^{169}Lu IT decay (160 s) 1965Bj01

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109, 2033 (2008)	15-Jun-2008

Parent: ^{169}Lu: E=29.0 *5*; $J^{\pi}=1/2^-$; $T_{1/2}$=160 s *10*; %IT decay=100.0

Isomer identified using excitation-function data for Yb(p,xn) (1965Bj01).

The decay scheme and all data are from 1965Bj01. Sources from ^{170}Yb(p,2n), E(p)=13 MeV (pulsed beam); Yb metal targets enriched to 85% in ^{170}Yb. Measured E(ce), Ice (magnetic spectrometer).

^{169}Lu Levels

E(level)	J^{π}[†]	$T_{1/2}$[†]	Comments
0.0	$7/2^+$	34.06 h *5*	
29.0 *5*	$1/2^-$	160 s *10*	%IT=100 $T_{1/2}$: from ce(t) (1965Bj01).

[†] From Adopted Levels, except as noted.

γ(^{169}Lu)

Iγ normalization: from Ti(29.0γ)=100%.

E_γ	I_γ[†‡]	E_i(level)	J_i^{π}	E_f	J_f^{π}	Mult.	α[#]	$I_{(\gamma+ce)}$[‡]	Comments
29.0 *5*	0.00106 *12*	29.0	$1/2^-$	0.0	$7/2^+$	E3	9.4×10^4 *11*	100	ce(L)/(γ+ce)=0.72 *6*; ce(M)/(γ+ce)=0.22 *3*; ce(N+)/(γ+ce)=0.058 *9* ce(N)/(γ+ce)=0.052 *8*; ce(O)/(γ+ce)=0.0058 *9*; ce(P)/(γ+ce)=3.7×10^{-6} *6* 0.5<(L1+L2)/L3≤0.8. Mult.: (L1+L2)/L3 is consistent with E2 or E3. The lifetime, compared to the Weisskopf estimate, corresponds to a retardation of 1×10^9 times for E2 and about 1×10^3 times for E3, and thus strongly favors E3 (1965Bj01).

[†] Deduced from I(γ+ce) and α.

[‡] Absolute intensity per 100 decays.

[#] 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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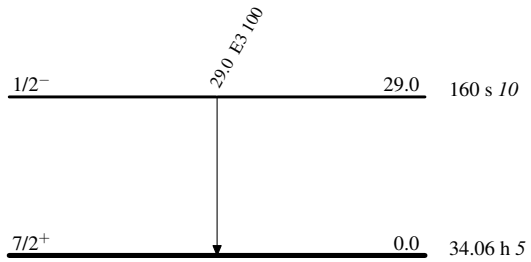
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
%IT=100.0



$^{169}_{71}Lu_{98}$