^{252}Cf SF decay 2002Hw01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 174, 1 (2021)	15-Apr-2021

Parent: ^{252}Cf: E=0.0; $J^{\pi}=0^{+}$; $T_{1/2}$=2.645 y *8*; %SF decay=?

2002Hw01: ^{252}Cf source was sandwiched between two Fe foils of thickness 10 mg/cm^2 at LBNL. γ rays were detected with the Gammasphere array of 102 Compton suppressed Ge detectors. Measured Eγ, $\gamma\gamma$-coin. Deduced levels.

The sequences of high-spin states based on the $11/2^{(-)}$ isomer from 2002Hw01 via ^{252}Cf SF decay and from 2016Re05 via ^{9}Be(^{238}U,Xγ) are completely different in level and gamma energies. The evaluator has adopted in the Adopted Levels, Gammas the data from 2016Re05, which are more complete and has more convincing particle identification with γ rays tagged by both A and Z.

^{123}Cd Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]	Comments
140.65[#@]	$(11/2^{-})$	1.80 s *3*	Additional information 1.
863.5[@] *10*	$(15/2^{-})$		
1650.7[@] *15*	$(19/2^{-})$		
2580.5[@] *18*	$(23/2^{-})$		

[†] From a least-squares fit to γ-ray energies, assuming uncertainties of 0.3 keV for each γ-ray.
[‡] Proposed by 2002Hw01 from systematics of neighboring odd Cd isotopes.
[#] From Adopted Levels.
[@] Band(A): $h_{11/2}$ decoupled band (2002Hw01).

γ(^{123}Cd)

E_γ[†]	I_γ	E_i(level)	J_i^{π}	E_f	J_f^{π}
722.8		863.5	$(15/2^{-})$	140.65	$(11/2^{-})$
787.2	100	1650.7	$(19/2^{-})$	863.5	$(15/2^{-})$
929.8	15	2580.5	$(23/2^{-})$	1650.7	$(19/2^{-})$

[†] γ rays were assigned by 2002Hw01 from coincidence with γ rays from fission-fragment partner Sn isotopes. Note that none of these γ rays are seen in a more recent measurement of ^{9}Be(^{238}U,Xγ) by 2016Re05, with the γ rays from the latter adopted in Adopted Levels by the evaluator.

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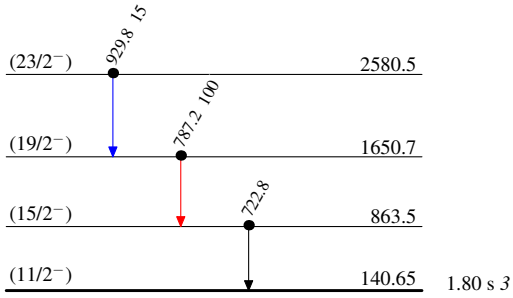
Level Scheme

Intensities: Relative I_γ

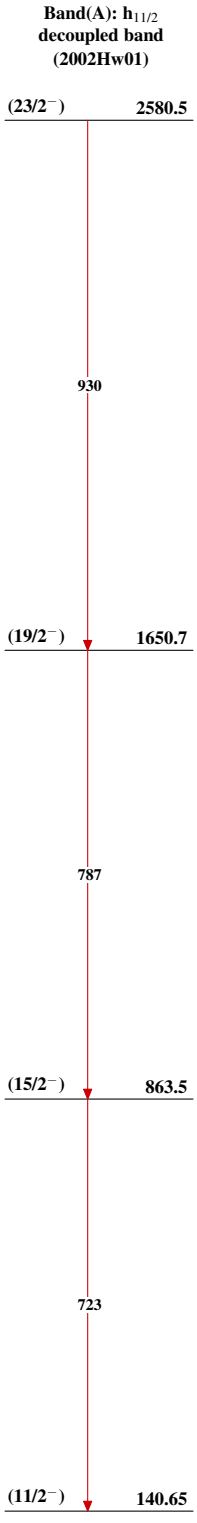
Legend

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



$^{123}_{48}Cd_{75}$

^{252}Cf SF decay 2002Hw01



$^{123}_{48}Cd_{75}$