^{252}Cf SF decay 2013Li52

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, J. Timar and Z. Elekes	NDS 161, 1 (2019)	1-Apr-2019

Parent: ^{252}Cf: E=0; $J^{\pi}=0^+$; $T_{1/2}=2.645$ y *8*; %SF decay=3.092 *8*

2013Li52: Source: 60 μCi ^{252}Cf sandwiched between two Fe foils with thickness of 10 mg/cm^2; Detectors: GAMMASPHERE comprising 101 HPGe detectors; Measured: γ-γ-γ, Eγ, Iγ; Deduced: ^{105}Nb level scheme, band structures; Also from the same collaboration: 2005Lu21, 2005Lu24.

Other: 1991Ho16.

^{105}Nb Levels

E(level)[†]	J^{π}[‡]	Comments
0.0[#]	$(5/2^+)$	configuration: $5/2^+[422]$.
128.10[@] *8*	$(7/2^+)$	
290.60[#] *10*	$(9/2^+)$	
511.40[@] *12*	$(11/2^+)$	
625.90[&] *8*	$(9/2^+)$	
734.80[#] *12*	$(13/2^+)$	
828.70[&] *11*	$(11/2^+)$	
1045.80[@] *15*	$(15/2^+)$	
1080.60[&] *11*	$(13/2^+)$	
1231.90[a] *12*	$(13/2^+)$	
1318.60[#] *15*	$(17/2^+)$	
1364.40[&] *12*	$(15/2^+)$	
1517.90[a] *14*	$(15/2^+)$	
1678.60[&] *13*	$(17/2^+)$	
1686.50[b] *23*	$(9/2^+)$	
1720.60[@] *19*	$(19/2^+)$	
1844.00[a] *17*	$(17/2^+)$	
1916.40[b] *20*	$(11/2^+)$	
2029.31[&] *15*	$(19/2^+)$	
2034.01[#] *21*	$(21/2^+)$	
2175.91[b] *21*	$(13/2^+)$	
2200.81[a] *21*	$(19/2^+)$	
2465.61[b] *24*	$(15/2^+)$	
2525.01[@] *24*	$(23/2^+)$	
2867.3[#] *3*	$(25/2^+)$	

[†] From a least-squares fit to Eγ.
[‡] From 2013Li52, based on the observed band structure.
[#] Band(A): Member of 5/2[422], α=+1/2 band.
[@] Band(a): Member of 5/2[422], α=−1/2 band.
[&] Band(B): Member of 1γ-band.
[a] Band(C): Member of 2γ-band.
[b] Band(D): Member of 3γ-band.

^{252}Cf SF decay 2013Li52 (continued)

$\gamma(^{105}Nb)$

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π
128.1 *1*	100	128.10	(7/2$^+$)	0.0	(5/2$^+$)
162.5 *1*	51.3 *12*	290.60	(9/2$^+$)	128.10	(7/2$^+$)
202.8 *2*	15.4 *5*	828.70	(11/2$^+$)	625.90	(9/2$^+$)
220.8 *1*	44.0 *9*	511.40	(11/2$^+$)	290.60	(9/2$^+$)
223.4 *2*	19.6 *5*	734.80	(13/2$^+$)	511.40	(11/2$^+$)
229.9 *2*	6.0 *2*	1916.40	(11/2$^+$)	1686.50	(9/2$^+$)
251.9 *1*	11.5 *6*	1080.60	(13/2$^+$)	828.70	(11/2$^+$)
259.5 *2*	4.4 *2*	2175.91	(13/2$^+$)	1916.40	(11/2$^+$)
272.8 *2*	7.2 *2*	1318.60	(17/2$^+$)	1045.80	(15/2$^+$)
283.8 *1*	9.3 *4*	1364.40	(15/2$^+$)	1080.60	(13/2$^+$)
286.0 *1*	9.0 *3*	1517.90	(15/2$^+$)	1231.90	(13/2$^+$)
289.7 *2*	2.0 *1*	2465.61	(15/2$^+$)	2175.91	(13/2$^+$)
290.6 *2*	13.5 *7*	290.60	(9/2$^+$)	0.0	(5/2$^+$)
311.0 *2*	12.3 *4*	1045.80	(15/2$^+$)	734.80	(13/2$^+$)
313.4 *2*	1.4 *2*	2034.01	(21/2$^+$)	1720.60	(19/2$^+$)
314.2 *1*	4.5 *2*	1678.60	(17/2$^+$)	1364.40	(15/2$^+$)
326.1 *1*	6.5 *3*	1844.00	(17/2$^+$)	1517.90	(15/2$^+$)
331.9 *2*	1.1 *1*	2175.91	(13/2$^+$)	1844.00	(17/2$^+$)
342.3 *3*	<1	2867.3	(25/2$^+$)	2525.01	(23/2$^+$)
350.7 *1*	1.3 *1*	2029.31	(19/2$^+$)	1678.60	(17/2$^+$)
356.8 *2*	2.2 *2*	2200.81	(19/2$^+$)	1844.00	(17/2$^+$)
383.3 *2*	8.8 *6*	511.40	(11/2$^+$)	128.10	(7/2$^+$)
398.5 *2*	3.8 *2*	1916.40	(11/2$^+$)	1517.90	(15/2$^+$)
402.0 *2*	4.7 *3*	1720.60	(19/2$^+$)	1318.60	(17/2$^+$)
403.2 *2*	6.0 *3*	1231.90	(13/2$^+$)	828.70	(11/2$^+$)
437.3 *3*	<1	1517.90	(15/2$^+$)	1080.60	(13/2$^+$)
444.2 *1*	9.8 *5*	734.80	(13/2$^+$)	290.60	(9/2$^+$)
454.6 *3*	16.7 *5*	1686.50	(9/2$^+$)	1231.90	(13/2$^+$)
454.7 *2*	7.4 *6*	1080.60	(13/2$^+$)	625.90	(9/2$^+$)
489.4 *5*	2.9 *2*	2175.91	(13/2$^+$)	1686.50	(9/2$^+$)
491.0 *2*	1.3 *2*	2525.01	(23/2$^+$)	2034.01	(21/2$^+$)
497.8 *1*	15.2 *15*	625.90	(9/2$^+$)	128.10	(7/2$^+$)
534.4 *2*	6.8 *5*	1045.80	(15/2$^+$)	511.40	(11/2$^+$)
535.7 *2*	7.6 *9*	1364.40	(15/2$^+$)	828.70	(11/2$^+$)
538.1 *2*	4.1 *3*	828.70	(11/2$^+$)	290.60	(9/2$^+$)
549.2 *2*	4.3 *3*	2465.61	(15/2$^+$)	1916.40	(11/2$^+$)
569.2 *2*	3.3 *1*	1080.60	(13/2$^+$)	511.40	(11/2$^+$)
583.8 *1*	7.0 *2*	1318.60	(17/2$^+$)	734.80	(13/2$^+$)
598.0 *1*	5.4 *3*	1678.60	(17/2$^+$)	1080.60	(13/2$^+$)
606.0 *1*	27.7 *12*	1231.90	(13/2$^+$)	625.90	(9/2$^+$)
612.1 *4*	<1	1844.00	(17/2$^+$)	1231.90	(13/2$^+$)
625.9 *1*	38.2 *23*	625.90	(9/2$^+$)	0.0	(5/2$^+$)
629.6 *2*	1.9 *1*	1364.40	(15/2$^+$)	734.80	(13/2$^+$)
632.8 *2*	1.0 *1*	1678.60	(17/2$^+$)	1045.80	(15/2$^+$)
664.9 *2*	2.1 *2*	2029.31	(19/2$^+$)	1364.40	(15/2$^+$)
674.8 *2*	2.9 *2*	1720.60	(19/2$^+$)	1045.80	(15/2$^+$)
682.9 *2*	1.3 *1*	2200.81	(19/2$^+$)	1517.90	(15/2$^+$)
689.2 *5*	2.3 *2*	1517.90	(15/2$^+$)	828.70	(11/2$^+$)
700.6 *2*	8.7 *6*	828.70	(11/2$^+$)	128.10	(7/2$^+$)
715.4 *2*	2.7 *2*	2034.01	(21/2$^+$)	1318.60	(17/2$^+$)
790.0 *4*	4.0 *3*	1080.60	(13/2$^+$)	290.60	(9/2$^+$)
804.4 *3*	1.2 *2*	2525.01	(23/2$^+$)	1720.60	(19/2$^+$)
833.3 *2*	1.0 *2*	2867.3	(25/2$^+$)	2034.01	(21/2$^+$)
853.0 *3*	1.4 *2*	1364.40	(15/2$^+$)	511.40	(11/2$^+$)

† From 2013Li52.

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Level Scheme

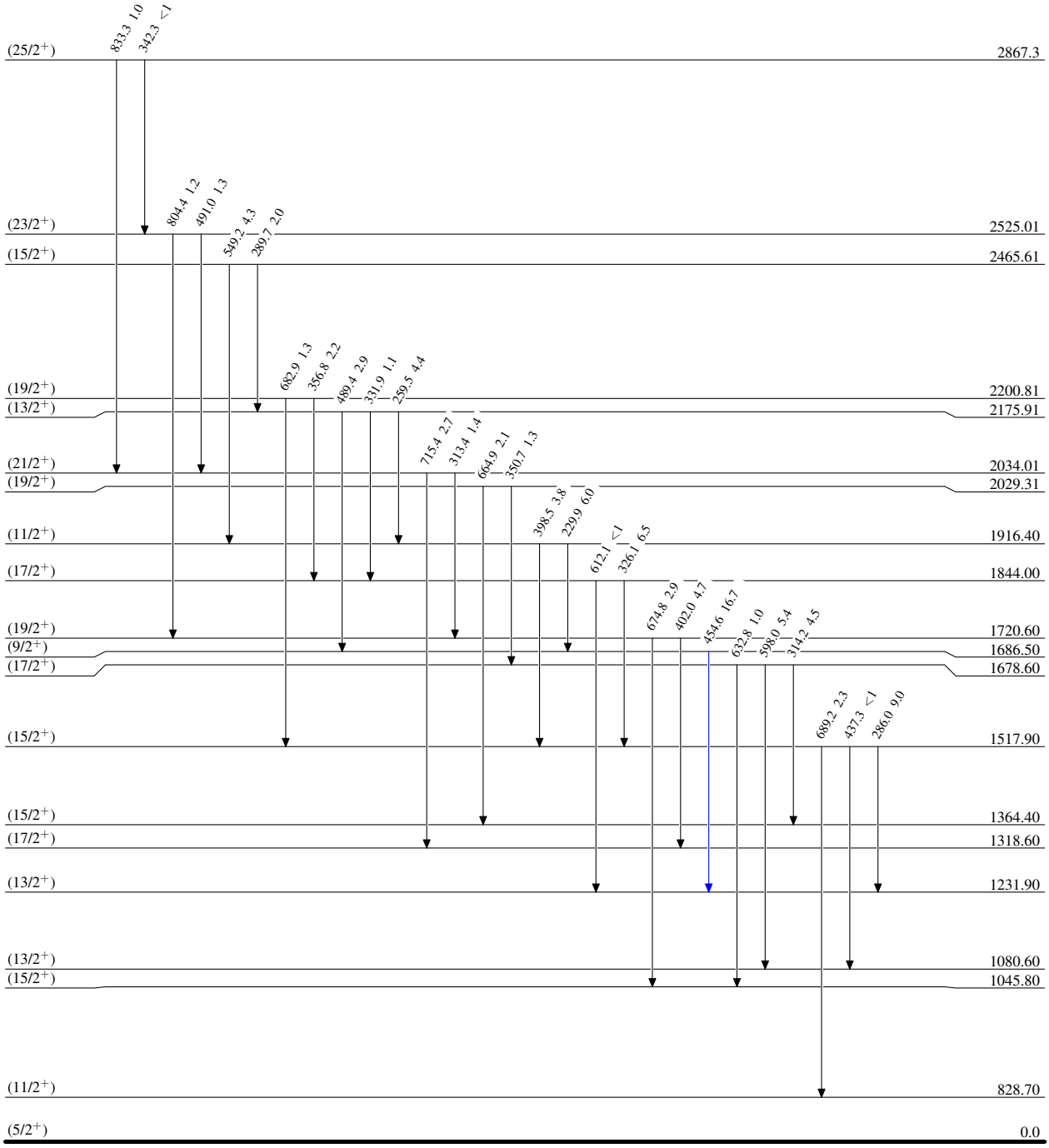
Intensities: Relative I_γ

Legend

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

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

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

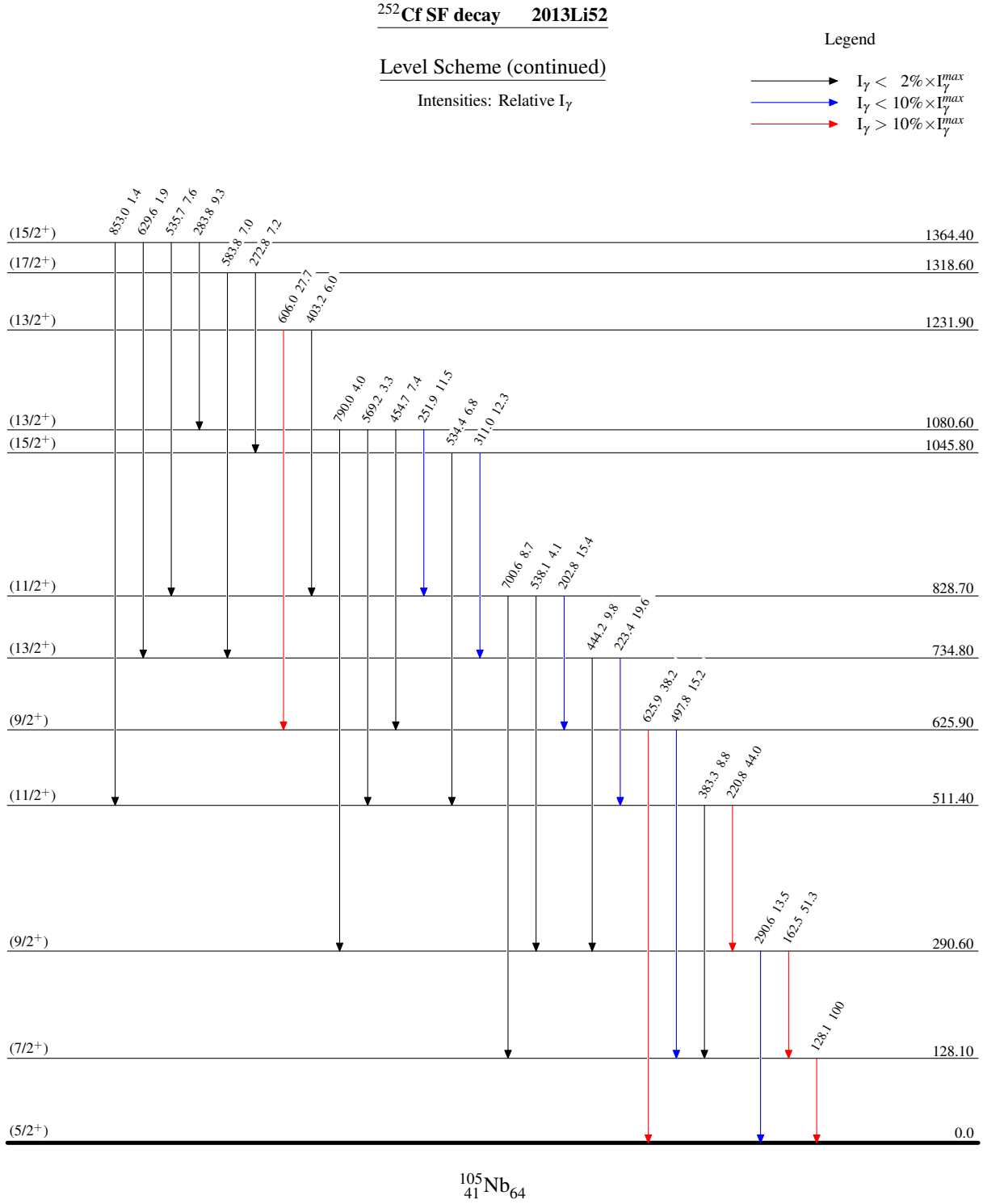


$^{105}_{41}Nb_{64}$

^{252}Cf SF decay 2013Li52

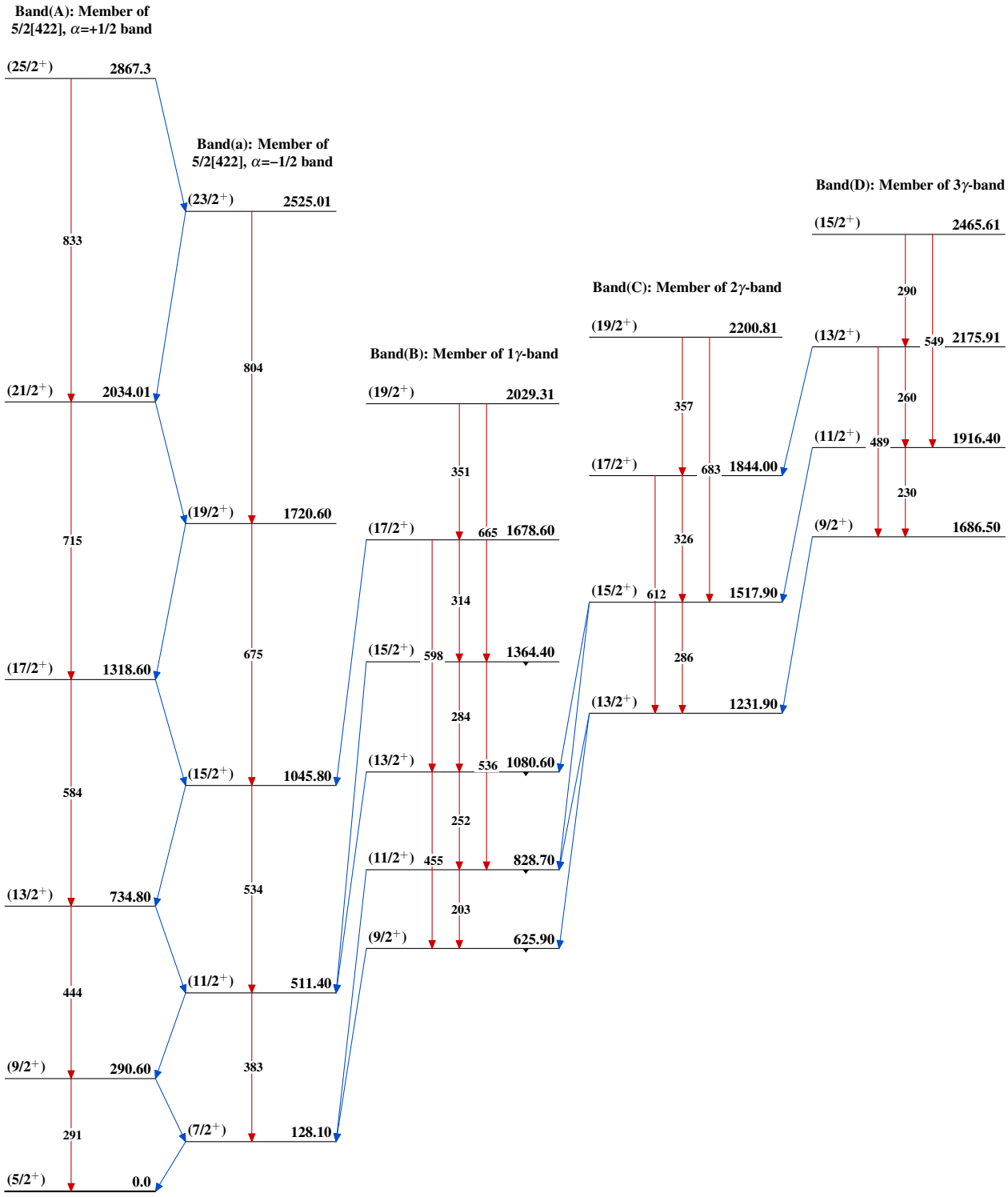
Level Scheme (continued)

Intensities: Relative I_γ



$^{105}_{41}Nb_{64}$

^{252}Cf SF decay 2013Li52



$^{105}_{41}Nb_{64}$