

^{73}Kr IT decay (107 ns) 2000Ch07

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 158, 1 (2019)	16-May-2019

Parent: ^{73}Kr : E=433.66 12; $J^\pi=(9/2^+)$; $T_{1/2}=107$ ns 10; %IT decay=100.0

^{73}Kr isomer produced from fragmentation of ^{92}Mo beam at 60 MeV/nucleon hitting a natural nickel target. Measured E_γ , delayed I_γ , $\gamma\gamma(t)$ using LISE3 Spectrometer for fragment selection, four element Si detector telescope, seven HPGe detectors, and a four element LEPS Ge detector.

 ^{73}Kr Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0.0	$(3/2)^-$ [#]		
144.20 8	$(5/2)^-$ [#]		Note large intensity imbalance at 144 level: $I(\gamma+ce)(224\gamma)+I(\gamma+ce)(249\gamma)=173$ 6, whereas $I(\gamma+ce)(144\gamma)=100$ 6.
367.80 8	$(5/2^+)$		J^π : $7/2^-$ in 2000Ch07, although $5/2^+$ was not ruled out.
392.80 14	$(7/2^-)$		
433.66 12	$(9/2^+)$	107 ns 10	$T_{1/2}$: from $\gamma(t)$ (2000Ch07).

[†] From least-squares fit to E_γ data, assuming $\Delta(E_\gamma)=0.1$ keV for strong ($I_\gamma \geq 50$) γ rays and 0.3 keV for weak ($I_\gamma < 50$) γ rays.

[‡] From Adopted Levels.

[#] $(3/2^-, 5/2^-)$ (2000Ch07).

 $\gamma(^{73}\text{Kr})$

I_γ normalization, $I(\gamma+ce)$ normalization: from $\Sigma I(\gamma+ce)=100$ for 224γ , 249γ , 368γ and 393γ .

E_γ	I_γ ^{†@}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	α [#]	$I_{(\gamma+ce)}$ [@]	Comments
40.8	12.9 22	433.66	$(9/2^+)$	392.80	$(7/2^-)$	[E1]	1.24 4	29 5	$I_{(\gamma+ce)}$: from $I(\gamma+ce)(249\gamma)+I(\gamma+ce)(393\gamma)$. $I_\gamma=27$ in 2000Ch07.
65.8	75 3	433.66	$(9/2^+)$	367.80	$(5/2^+)$	[E2]	4.30	397 13	Mult.: E1 implied by 2000Ch07, but adopted ΔJ^π implies E2.
144.2	95 6	144.20	$(5/2^-)$	0.0	$(3/2)^-$	(M1)	0.0478	100 6	$I_{(\gamma+ce)}$: from $I(\gamma+ce)(224\gamma)+I(\gamma+ce)(368\gamma)$. $I_\gamma=387$ 62 in 2000Ch07.
223.6	165 6	367.80	$(5/2^+)$	144.20	$(5/2^-)$	[E1] [‡]	0.0085	166 6	
248.6	7 2	392.80	$(7/2^-)$	144.20	$(5/2^-)$	[M1+E2]	0.022 11	7 2	
^x 265.1	13 3							13 3	
367.8	231 12	367.80	$(5/2^+)$	0.0	$(3/2)^-$	[E1] [‡]	0.0021	231 12	$I_{(\gamma+ce)}, I_\gamma$: may be in error since feeding $I(\gamma+ce)=173$ 6.
392.8	22 4	392.80	$(7/2^-)$	0.0	$(3/2)^-$	[E2]	0.0069	22 4	

[†] From $I(\gamma+ce)$ and α values listed by 2000Ch07.

[‡] E2 implied by 2000Ch07, but adopted ΔJ^π implies E1.

[#] Additional information 1.

[@] For absolute intensity per 100 decays, multiply by 0.235 14.

^x γ ray not placed in level scheme.

^{73}Kr IT decay (107 ns) 2000Ch07**Decay Scheme**

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

Legend

- $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{max}$

