^{109}Te ε decay 2002Re28

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Kumar(a), J. Chen(b) and F. G. Kondev	NDS 137, 1 (2016)	31-May-2016

Parent: ^{109}Te: E=0.0; J^π=(5/2$^+$); $T_{1/2}$=4.4 s *2*; Q(ε)=8536 *7*; %ε+%$β^+$ decay=96.1 *13*

^{109}Te-Q(ε): From 2012Wa38.

2002Re28: ^{109}Te was produced using E(^{58}Ni)=230 MeV and 260 MeV beams on a ^{54}Fe (617 μg/cm^2) target at Argonne National Laboratory. Fragment Mass Analyzer. Detectors: 3 large volume HPGe and Moving Tape Collector. Measured: Eγ, Iγ, γγ, and γ(t).

^{109}Sb Levels

E(level)†	J^π‡	$T_{1/2}$‡	E(level)†	J^π‡	E(level)†
0	(5/2$^+$)	17.2 s *5*	1330.8 *4*	(3/2,5/2,7/2)	2019?
402.0 *4*	(1/2$^+$)		1591.8 *6*	(3/2,5/2$^+$)	2045.5? *4*
752.3 *4*	(3/2$^+$)		1619.5? *4*	(3/2,5/2,7/2)	2106.0? *6*
831.9 *4*	(7/2$^+$)		1837.4 *4*	(3/2,5/2$^+$)	
1100.7 *4*	(9/2$^+$)		1968.8 *6*		

† From a least-squares fit to γ-ray energies.

‡ From Adopted Levels.

γ(^{109}Sb)

Iγ normalization: Decay scheme is incomplete (pandemonium) and tentative, thus it was not normalized and no log *ft* values and Iβ were deduced.

E_γ‡	I_γ‡	E_i(level)	J^π_i	E_f	J^π_f
268.6 *4*	≤10	1100.7	(9/2$^+$)	831.9	(7/2$^+$)
402.0 *4*	50 *3*	402.0	(1/2$^+$)	0	(5/2$^+$)
752.3 *4*	100	752.3	(3/2$^+$)	0	(5/2$^+$)
x760†					
x796†					
831.6 *4*	79 *5*	831.9	(7/2$^+$)	0	(5/2$^+$)
918#	≤10	2019?		1100.7	(9/2$^+$)
x959†					
x964†					
1085.0 *4*	≤10	1837.4	(3/2,5/2$^+$)	752.3	(3/2$^+$)
x1101†#					
1101.0 *4*	30 *4*	1100.7	(9/2$^+$)	0	(5/2$^+$)
1136.9 *4*	21 *5*	1968.8		831.9	(7/2$^+$)
1186#	10 *3*	2019?		831.9	(7/2$^+$)
1189.8 *4*	11 *4*	1591.8	(3/2,5/2$^+$)	402.0	(1/2$^+$)
x1255†#					
1274.1# *4*	27 *11*	2106.0?		831.9	(7/2$^+$)
1330.8 *4*	32 *4*	1330.8	(3/2,5/2,7/2)	0	(5/2$^+$)
1435.4 *4*	15 *9*	1837.4	(3/2,5/2$^+$)	402.0	(1/2$^+$)
x1447†#					
1592#	≤10	1591.8	(3/2,5/2$^+$)	0	(5/2$^+$)
1619.5 *4*	10 *1*	1619.5?	(3/2,5/2,7/2)	0	(5/2$^+$)

Continued on next page (footnotes at end of table)

^{109}Te ε decay 2002Re28 (continued)

γ(^{109}Sb) (continued)

E_γ[‡]	I_γ[‡]	E_i(level)	E_f	J^π_f
[x]1621[†]				
1969[#]	≤10	1968.8	0	(5/2$^+$)
2045.5[#] *4*	7 *1*	2045.5?	0	(5/2$^+$)

[†] In coincidence with some of the placed transitions (2002Re28).
[‡] From 2002Re28.
[#] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ

Legend

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