.1	1	57 6	685.10	7/2 ⁺	0.0	3/2 ⁺	
697.4	1	220 22	785.66	15/2 ⁻	88.26	11/2 ⁻	Q
759.4	1	23 2	1544.88	(17/2 ⁻)	785.66	15/2 ⁻	
817.0	1	24 2	3131.29		2314.29	(23/2 ⁺)	
953.2	1	15 2	2417.25	(23/2 ⁻)	1464.04	19/2 ⁻	

[†] From $\gamma(\theta)$ and member of transitions between band(A) (1998Zh09). Except 697.4 and 678.2 keV, $\gamma(\theta)$ data are not accessible.

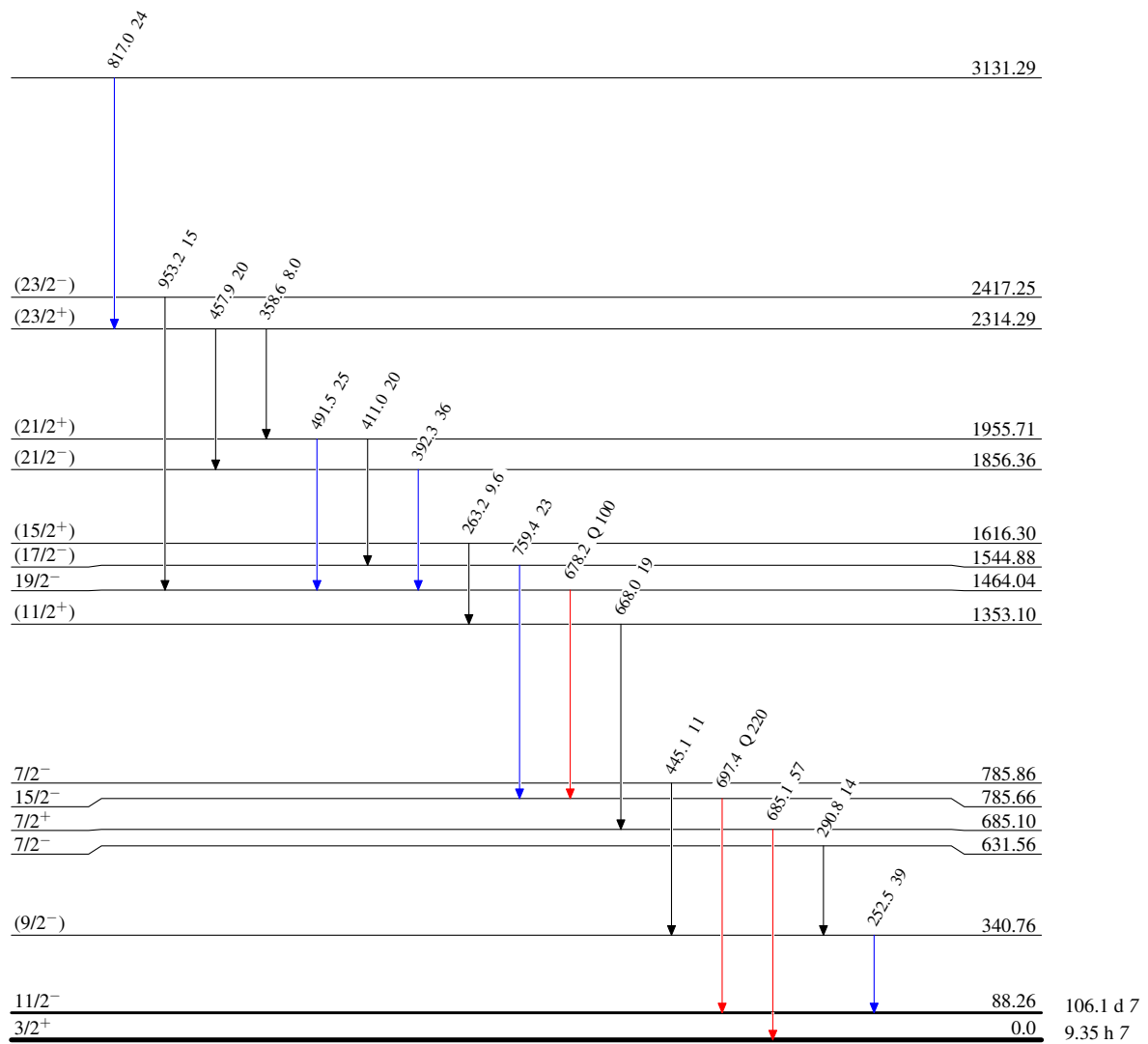
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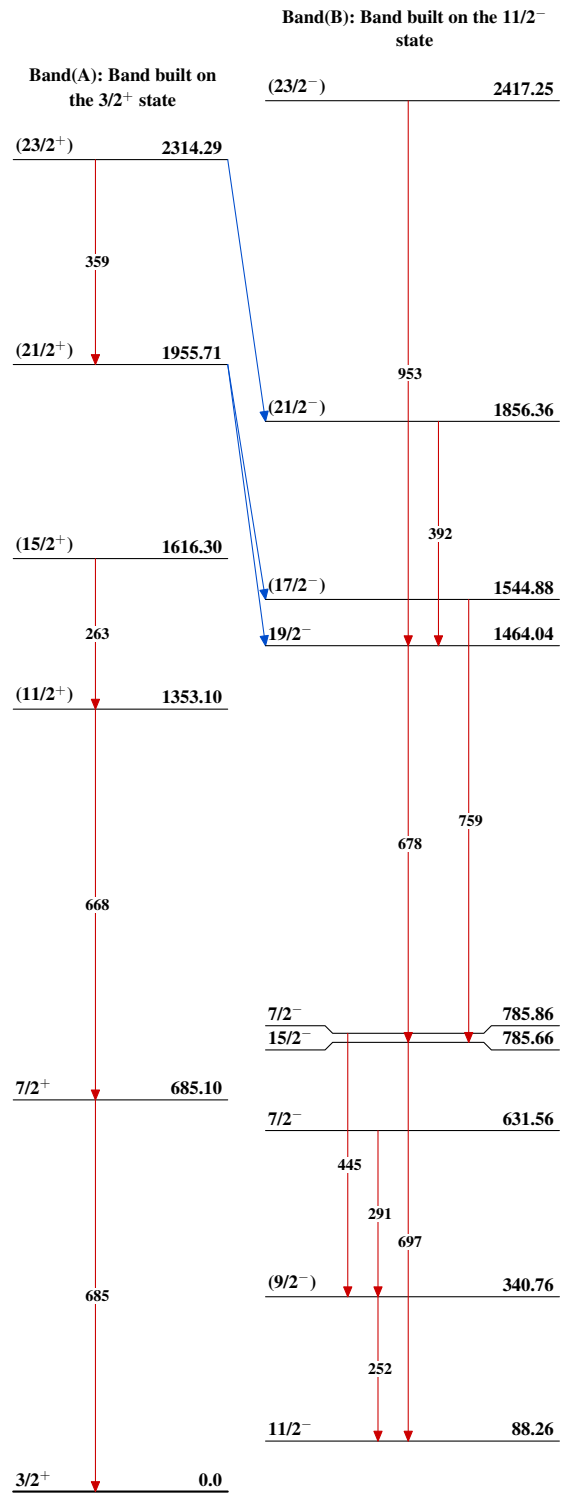
Level Scheme

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

 $^{127}_{52}\text{Te}_{75}$

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