

²⁵²Cf SF decay 1998Hw02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 110, 1239 (2009)	1-Feb-2008

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

1998Hw02: a ²⁵²Cf source was sandwiched between two Ni foils and placed at the center of gammasphere with 72 Compton-suppressed Ge detectors.

The identification of ¹¹¹Ru is based on the known γ of the fission partners.

¹¹¹Ru Levels

E(level) [†]	J ^π [‡]	Comments
0.0	(5/2 ⁺)	
150.45 24	(7/2 ⁺)	J ^π : (5/2 ⁻) suggested by 1998Hw02. ADOPTED value (7/2 ⁺).
254.55& 24	(7/2 ⁻)	T _{1/2} : T _{1/2} (104γ)=14 ns (1970Jo20), <4 ns (1974ClZX).
317.6@ 3	(9/2 ⁻)	T _{1/2} : T _{1/2} (167γ)=5 ns (1970Jo20), 2.4 ns 5 (1974ClZX).
393.6& 3	(11/2 ⁻)	
696.5@ 4	(13/2 ⁻)	
751.6& 4	(15/2 ⁻)	
857.4# 4	(11/2,13/2)	
1133.0# 4	(15/2,17/2)	
1228.7@ 4	(17/2 ⁻)	
1266.0& 5	(19/2 ⁻)	
1758.2# 5	(19/2,21/2)	
1889.6@ 5	(21/2 ⁻)	
1916.7& 6	(23/2 ⁻)	
2505.6# 6	(23/2,25/2)	
2654.6@ 6	(25/2 ⁻)	
2678.6& 7	(27/2 ⁻)	
3526.7& 7	(31/2 ⁻)	

[†] From least-squares fit to E_γ's (by evaluators), assuming Δ(E_γ)=0.3 for each gamma ray.

[‡] As proposed by 1998Hw02.

Band(A): band based on (11/2,13/2).

@ Band(B): band based on (5/2⁻).

& Band(C): band based on (7/2⁻).

γ(¹¹¹Ru)

E _γ	I _γ	E _i (level)	J _i ^π	E _f	J _f ^π	Comments
63.3		317.6	(9/2 ⁻)	254.55	(7/2 ⁻)	E _γ : E=62.7 (1974ClZX), 63.0 (1972ChYZ), 62.8 (1973Ho22).
76.2		393.6	(11/2 ⁻)	317.6	(9/2 ⁻)	
104.2	131	254.55	(7/2 ⁻)	150.45	(7/2 ⁺)	E _γ : E=103.9 (1974ClZX), 104.0 (1972ChYZ), 103.9 (1973Ho22), 103.5 2 (1970Jo20).
138.9	17.1	393.6	(11/2 ⁻)	254.55	(7/2 ⁻)	
150.4	100	150.45	(7/2 ⁺)	0.0	(5/2 ⁺)	E _γ : E=150.4 (1974ClZX), 150.4 (1972ChYZ), 150.5 (1973Ho22,1970Jo20).
167.0	22	317.6	(9/2 ⁻)	150.45	(7/2 ⁺)	E _γ : E=167.0 (1974ClZX), 167.0 (1972ChYZ,1973Ho22), 167.1 2 (1970Jo20).
254.6	5.5	254.55	(7/2 ⁻)	0.0	(5/2 ⁺)	

Continued on next page (footnotes at end of table)

^{252}Cf SF decay 1998Hw02 (continued) $\gamma(^{111}\text{Ru})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
275.8	2.3	1133.0	(15/2,17/2)	857.4	(11/2,13/2)	532.2	7.9	1228.7	(17/2 ⁻)	696.5	(13/2 ⁻)
303.2	11.5	696.5	(13/2 ⁻)	393.6	(11/2 ⁻)	625.3	0.72	1758.2	(19/2,21/2)	1133.0	(15/2,17/2)
357.8	52.3	751.6	(15/2 ⁻)	393.6	(11/2 ⁻)	650.7	9.2	1916.7	(23/2 ⁻)	1266.0	(19/2 ⁻)
378.8	14.6	696.5	(13/2 ⁻)	317.6	(9/2 ⁻)	660.9	7.1	1889.6	(21/2 ⁻)	1228.7	(17/2 ⁻)
381.3	2.9	1133.0	(15/2,17/2)	751.6	(15/2 ⁻)	747.4	0.33	2505.6	(23/2,25/2)	1758.2	(19/2,21/2)
464.0	14.1	857.4	(11/2,13/2)	393.6	(11/2 ⁻)	761.9	2.3	2678.6	(27/2 ⁻)	1916.7	(23/2 ⁻)
477.0	6.2	1228.7	(17/2 ⁻)	751.6	(15/2 ⁻)	765.0	0.73	2654.6	(25/2 ⁻)	1889.6	(21/2 ⁻)
492.0	4.3	1758.2	(19/2,21/2)	1266.0	(19/2 ⁻)	848.1	1.0	3526.7	(31/2 ⁻)	2678.6	(27/2 ⁻)
514.3	27.7	1266.0	(19/2 ⁻)	751.6	(15/2 ⁻)						

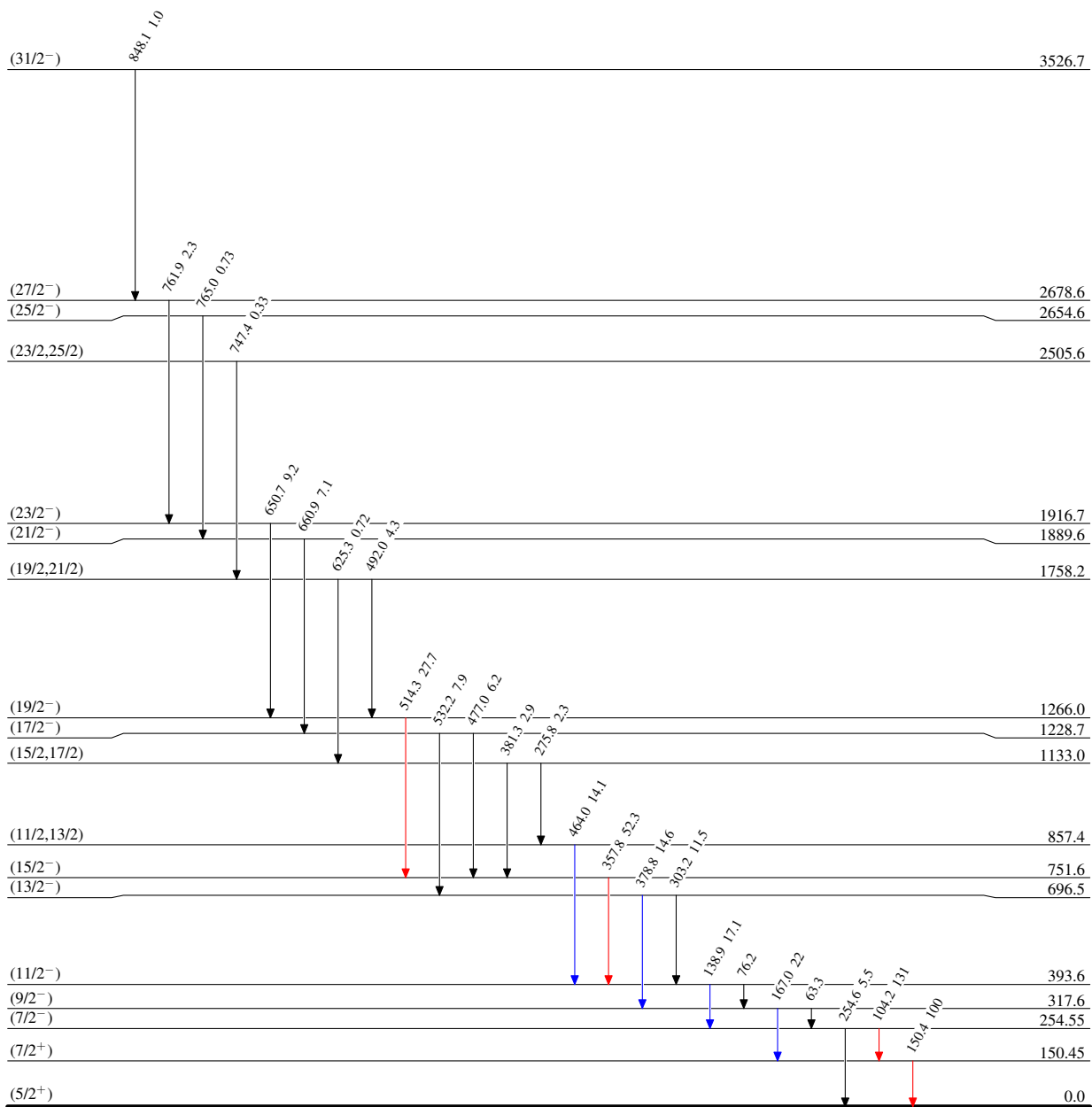
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Level Scheme

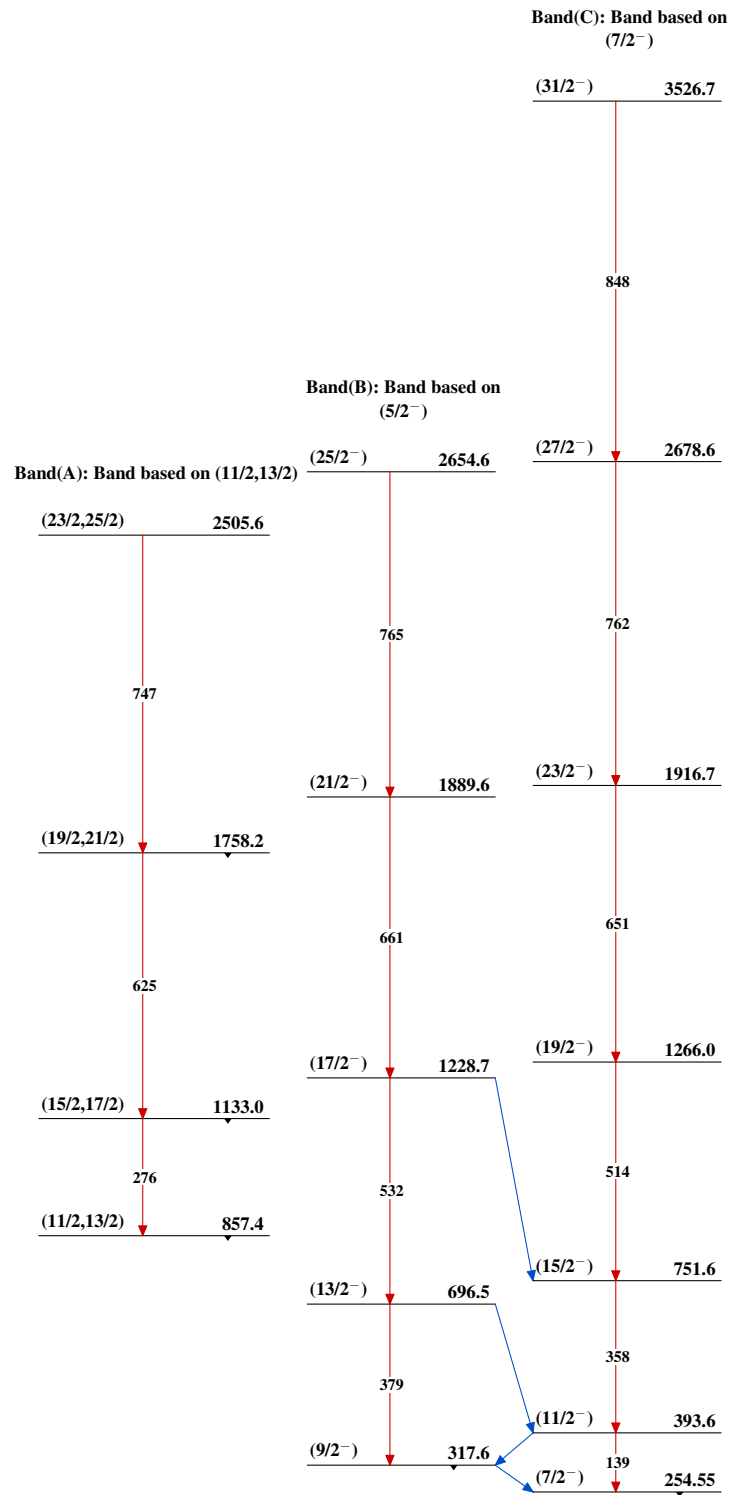
Intensities: Relative I_γ

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}



¹¹¹Ru₆₇

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