^{97}Rb IT decay (5.7 μs)   2013Ru07,2012Ka36

	History		
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	30-Oct-2015

Parent: ^{97}Rb: E=76.6 *2*; J$^{\pi}$=(1/2,3/2)$^{-}$; T$_{1/2}$=5.7 μs *6*; %IT decay=100.0

2013Ru07: ^{241}Pu,^{241}Am(n,Fγ),E=thermal, at the high flux reactor of the Institut Laue-Langevin, Grenoble. Fission fragments were separated by Lohengrin mass spectrometer, identified and selected by a split-anode ionization chamber. Conversion electron and low-energy photon spectra were recorded using Si(Li) detectors. Delayed γ rays were detected by two Clover Ge detectors placed perpendicular to the ionization chamber. Events related to ^{97}Rb were identified by K x-rays in the Si(Li) detector and energy loss in the ionization chamber. Measured Eγ, γ(fission fragment)-coin, K x-rays, t$_{1/2}$, α(K). Deduced an isomer in ^{97}Rb and multipolarity of γ transition. Comparison with Hartree-Fock-Bogoliubov (HFB) and quasi particle- rotor model calculations (QPRM). See also 2013RuZX thesis by the first author of 2013Ru07.

2012Ka36: ^{9}Be(^{238}U,Fγ),E=345 MeV/nucleon at RIBF accelerator complex at RIKEN facility. Fission fragments were separated and analyzed by BigRIPS separator, transported to focal plane of ZeroDegree spectrometer and finally implanted in an aluminum stopper. Particle identification was achieved by ΔE-TOF-Bρ method. Delayed gamma rays from microsecond isomers were detected by three clover-type HPGe detectors. Measured Eγ, Iγ, isomer half-life. Deduced level, J$^{\pi}$.

^{97}Rb Levels

E(level)	J$^{\pi}$	T$_{1/2}$	Comments
0	3/2^{+}	169.1 ms *6*	J$^{\pi}$,T$_{1/2}$: from Adopted Levels.
76.6 *2*	(1/2,3/2)$^{-}$	5.7 μs *6*	%IT=100
			T$_{1/2}$: unweighted average of 5.1 μs *4* (2013Ruo7,from ion-γ time correlation of 76.5γ) and 6.33 μs *+37−34* (2012Ka36, γ(t) method; with constant background component separately deduced). Weighted average of the two values is 5.8 μs *6* but reduced χ^2 is 5.3.
			J$^{\pi}$: E1 γ to 3/2^{+}. Comparison with HFB and QPRM calculations suggests π3/2[312] prolate or (π1/2[321],π3/2[321]) oblate deformed quasiparticle state (2013Ru07); thus favoring 1/2 or 3/2. 2012Ka36, however, propose (5/2), but do not discuss orbital configuration.

γ(^{97}Rb)

E$_{\gamma}$	E$_i$(level)	J$^{\pi}_i$	E$_f$	J$^{\pi}_f$	Mult.	α[†]	Comments
76.6 *2*	76.6	(1/2,3/2)$^{-}$	0	3/2^{+}	E1	0.211 *4*	α(K)=0.187 *3*; α(L)=0.0206 *4*; α(M)=0.00337 *6*; α(N)=0.000370 *6*; α(O)=1.441×10^{-5} *23*
							Mult.: from α(K)(exp).

[†] 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.

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Decay Scheme

%IT=100.0

(1/2,3/2)$^-$ 76.6   5.7 μs *6*

3/2$^+$ 0   169.1 ms *6*

$^{97}_{37}$Rb$_{60}$