Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Aug-2009

S(n)=9.40×10³ 8; S(p)=1.03×10³ $syst$; Q(α)=7072 5 2012Wa38

Note: Current evaluation has used the following Q record 9.41E3 10 1080 syst 7060 50 2009AuZZ,2003Au03.

ΔS(p)=140 (2009AuZZ,2003Au03).

Q(εp)=10040 100, s(2n)=21560 230 (syst), s(2p)=630 120 (2009AuZZ,2003Au03).

1983Sc24: ^{175}Hg identified in (^{92}Mo,X) E=4.5-5.4 MeV/nucleon using enriched targets of Rb through Mo at GSI facility. Measured α, T$_{1/2}$.

1996Pa01: ^{175}Hg from heavy-ion fusion-evaporation reactions; recoil mass separator at ANL facility. Measured Eα, T$_{1/2}$.

1997Uu01: ^{175}Hg from ^{144}Sm(^{36}Ar,X) E=180-230 MeV, gas-filled recoil separator (RITU) at Jyvaskyla facility. Measured α, T$_{1/2}$.

2002Ro17: ^{175}Hg from ^{179}Tl α decay followed by ^{175}Au ε decay; ^{179}Tl produced by ^{102}Pd(^{78}Kr,X) E=340 MeV, gas-filled separator at LBNL, Measured γ, α, x rays, T$_{1/2}$.

2004Ke06: source from proton decay of ^{176}Tl, measured Eα, T$_{1/2}$.

2009Od01: ^{86}Sr^{17+} beam at 403 MeV provided by the K130 cyclotron at Jyvaskyla. Enriched (98%) ^{92}Mo target. The recoiling residues were transported to the focal plane of the RITU He-filled magnetic separator. Measured prompt γ, α, T$_{1/2}$.

^{175}Hg Levels

Cross Reference (XREF) Flags

A	^{176}Tl p decay (5.2 ms)
B	^{92}Mo(^{86}Sr,3nγ)

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	(7/2$^-$)	10.6 ms 4	AB	%α=100 (1983Sc24) J$^\pi$: favored α decay to ^{171}Pt g.s. with J$^\pi$=7/2$^-$ (J$^\pi$ quoted by 2009Od01 in their reference 25: to be published) From proton decay of ^{176}Tl, 2004Ke06 proposed 7/2$^-$,9/2$^-$ in their study of ^{176}Tl proton decay. T$_{1/2}$: weighted average of 10 ms 1 (2009Od01) and 10.8 ms 4 (2002Ro17). Others: 7 ms $+4-2$ (2004Ke06), 13 ms $+6-4$ (1997Uu01), 8 ms 8 (1996Pa01), 20 ms $+40-13$ (1983Sc24).
80 1	(9/2$^-$)		B	J$^\pi$: most likely h$_{9/2}$ state.
494$^\#$ 2	(13/2$^+$)	0.34 μs 3	B	J$^\pi$: M2 γ to (9/2$^-$). T$_{1/2}$: from decay curve for 414γ (2009Od01).
731? 2	(13/2$^-$)		B	J$^\pi$: possible member of band built on h$_{9/2}$ orbital.
1181$^\#$ 2	(17/2$^+$)‡		B	
1909$^\#$ 2	(21/2$^+$)‡		B	
2523$^\#$ 2	(25/2$^+$)‡		B	

† From Eγ's, assuming Δ(Eγ)=1 keV.

‡ Member of band built on i$_{13/2}$ orbital.

$^\#$ Band(A): K^π=(13/2$^+$) band. Probable νi$_{13/2}$⊗(oblate deformed core).

Adopted Levels, Gammas (continued)

$\gamma(^{175}\text{Hg})$

E_i(level)	J_i^π	E_γ	E_f	J_f^π	Mult.	$\alpha^\dagger$	Comments
80	$(9/2^-)$	80	0.0	$(7/2^-)$	(M1)	2.74 *11*	Mult.: from intensity balance at 80 level (2009Od01).
494	$(13/2^+)$	414	80	$(9/2^-)$	M2	0.380 *6*	B(M2)(W.u.)=0.174 *16*
							Mult.: from ce data (2009Od01).
731?	$(13/2^-)$	651‡	80	$(9/2^-)$			
1181	$(17/2^+)$	687	494	$(13/2^+)$			
1909	$(21/2^+)$	728	1181	$(17/2^+)$			
2523	$(25/2^+)$	614	1909	$(21/2^+)$			

† Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
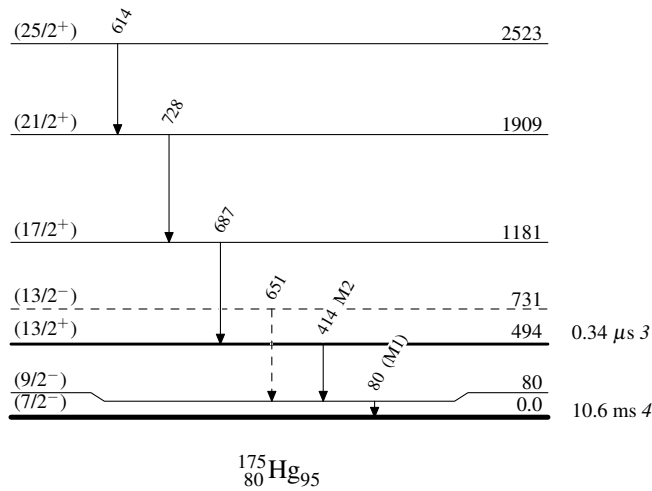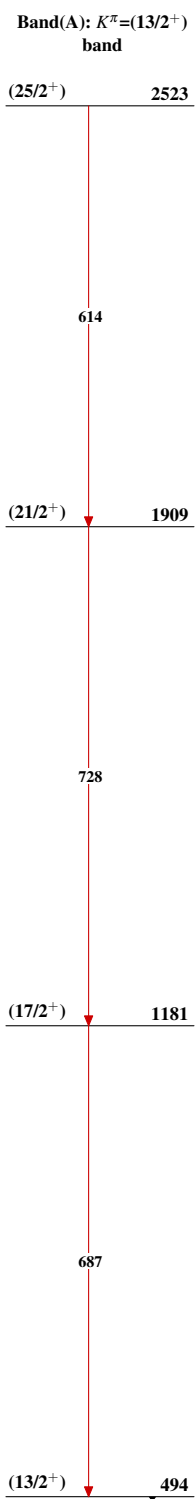‡ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme

- - - - - - ► γ Decay (Uncertain)

$^{175}_{80}$Hg$_{95}$

Adopted Levels, Gammas

Band(A): $K^\pi=(13/2^+)$
band

$(25/2^+)$ **2523**

614

$(21/2^+)$ **1909**

728

$(17/2^+)$ **1181**

687

$(13/2^+)$ **494**

$^{175}_{80}\text{Hg}_{95}$