^{139}Sb β^-n decay 2015Le14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 146, 1 (2017)	30-Sep-2017

Parent: ^{139}Sb: E=0.0; J^π=(7/2$^+$); $T_{1/2}$=93 ms *13*; Q(β^-n)=7840 *SY*; %β^-n decay=90 *10*

^{139}Sb-J^π: From Adopted Levels of ^{139}Sb. 1/2$^+$ from theoretical prediction (1997Mo25).

^{139}Sb-$T_{1/2}$: From 2011Ar18.

^{139}Sb-Q(β^-n): From 2017Wa10, ΔQ=400 (syst).

^{139}Sb-%β^-n decay: From 2011Ar18.

2015Le14: Source of ^{139}Sb was produced by in-flight fission of ^{238}U on a ^{9}Be target at E=345 MeV/nucleon at the Radioactive Isotope Beam Factory (RIBF) at the RIKEN Nishina Center. Fragments were separated by the BigRIPS separator and identified through a zero-degree spectrometer (ZDS) based on the Bρ-ΔE-tof method. Separated and selected ions were implanted into a wide-range active-silicon-strip stopper array for beta and ion detector (WAS3ABi), consisting of five layers of 1-mm-thick double-sided silicon-strip detectors (DSSSDs), surrounded by two 2-mm-thick plastic scintillators. γ rays were detected by the EUROBALL-RIKEN HPGe cluster array (EURICA). Measured Eγ, $\beta\gamma$-coin, $\beta\gamma\gamma$-coin. Deduced levels, J, π. Comparisons with shell-model calculations. Energy systematics of Te isotopes.

^{138}Te Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0	0$^+$	1.4 s *4*	$T_{1/2}$: From Adopted Levels.
460.8 *5*	(2$^+$)		
903.6 *7*	(4$^+$)		
1323.4 *7*			
1439.1 *9*	(6$^+$)		
1531.2 *9*			
1682.1 *9*			

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

‡ From Adopted Levels.

γ(^{138}Te)

E_γ†	E_i(level)	J^π_i	E_f	J^π_f
442.8 *5*	903.6	(4$^+$)	460.8	(2$^+$)
460.8 *5*	460.8	(2$^+$)	0	0$^+$
535.5 *5*	1439.1	(6$^+$)	903.6	(4$^+$)
627.6 *5*	1531.2		903.6	(4$^+$)
778.5 *5*	1682.1		903.6	(4$^+$)
862.6 *5*	1323.4		460.8	(2$^+$)

† Transitions belonging to the decay of ^{139}Sb are deduced from Figure 3 of 2015Le14.

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Legend

● Coincidence

Decay Scheme