

$^{171}\text{Pt}$  IT decay 2010Sc02

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan		NDS 151, 334 (2018)	30-Jun-2018

Parent:  $^{171}\text{Pt}$ : E=412.6 10;  $J^\pi=(13/2^+)$ ;  $T_{1/2}=901$  ns 9; %IT decay=100.0

$13/2^+$  isomer produced using  $^{96}\text{Ru}(^{78}\text{Kr},2\text{pn}\gamma)$ , E=348 MeV; recoils separated by RITU mass separator; multi-wire proportional counter; recoils implanted In double-sided Si strip detectors of GREAT spectrometer At RITU focal plane; one planar and 3 clover Ge detectors At focal plane; JUROGAM array (43 escape-suppressed EUROGAM phase-I and GASP type HPGe detectors) for prompt  $\gamma$  detection At target position; recoil-isomer and recoil- $(\alpha$  decay) tagging techniques; measured  $E_\gamma$ ,  $I_\gamma$ , ce,  $\gamma\gamma$  coin, ce- $\gamma$  coin,  $\gamma(t)$ ,  $T_{1/2}$  (g.s. and isomer).

 $^{171}\text{Pt}$  Levels

E(level) <sup>†</sup>	$J^\pi$ <sup>‡</sup>	$T_{1/2}$	Comments
0.0	(7/2 <sup>-</sup> )	48 ms 1	% $\alpha$ =83 3 (2010Sc02) $T_{1/2}$ : from 2010Sc02 based on time differences between a recoil implant and $^{171}\text{Pt}$ $\alpha$ decay, correlated within 960 ms of a recoil and also within 2.73 s and 8 s, respectively, of $\alpha$ decay from $^{167}\text{Os}$ and $^{163}\text{W}$ .
89.5 7 412.6 10	(9/2 <sup>-</sup> ) (13/2 <sup>+</sup> )	901 ns 9	%IT=100 $T_{1/2}$ : from text and fig. 16 of 2010Sc02, based on time difference between recoil implantation In double-sided Si detector and detection of 90 $\gamma$ and 323 $\gamma$ In the clover and planar detectors and ce In PIN diodes. the 4 ns uncertainty shown In fig. 14c of 2010Sc02 is presumed to be a misprint; this presumption was confirmed In an e-mail communication from C. Scholey to B. Singh on Feb 5, 2010.

<sup>†</sup> From  $E_\gamma$ .

<sup>‡</sup> From Adopted Levels.

 $\gamma(^{171}\text{Pt})$ 

$I_\gamma$  normalization: from %IT=100=Ti(323 $\gamma$ ).

$E_\gamma$	$I_\gamma$ <sup>‡</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.	$\alpha^\#$	Comments
89.5 <sup>†</sup> 7	19 3	89.5	(9/2 <sup>-</sup> )	0.0	(7/2 <sup>-</sup> )	M1	9.15 25	$\alpha(\text{K})=7.52$ 20; $\alpha(\text{L})=1.26$ 4; $\alpha(\text{M})=0.291$ 8; $\alpha(\text{N}+.)=0.0858$ 24 $\alpha(\text{N})=0.0720$ 20; $\alpha(\text{O})=0.0129$ 4; $\alpha(\text{P})=0.000872$ 24 Mult.: from $\alpha(\text{K})\text{exp}=7.5$ 10 (2010Sc02).
323.1 <sup>†</sup> 6	100 14	412.6	(13/2 <sup>+</sup> )	89.5	(9/2 <sup>-</sup> )	M2	0.926 15	$\alpha(\text{K})=0.717$ 11; $\alpha(\text{L})=0.1593$ 25; $\alpha(\text{M})=0.0384$ 6; $\alpha(\text{N}+.)=0.01136$ 18 $\alpha(\text{N})=0.00955$ 15; $\alpha(\text{O})=0.00170$ 3; $\alpha(\text{P})=0.0001062$ 17 Mult.: from $\alpha(\text{K})\text{exp}=0.65$ 12, $\alpha(\text{K})\text{exp}/(\alpha(\text{L})\text{exp} + \alpha(\text{M})\text{exp})=3.5$ 5 (2010Sc02).

<sup>†</sup> Transition observed to be In delayed coincidence with the 445-, 605- and 670-keV prompt  $\gamma$ -rays from the  $^{96}\text{Ru}(^{78}\text{Kr},2\text{pn}\gamma)$  reaction.

<sup>‡</sup> For absolute intensity per 100 decays, multiply by 0.519 8.

<sup>#</sup> Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

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## Decay Scheme

Intensities: Relative  $I_\gamma$   
%IT=100.0

## Legend

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

