^{151}Yb εp decay 1986To12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, A. A. Sonzogni	NDS 114, 435 (2013)	1-Apr-2013

Parent: ^{151}Yb: E=0.0; $J^\pi=(1/2^+)$; $T_{1/2}$=1.6 s *1*; Q(εp)=9.00×10^3 *SY*; %εp decay=?

Parent: ^{151}Yb: E=0.0+x; $J^\pi=(11/2^-)$; $T_{1/2}$=1.6 s *1*; Q(εp)=9.00×10^3 *SY*; %εp decay=?

Decay of two isomers of ^{151}Yb: $J^\pi=(1/2^+)$, $J^\pi=(11/2^-)$, both with $T_{1/2}$=1.6 s *1*.

Source produced in ^{96}Ru(^{58}Ni,2pn) reaction followed by mass separation. Measured: γ-p, xp, β^+ p, X(t), p(t) using Si-telescope, Ge and plastic scintillator detectors.

See 1989Ni02 (from the same group as 1986To12) for theoretical analysis in terms of doorway state model.

The delayed proton spectrum extends from ≈2.5 MeV to 7 MeV and consists of peaks superimposed on a structureless spectrum. The authors suggest that the structureless portion is associated with the decay of the $(11/2^-)$ isomer of ^{151}Yb, and it proceeds through high-spin states in ^{151}Tm, populating mostly excited states in ^{150}Er. The structured part of the proton spectrum is probably associated with the decay of the $(1/2^+)$ isomer and it probes the low-spin (1/2,3/2) levels in ^{151}Tm, populating predominantly the 0^+ ground state of ^{150}Er.

%p decay is not known.

^{150}Er Levels

E(level)	J^π[†]
0.0	0^+
1579	2^+
1786	3^-
2261	5^-
2295	4^+
2621	6^+

[†] From Adopted Levels.

γ(^{150}Er)

E_γ	E_i(level)	J_i^π	E_f	J_f^π
208	1786	3^-	1579	2^+
508	2295	4^+	1786	3^-
716	2295	4^+	1579	2^+
1579	1579	2^+	0.0	0^+

Delayed Protons (^{150}Er)

E(^{150}Er)	I(p)
0.0	51.3 *43*
1579	13.7 *23*
1786	9.9 *9*
2261	8.6 *22*
2295	11.5 *23*
2621	5.0 *15*

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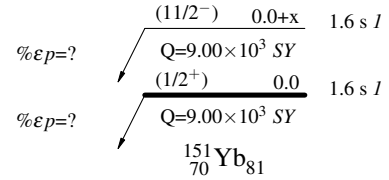
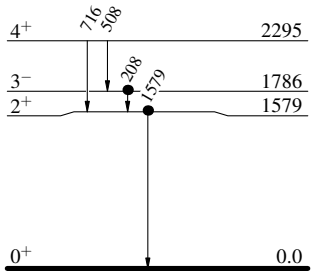
Legend

- Coincidence

Decay Scheme





$^{150}_{68}Er_{82}$