

^{129}In IT decay (8.7 μs) 2004Sc42,2003Ge04,2012Ka36

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh		NDS 121, 143 (2014)	31-May-2014

Parent: ^{129}In : $E=1687.97$ 25; $J^\pi=(17/2^-)$; $T_{1/2}=8.7$ μs 7; %IT decay=100.0

2004Sc42, 2003Ge04, 2002Ge07: $E(n)$ =thermal. Measured E_γ , I_γ , $\gamma\gamma$, $\gamma(t)$ using two large-volume Ge detectors and two cooled Si(Li) detectors after isotopic separation by the LOHENGRIN spectrometer.

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_γ , I_γ , $\gamma\gamma$ -coin, isomer half-life.

All data taken from 2003Ge04, unless otherwise stated.

 ^{129}In Levels

Configurations from figure 5(a) of 2004Sc42.

$E(\text{level})^\dagger$	$J^\pi^\ddagger$	$T_{1/2}$	Comments
0.0 [#]	(9/2 ⁺)		
995.17 [#] 16	(11/2 ⁺)		
1354.14 [#] 16	(13/2 ⁺)		
1687.97 25	(17/2 ⁻)	8.7 μs 7	$T_{1/2}$: weighted average of 8.5 μs 5 (2003Ge04) and 11.3 μs +22-16 (2012Ka36). Configuration= $\nu(d_{3/2}^{-1}, h_{11/2}^{-1})\otimes\pi g_{9/2}^{-1}$. M2 γ to (13/2 ⁺).

[†] From least-squares fit to E_γ data.

[‡] From Adopted Levels.

[#] Member of $\nu h_{11/2}^{-2}\otimes\pi g_{9/2}^{-1}$ multiplet.

 $\gamma(^{129}\text{In})$

I_γ normalization: $\text{Ti}(333.8\gamma)=100$.

$E_\gamma^\dagger$	$I_\gamma^\ddagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	$\alpha^\#$	Comments
333.8 2	100	1687.97	(17/2 ⁻)	1354.14	(13/2 ⁺)	(M2)	0.0816	$\alpha(K)=0.0697$ 10; $\alpha(L)=0.00968$ 14; $\alpha(M)=0.00190$ 3 $\alpha(N)=0.000348$ 5; $\alpha(O)=2.51\times 10^{-5}$ 4 E_γ : 333.8 5 (2012Ka36). Mult.: $\alpha(K)_{\text{exp}}=0.08$ 2 gives M2 or E3; former more likely from systematics and configuration assignments to levels involved.
359.0 2	83	1354.14	(13/2 ⁺)	995.17	(11/2 ⁺)			E_γ : 359.0 5 (2012Ka36).
995.2 2	82	995.17	(11/2 ⁺)	0.0	(9/2 ⁺)			E_γ : 995.3 5 (2012Ka36).
1354.1 2	28	1354.14	(13/2 ⁺)	0.0	(9/2 ⁺)			E_γ : 1354.6 5 (2012Ka36).

[†] $\Delta(E_\gamma)$ assigned as 0.2 keV based on a general statement by 2003Ge04.

[‡] For absolute intensity per 100 decays, multiply by 0.92.

[#] 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.

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