^{252}Cf SF decay 1997Hw03

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 109, 1383 (2008)	1-Mar-2008

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

1997Hw03: a ^{252}Cf source was sandwiched between two Ni foils and placed at the center of "GAMMASPHERE" with 72 Compton suppressed Ge detectors.

The identification of ^{107}Mo is based on the known γ of the Ba partners.

Others: 1974ClZX, 1976ChZD.

^{107}Mo Levels

E(level)‡	Jπ†	$T_{1/2}$	Comments
0.0	(7/2⁻)		
66.34@ *16*	(5/2⁻)	470 ns *30*	g=−0.92 *3* g-factor from time-differential perturbed angular correlation (1976ChZD). $T_{1/2}$: from 1999Ge01. $T_{1/2}(65\gamma)$=238 ns *7* (1974ClZX), 38 ns *7* (1974ClZX), 245 ns *15* (1976ChZD).
152.19& *17*	(11/2⁻)		
166.16# *16*	(7/2⁺)		
320.15@ *20*	(9/2⁻)		
348.41b *17*	(7/2⁻)		
458.68a *19*	(9/2⁺)		
492.56# *23*	(11/2⁺)		
566.8& *3*	(15/2⁻)		
582.05b *21*	(11/2⁻)		
730.96@ *24*	(13/2⁻)		
838.46a *23*	(13/2⁺)		
970.3# *3*	(15/2⁺)		
988.06b *25*	(15/2⁻)		
1118.0& *4*	(19/2⁻)		
1287.0@ *3*	(17/2⁻)		
1393.5a *3*	(17/2⁺)		
1545.6b *4*	(19/2⁻)		
1590.8# *4*	(19/2⁺)		
1798.0& *4*	(23/2⁻)		
1975.2@ *4*	(21/2⁻)		
2244.6b *4*	(29/2⁻)		

† Not adopted. 1997Hw03 differ from adopted J^π of 2005Ur02.

‡ Level energy from least-squares adjustment.

Band(A): band 1, 5/2[413] S=−1.

@ Band(B): band 2, 5/2[532] S=−1.

& Band(C): band 3, $h_{11/2}$ decoupled band.

a Band(D): band 4, 5/2[413] S=+1.

b Band(E): band 5, 5/2[532] S=+1.

^{252}Cf SF decay 1997Hw03 (continued)

$\gamma(^{107}Mo)$

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ	α[@]	Comments
66.3 *2*	19	66.34	$(5/2^-)$	0.0	$(7/2^-)$	M1(+E2)	<1	1.8 *8*	α: from 1991Ho16. 65$\gamma(\theta)$: A_2=−0.14 *3*, A_4=0.01 *3* (1976ChZD);
99.9 *2*		166.16	$(7/2^+)$	66.34	$(5/2^-)$	E1		0.15 *3*	α=0.15 *3*
110.3 *2*		458.68	$(9/2^+)$	348.41	$(7/2^-)$	E1		0.06 *2*	α=0.06 *2*
123.4 *2*	109.8	582.05	$(11/2^-)$	458.68	$(9/2^+)$	E1		0.03 *4*	α=0.03 *4*
149.6 *2*	17.4	988.06	$(15/2^-)$	838.46	$(13/2^+)$				
152.2 *2*	100	152.19	$(11/2^-)$	0.0	$(7/2^-)$	E2		0.32 *8*	α=0.32 *8*
154.1 *2*	70.9	320.15	$(9/2^-)$	166.16	$(7/2^+)$				
166.2 *2*		166.16	$(7/2^+)$	0.0	$(7/2^-)$				
172.2 *2*	53.4	492.56	$(11/2^+)$	320.15	$(9/2^-)$				
233.6 *2*	100	582.05	$(11/2^-)$	348.41	$(7/2^-)$				
238.4 *2*	65.6	730.96	$(13/2^-)$	492.56	$(11/2^+)$				
253.7 *2*	100	320.15	$(9/2^-)$	66.34	$(5/2^-)$				
256.4 *2*	41.0	838.46	$(13/2^+)$	582.05	$(11/2^-)$				
306.5 *2*		458.68	$(9/2^+)$	152.19	$(11/2^-)$				
326.4 *2*	100	492.56	$(11/2^+)$	166.16	$(7/2^+)$				
348.4 *2*	82	348.41	$(7/2^-)$	0.0	$(7/2^-)$				
379.8 *2*	100	838.46	$(13/2^+)$	458.68	$(9/2^+)$				
405.4 *2*	61.9	1393.5	$(17/2^+)$	988.06	$(15/2^-)$				
406.0 *2*	100	988.06	$(15/2^-)$	582.05	$(11/2^-)$				
410.8 *2*	100	730.96	$(13/2^-)$	320.15	$(9/2^-)$				
414.6 *2*	100	566.8	$(15/2^-)$	152.19	$(11/2^-)$				
477.7 *2*	100	970.3	$(15/2^+)$	492.56	$(11/2^+)$				
551.2 *2*	100	1118.0	$(19/2^-)$	566.8	$(15/2^-)$				
555.0 *2*	100	1393.5	$(17/2^+)$	838.46	$(13/2^+)$				
556.0 *2*	100	1287.0	$(17/2^-)$	730.96	$(13/2^-)$				
557.5 *2*	100	1545.6	$(19/2^-)$	988.06	$(15/2^-)$				
620.5 *2*		1590.8	$(19/2^+)$	970.3	$(15/2^+)$				
680.0 *2*	100	1798.0	$(23/2^-)$	1118.0	$(19/2^-)$				
688.2 *2*	100	1975.2	$(21/2^-)$	1287.0	$(17/2^-)$				
699.0 *2*	100	2244.6	$(29/2^-)$	1545.6	$(19/2^-)$				

[†] ΔE not given by authors, estimated to be 0.3 keV by evaluator.
[‡] From 1997Hw03, branching ratios by level.
[#] From α(exp) measured from the intensity balance on the levels.
[@] 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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Level Scheme

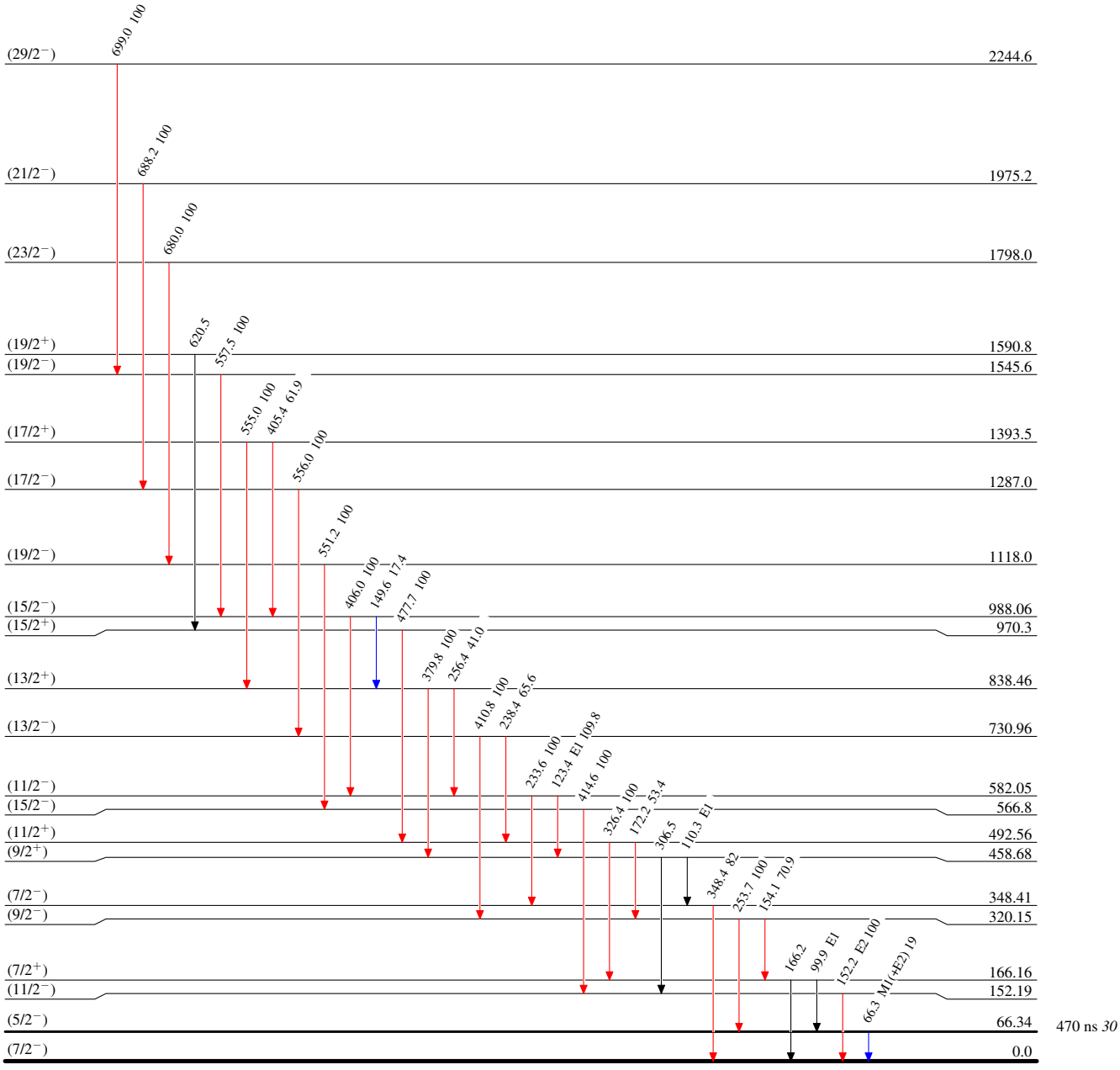
Intensities: Type not specified

Legend

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

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

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



$^{107}_{42}Mo_{65}$

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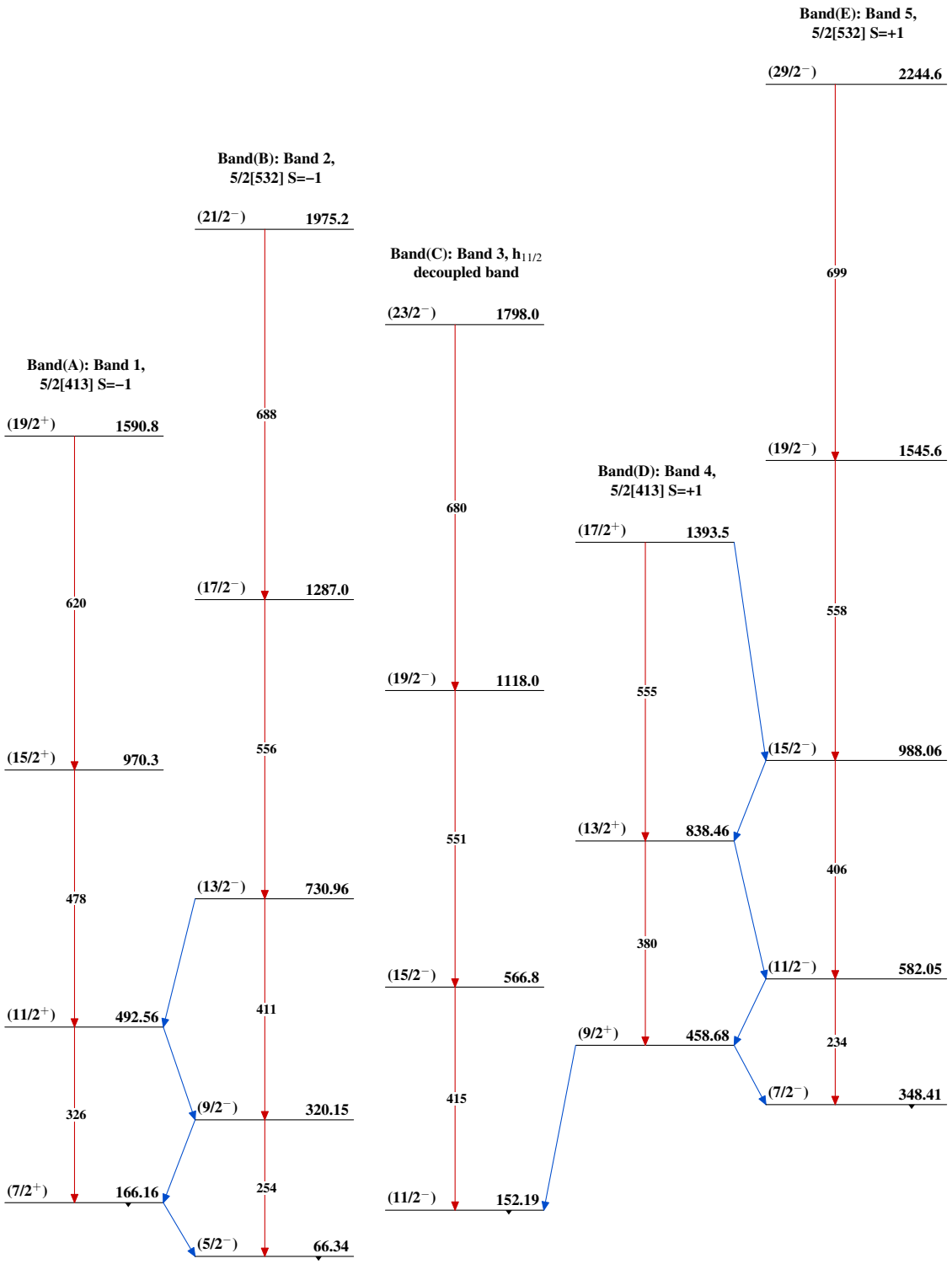

$^{107}_{42}Mo_{65}$