

$^{92}\text{Mo}(^{86}\text{Sr},3n\gamma)$ 2009Od01

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	08-Sep-2009

2009Od01: $^{86}\text{Sr}^{17+}$ 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. The gamma rays were detected using JUROGAM array of 43 escape-suppressed Ge detectors. The α particles, conversion electrons and delayed γ rays were detected using GREAT spectrometer which consisted of a multi-wire proportional chamber, two double-sided silicon-strip detectors, a planar Ge detector, a clover Ge detector and an array of Si PIN diodes. The energy loss and time-of-flight information from the particle detectors was used to select ^{175}Hg recoils and distinguish these from background scattered beam and radioactive decays. Measured $E\gamma$, $I\gamma$, α -correlated delayed $\gamma\gamma$ and $\gamma(\text{ce})$ coin, recoil- α coin, $\alpha\gamma$ coin, $\alpha(\text{ce})$ coin and isomer half-life using recoil-decay tagging (RDT) technique.

^{175}Hg Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0	(7/2 ⁻)	10 ms 1	$T_{1/2}$: from (recoil)(6913 α)(t) where measured $E\alpha=6913.5$ from ^{175}Hg α decay (2009Od01). J^π : from favored α decay to ^{171}Pt g.s. with $J^\pi=7/2^-$ (J^π quoted by 2009Od01 in their reference 25: to be published). Most likely $f_{7/2}$ state.
80 1	(9/2 ⁻)		Most likely $h_{9/2}$ state.
494 [#] 2	(13/2 ⁺)	0.34 μs 3	$T_{1/2}$: from decay curve for 414 γ (2009Od01).
731? 2	(13/2 ⁻)		
1181 [#] 2	(17/2 ⁺)		
1909 [#] 2	(21/2 ⁺)		
2523 [#] 2	(25/2 ⁺)		

[†] From $E\gamma$'s, assuming $\Delta(E\gamma)=1$ keV.

[‡] As proposed by 2009Od01, parentheses on some spins added by the evaluator due to lack of strong supporting arguments.

[#] Band(A): $K^\pi=13/2^+$ band. Probable $\nu_{i13/2}\otimes(\text{oblate deformed core})$.

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

Due to low statistics of prompt γ rays, $\gamma\gamma$ coin analysis was not possible. However, all γ transitions listed here were seen in α -correlated prompt transitions observed in delayed coin with either 80-keV or 414-keV delayed γ or ce.

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	α^\ddagger	Comments
80	80	(9/2 ⁻)	0	(7/2 ⁻)	(M1)	2.74 11	$\alpha(\text{L})=2.10$ 9; $\alpha(\text{M})=0.49$ 2; $\alpha(\text{N})=0.123$ 5; $\alpha(\text{O})=0.0232$ 10; $\alpha(\text{P})=0.00178$ 7 Mult.: from $I\gamma(414)/I\gamma(80) \approx 3$ (2009Od01) and theoretical conversion coefficients.
414	494	(13/2 ⁺)	80	(9/2 ⁻)	M2	0.380 6	$\alpha(\text{K})=0.380$ 6; $\alpha(\text{L})=0.0816$ 14; $\alpha(\text{M})=0.0197$ 4; $\alpha(\text{N})=0.00496$ 8; $\alpha(\text{O})=0.000931$ 15 $\alpha(\text{K})_{\text{exp}}=0.36$ 11 (2009Od01); $\alpha(\text{K})_{\text{exp}}=0.45$ 10 (2009Od01) $\alpha(\text{L})_{\text{exp}}+\alpha(\text{M})_{\text{exp}}=0.10$ 3 (2009Od01)
614	2523	(25/2 ⁺)	1909	(21/2 ⁺)			
651 [#]	731?	(13/2 ⁻)	80	(9/2 ⁻)			
687	1181	(17/2 ⁺)	494	(13/2 ⁺)			
^x 708 [†]							
728	1909	(21/2 ⁺)	1181	(17/2 ⁺)			
^x 843 [†]							

Continued on next page (footnotes at end of table)

$^{92}\text{Mo}(^{86}\text{Sr},3n\gamma)$ 2009Od01 (continued) $\gamma(^{175}\text{Hg})$ (continued)

† The γ seen in prompt γ spectrum correlated with α decay of ^{175}Hg to ^{171}Pt .

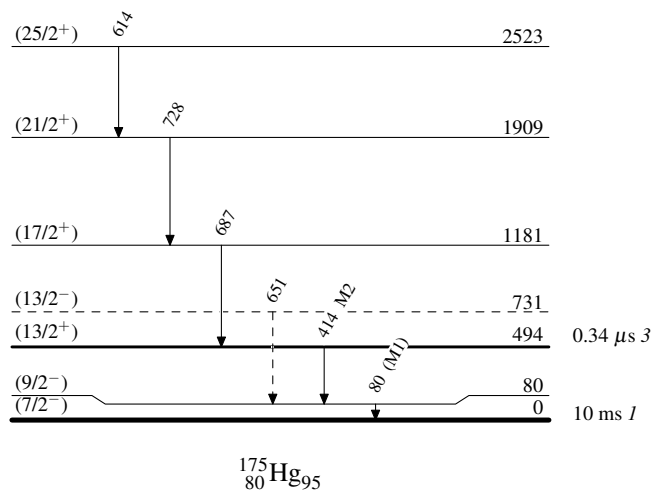
‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

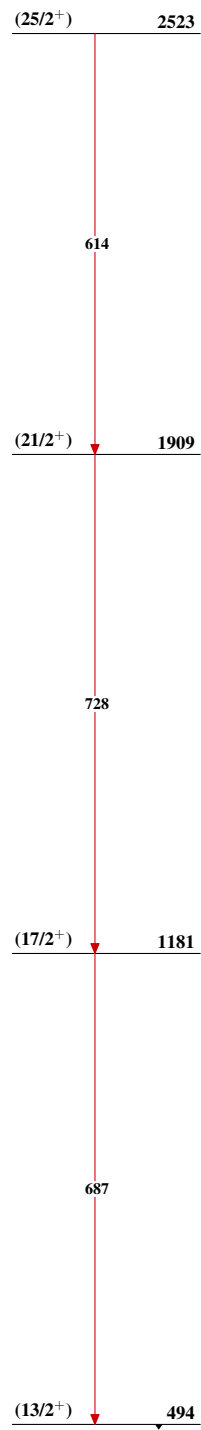
Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

 $^{92}\text{Mo}(^{86}\text{Sr},3n\gamma)$ 2009Od01

Legend

Level Scheme-----▶ γ Decay (Uncertain)

$^{92}\text{Mo}(^{86}\text{Sr}, 3n\gamma)$ 2009Od01Band(A): $K^\pi=13/2^+$ band $^{175}_{80}\text{Hg}_{95}$