

^{124}Ag IT decay (1.46 μs) [2013La11](#),[2012Ka36](#),[2006ToZW](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	20-Aug-2015

Parent: ^{124}Ag : $E=231.1+x$ 7; $J^\pi=(1^-)$; $T_{1/2}=1.46 \mu\text{s}$ 20; %IT decay=100.0

Reactions: $^9\text{Be}(^{136}\text{Xe}, X\gamma), (^{238}\text{U}, F\gamma)$.

[2013La11](#): $E=750$ MeV/nucleon ^{136}Xe and ^{238}U beams from GSI, SIS-18 synchrotron. Targets: 1 and 4 g/cm² Be. Detectors:

FRS, ionization chambers, multiwire chambers, scintillation detectors, RISING multidetector array comprising 105 HPGe detectors, mounted in 15 composite Cluster detectors without anti-Compton shields. Measured: tof, ΔE , $B\rho$, $E\gamma$, $I\gamma$, $\gamma(t)$, $\gamma\gamma$, $\gamma\gamma(t)$, half-lives.

[2012Ka36](#): ^{238}U beam at $E=345$ MeV/nucleon provided by the 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- $B\rho$ method. Delayed gamma rays from microsecond isomers were detected by three clover-type HPGe detectors. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin, isomer half-life. Deduced levels.

[2007To23](#), [2006ToZW](#), [2005WaZY](#): fragmentation of a 120 MeV/nucleon ^{136}Xe beam; MSU Beta Counting System; measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin, half-life of the isomer in [2005WaZY](#).

 ^{124}Ag Levels

E(level)	J^π [†]	$T_{1/2}$ [‡]	Comments
0+x	(3 ⁺)		J^π : from 2013La11 based on systematics. However, shell-model calculations by 2013La11 suggest 1 ⁻ ground state and 3 ⁺ at 64 keV.
155.6+x? 5	(1 ⁺)	0.14 μs 5	%IT=100 E(level): reverse ordering of the 75.5-155.6 γ cascade is also possible, which will give a level at 75.5 keV instead of 155.6 keV.
231.1+x 7	(1 ⁻)	1.47 μs 20	%IT=100 J^π : from systematics and observed decay pattern (2013La11). However, shell-model calculations by 2013La11 suggest 1 ⁻ ground state and 3 ⁺ at 64 keV. $T_{1/2}$: weighted average of 1.46 μs 20 (2013La11), 1.62 μs +29-24 (2012Ka36), 1.3 μs 3 (2005WaZY). Number of implanted fragments= 5.7×10^4 (2012Ka36).

[†] For excited states, assignment are based on systematics and observed decay pattern ([2013La11](#)).

[‡] From $\gamma(t)$ ([2013La11](#)).

 $\gamma(^{124}\text{Ag})$

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J^π_i	E_f	J^π_f	Mult.	$\alpha^\#$	Comments
75.5 [‡] 5	32 7	231.1+x	(1 ⁻)	155.6+x?	(1 ⁺)	(E1)	0.363	$E\gamma=75$, $I\gamma=74$ 38 (2013La11). $\alpha(\text{exp})=0.8$ 10 if mult(155 γ)=E2, 0.4 8 if mult(155 γ)=E2 (2013La11).
155.6 [‡] 5	100 12	155.6+x?	(1 ⁺)	0+x	(3 ⁺)	[E2]	0.303	$E\gamma=155$, $I\gamma=100$ 16 (2013La11). $E\gamma=155.5$ 2, $I\gamma=100$ 20 (2006ToZW). E_γ, I_γ : from 2006ToZW .
^x 1132.2 7	26 7							

[†] From [2012Ka36](#) unless otherwise stated.

[‡] Reverse ordering of the 75.5-155.6 γ cascade is also possible ([2012Ka36](#)).

[#] 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.

^x γ ray not placed in level scheme.

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