^{252}Cf SF decay 2004Lu03

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

Parent: ^{252}Cf: E=0; $J^\pi=0^+$; $T_{1/2}$=2.645 y *8*; %SF decay=?
Measured Eγ, Iγ, γγ using GAMMASPHERE array of 102 Compton- suppressed Ge detectors.

^{111}Rh Levels

E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ	E(level)†	Jπ
0.0‡	7/2+	681.88 *16*	3/2−	1548.95& *11*	(17/2+)	2894.56# *14*	(25/2+)
211.77# *10*	9/2+	716.26# *10*	(13/2+)	1758.22e *22*	(13/2−)	2905.22c *21*	(23/2+)
303.66b *10*	3/2+	733.02e *16*	5/2−	1932.99‡ *11*	(19/2+)	2964.57a *15*	(25/2,27/2)
382.16b *10*	5/2+	923.01c *12*	(11/2+)	1951.02@ *10*	(19/2+)	3272.36‡ *16*	(27/2+)
395.09c *10*	3/2+	1019.60& *10*	(13/2+)	2112.82a *11*	(19/2,21/2)	3325.55a *15*	(27/2,29/2)
440.43d *11*	1/2+	1045.28d *15*	(9/2+)	2113.88c *19*	(19/2+)	3523.92# *16*	(29/2+)
491.38‡ *10*	(11/2+)	1159.11‡ *10*	(15/2+)	2156.80# *12*	(21/2+)	3742.67a *16*	(29/2,31/2)
492.88e *13*	1/2−	1168.65e *19*	(9/2−)	2355.49a *14*	(21/2,23/2)	3933.38‡ *17*	(31/2+)
567.58c *10*	7/2+	1374.07@ *10*	(15/2+)	2604.31@ *14*	(23/2+)	4249.34# *17*	(33/2+)
608.81@ *10*	(11/2+)	1383.51# *10*	(17/2+)	2650.94a *14*	(23/2,25/2)		
663.49d *11*	5/2+	1445.55c *16*	(15/2+)	2733.28‡ *13*	(23/2+)		

† From least-squares fit to Eγ's, assuming Δ(Eγ)=0.1 keV; stated by 2004Lu03 as systematic error. Minimum uncertainty in level energy is assigned as 0.1 keV as proposed by 2004Lu03.
‡ Band(A): g.s. band, α=−1/2.
# Band(a): g.s. band, α=+1/2.
@ Band(B): 11/2+ band, α=−1/2.
& Band(b): 13/2+ band, α=+1/2.
a Band(C): (19/2,21/2) band.
b Band(D): 3/2+ band.
c Band(E): π1/2[431] band, α=−1/2.
d Band(e): π1/2[431] band, α=+1/2.
e Band(F): π1/2[301] band.

γ(^{111}Rh)

Eγ	Iγ	Ei(level)	J_i^π	Ef	J_f^π
78.57 *10*	3.2	382.16	5/2+	303.66	3/2+
91.41 *10*	1.3	395.09	3/2+	303.66	3/2+
107.42 *10*		716.26	(13/2+)	608.81	(11/2+)
136.75 *10*	2.9	440.43	1/2+	303.66	3/2+
161.24 *10*	1.5	2894.56	(25/2+)	2733.28	(23/2+)
161.79 *10*	12.3	2112.82	(19/2,21/2)	1951.02	(19/2+)
172.45 *10*	2.9	567.58	7/2+	395.09	3/2+
185.54 *10*	0.5	567.58	7/2+	382.16	5/2+
189.0 *1*		681.88	3/2−	492.88	1/2−
189.22 *10*		492.88	1/2−	303.66	3/2+
211.70 *10*	100	211.77	9/2+	0.0	7/2+
223.04 *10*	0.7	663.49	5/2+	440.43	1/2+
223.73 *10*		2156.80	(21/2+)	1932.99	(19/2+)

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^{252}Cf SF decay 2004Lu03 (continued)

$\gamma(^{111}Rh)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
224.39 *10*		1383.51	(17/2$^+$)	1159.11	(15/2$^+$)	
224.83 *10*	23.2	716.26	(13/2$^+$)	491.38	(11/2$^+$)	
240.14 *10*	2.1	733.02	5/2$^-$	492.88	1/2$^-$	
242.65 *10*	9.9	2355.49	(21/2,23/2)	2112.82	(19/2,21/2)	
251.58 *10*	1.9	3523.92	(29/2$^+$)	3272.36	(27/2$^+$)	
268.42 *10*	0.9	663.49	5/2$^+$	395.09	3/2$^+$	
279.67 *10*	31.2	491.38	(11/2$^+$)	211.77	9/2$^+$	
295.44 *10*	5.1	2650.94	(23/2,25/2)	2355.49	(21/2,23/2)	
303.69 *10*	23.8	303.66	3/2$^+$	0.0	7/2$^+$	
313.58 *10*	4.3	2964.57	(25/2,27/2)	2650.94	(23/2,25/2)	
316.02 *10*		4249.34	(33/2$^+$)	3933.38	(31/2$^+$)	
354.38 *10*	3.9	1374.07	(15/2$^+$)	1019.60	(13/2$^+$)	
355.43 *10*	0.9	923.01	(11/2$^+$)	567.58	7/2$^+$	
355.66 *10*		567.58	7/2$^+$	211.77	9/2$^+$	
361.03 *10*	1.9	3325.55	(27/2,29/2)	2964.57	(25/2,27/2)	I_γ: from figure 5 of 2004Lu03.
377.82 *10*	3.2	3272.36	(27/2$^+$)	2894.56	(25/2$^+$)	
381.79 *10*	0.5	1045.28	(9/2$^+$)	663.49	5/2$^+$	
382.21 *10*	7.2	382.16	5/2$^+$	0.0	7/2$^+$	
395.1 *1*	0.3	395.09	3/2$^+$	0.0	7/2$^+$	
397.15 *10*	23.3	608.81	(11/2$^+$)	211.77	9/2$^+$	
402.04 *10*	4.1	1951.02	(19/2$^+$)	1548.95	(17/2$^+$)	
409.54 *10*		3933.38	(31/2$^+$)	3523.92	(29/2$^+$)	
410.76 *10*	16.9	1019.60	(13/2$^+$)	608.81	(11/2$^+$)	
417.22† *10*		3742.67	(29/2,31/2)	3325.55	(27/2,29/2)	
435.63 *10*	1.3	1168.65	(9/2$^-$)	733.02	5/2$^-$	
442.86 *10*	12.8	1159.11	(15/2$^+$)	716.26	(13/2$^+$)	
491.36 *10*	14.8	491.38	(11/2$^+$)	0.0	7/2$^+$	
504.49 *10*	22.8	716.26	(13/2$^+$)	211.77	9/2$^+$	
522.53 *10*	0.7	1445.55	(15/2$^+$)	923.01	(11/2$^+$)	
529.31 *10*	4.7	1548.95	(17/2$^+$)	1019.60	(13/2$^+$)	
538.14 *10*	1.3	2650.94	(23/2,25/2)	2112.82	(19/2,21/2)	
539.22† *10*		3272.36	(27/2$^+$)	2733.28	(23/2$^+$)	
549.53 *10*	3.5	1932.99	(19/2$^+$)	1383.51	(17/2$^+$)	
567.65 *10*		567.58	7/2$^+$	0.0	7/2$^+$	
576.32 *10*	1.2	2733.28	(23/2$^+$)	2156.80	(21/2$^+$)	
576.94 *10*	6.5	1951.02	(19/2$^+$)	1374.07	(15/2$^+$)	
589.56 *10*	0.9	1758.22	(13/2$^-$)	1168.65	(9/2$^-$)	
608.76 *10*	1.5	608.81	(11/2$^+$)	0.0	7/2$^+$	
609.06 *10*	1.2	2964.57	(25/2,27/2)	2355.49	(21/2,23/2)	
629.34 *10*	1.8	3523.92	(29/2$^+$)	2894.56	(25/2$^+$)	
653.29 *10*	2.0	2604.31	(23/2$^+$)	1951.02	(19/2$^+$)	
657.66 *10*	2.3	1374.07	(15/2$^+$)	716.26	(13/2$^+$)	
661.01 *10*	0.6	3933.38	(31/2$^+$)	3272.36	(27/2$^+$)	
667.32 *10*	9.1	1383.51	(17/2$^+$)	716.26	(13/2$^+$)	
667.68 *10*	6.6	1159.11	(15/2$^+$)	491.38	(11/2$^+$)	
668.33 *10*	0.6	2113.88	(19/2$^+$)	1445.55	(15/2$^+$)	
674.66 *10*	0.8	3325.55	(27/2,29/2)	2650.94	(23/2,25/2)	
725.35 *10*	1.1	4249.34	(33/2$^+$)	3523.92	(29/2$^+$)	
729.32 *10*	1.3	2112.82	(19/2,21/2)	1383.51	(17/2$^+$)	
737.79 *10*	6.6	2894.56	(25/2$^+$)	2156.80	(21/2$^+$)	
765.36 *10*	5.5	1374.07	(15/2$^+$)	608.81	(11/2$^+$)	
773.26 *10*	7.4	2156.80	(21/2$^+$)	1383.51	(17/2$^+$)	
773.84 *10*	1.7	1932.99	(19/2$^+$)	1159.11	(15/2$^+$)	
778.0† *1*		3742.67	(29/2,31/2)	2964.57	(25/2,27/2)	
791.34 *10*	0.4	2905.22	(23/2$^+$)	2113.88	(19/2$^+$)	

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^{252}Cf SF decay 2004Lu03 (continued)

$\gamma(^{111}Rh)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
791.94 *10*	3.7	1951.02	$(19/2^+)$	1159.11	$(15/2^+)$	
800.4 *1*	0.6	2733.28	$(23/2^+)$	1932.99	$(19/2^+)$	E_γ: 800.3 in figure 5 of 2004Lu03.
807.72 *10*	0.4	1019.60	$(13/2^+)$	211.77	$9/2^+$	
882.81 *10*	1.2	1374.07	$(15/2^+)$	491.38	$(11/2^+)$	

† Placement of transition in the level scheme is uncertain.

^{252}Cf SF decay 2004Lu03

Level Scheme

Intensities: Relative I_γ

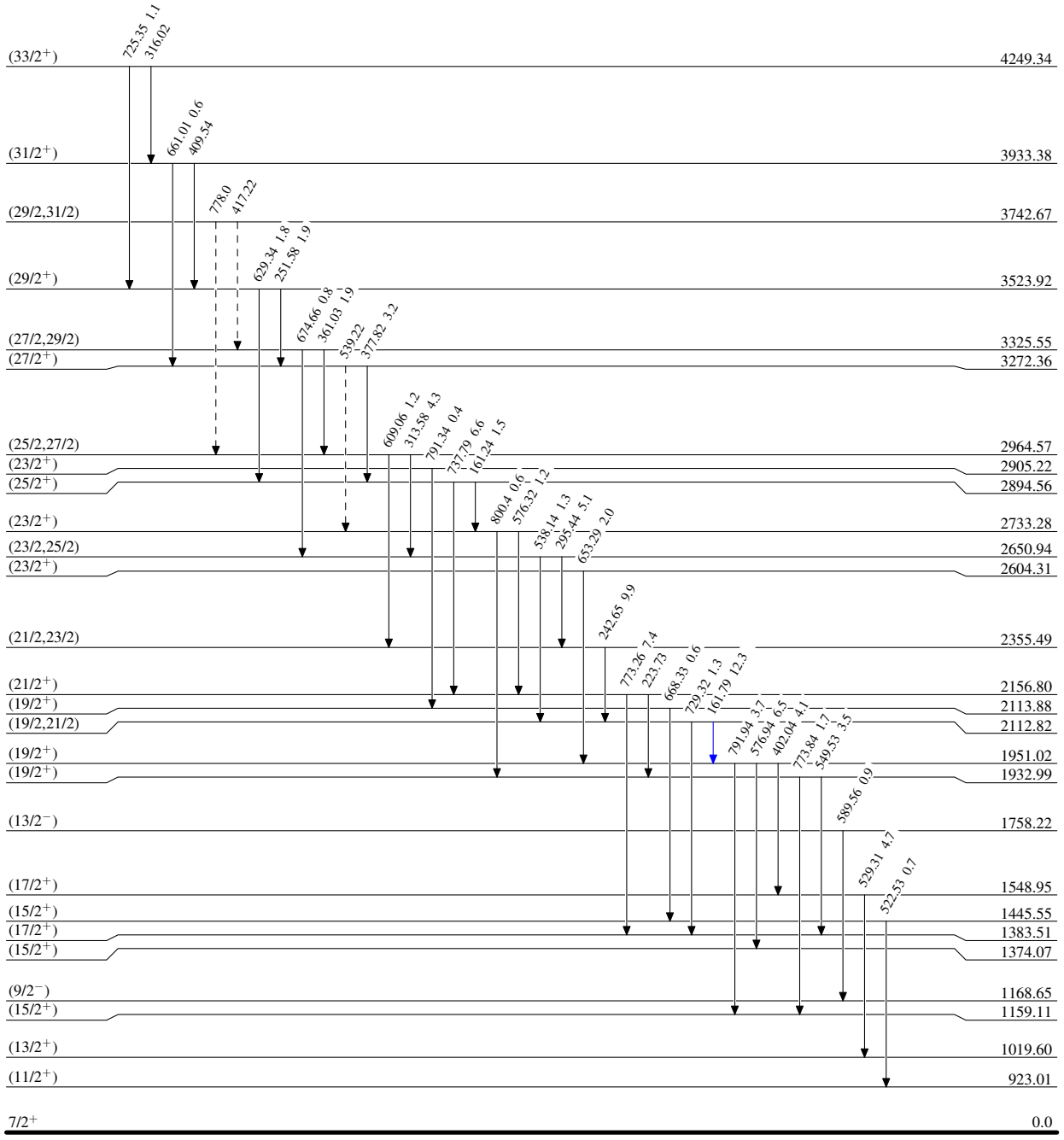
Legend

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

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

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

γ Decay (Uncertain)

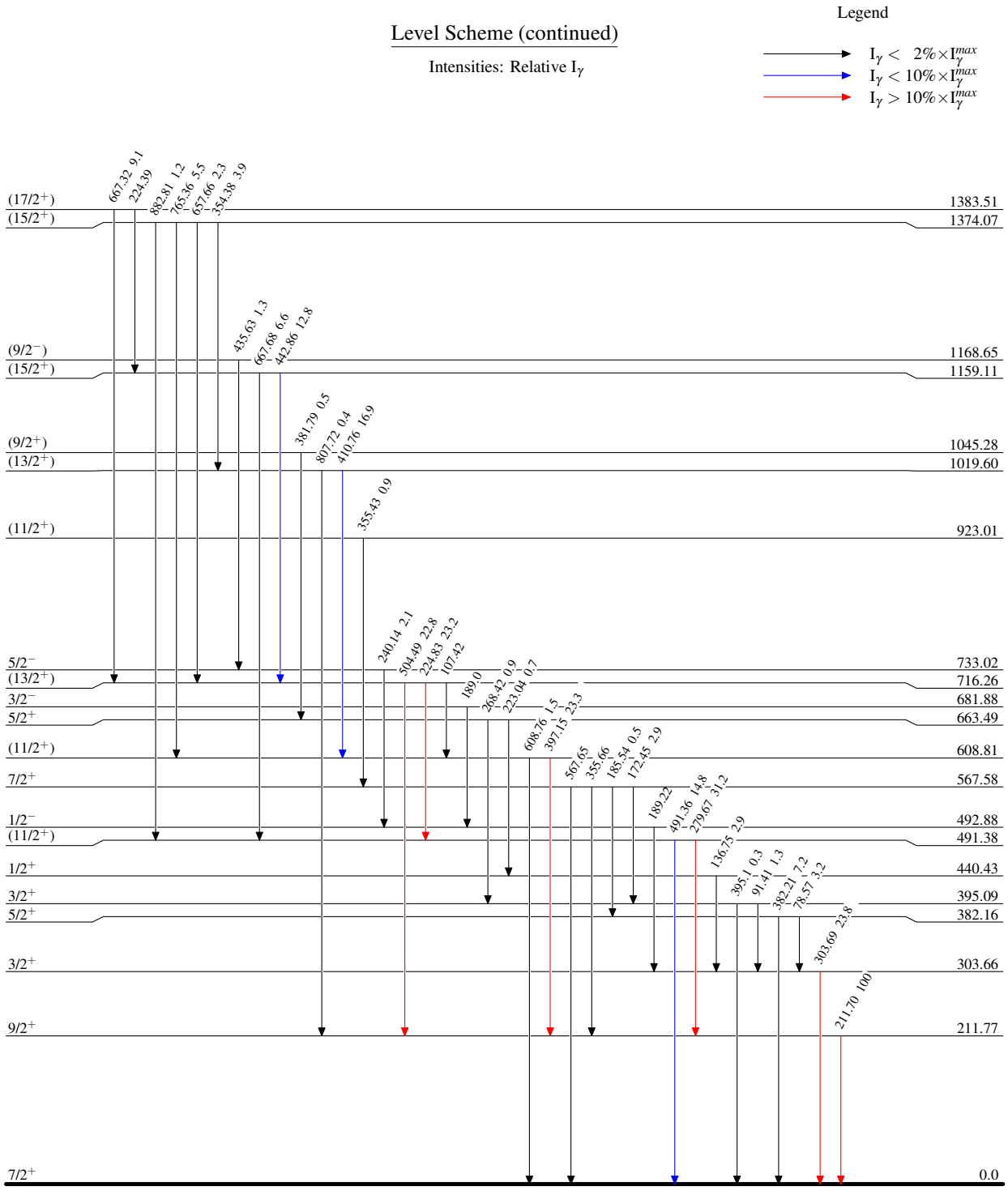


$^{111}_{45}Rh_{66}$

^{252}Cf SF decay 2004Lu03

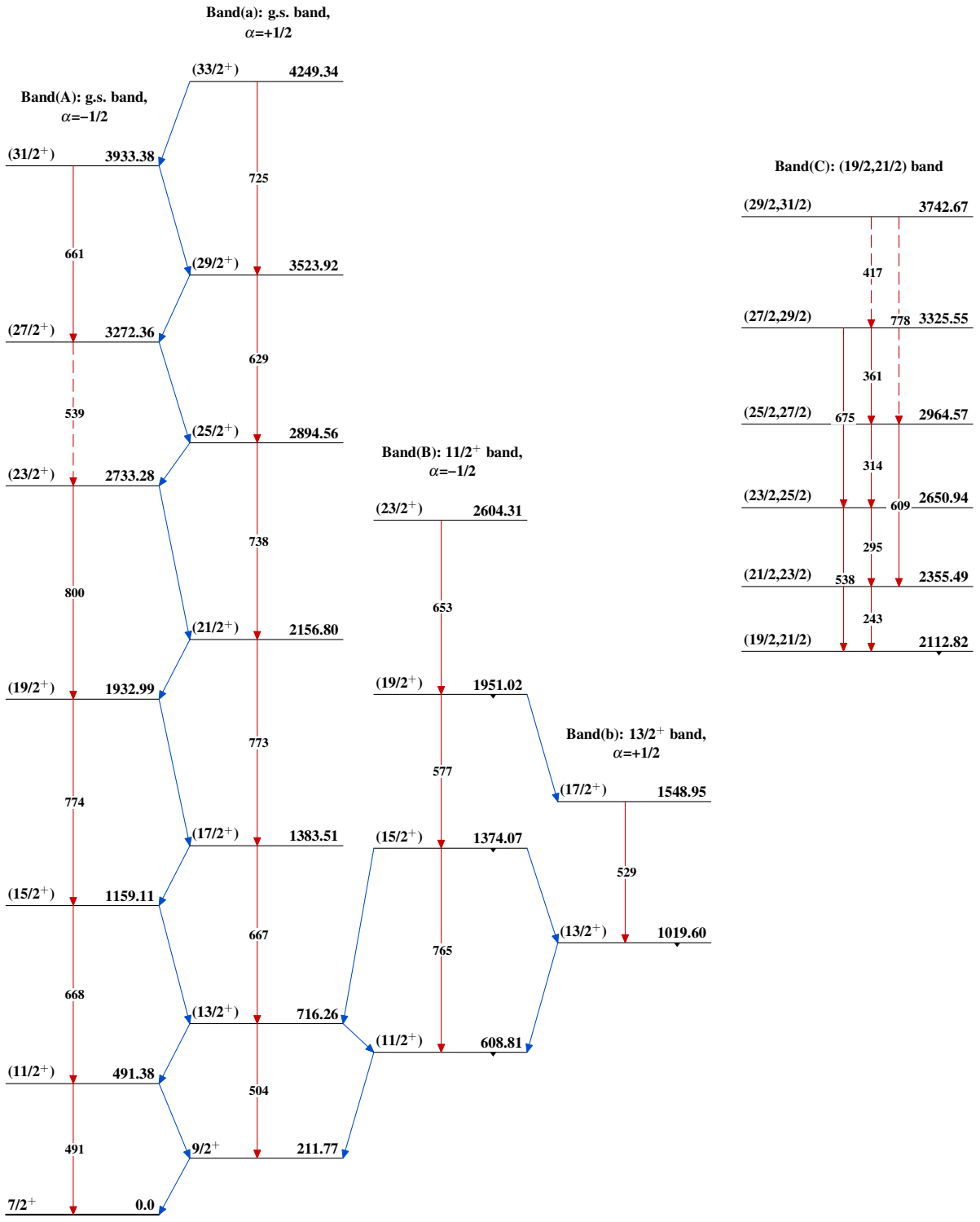
Level Scheme (continued)

Intensities: Relative I_γ

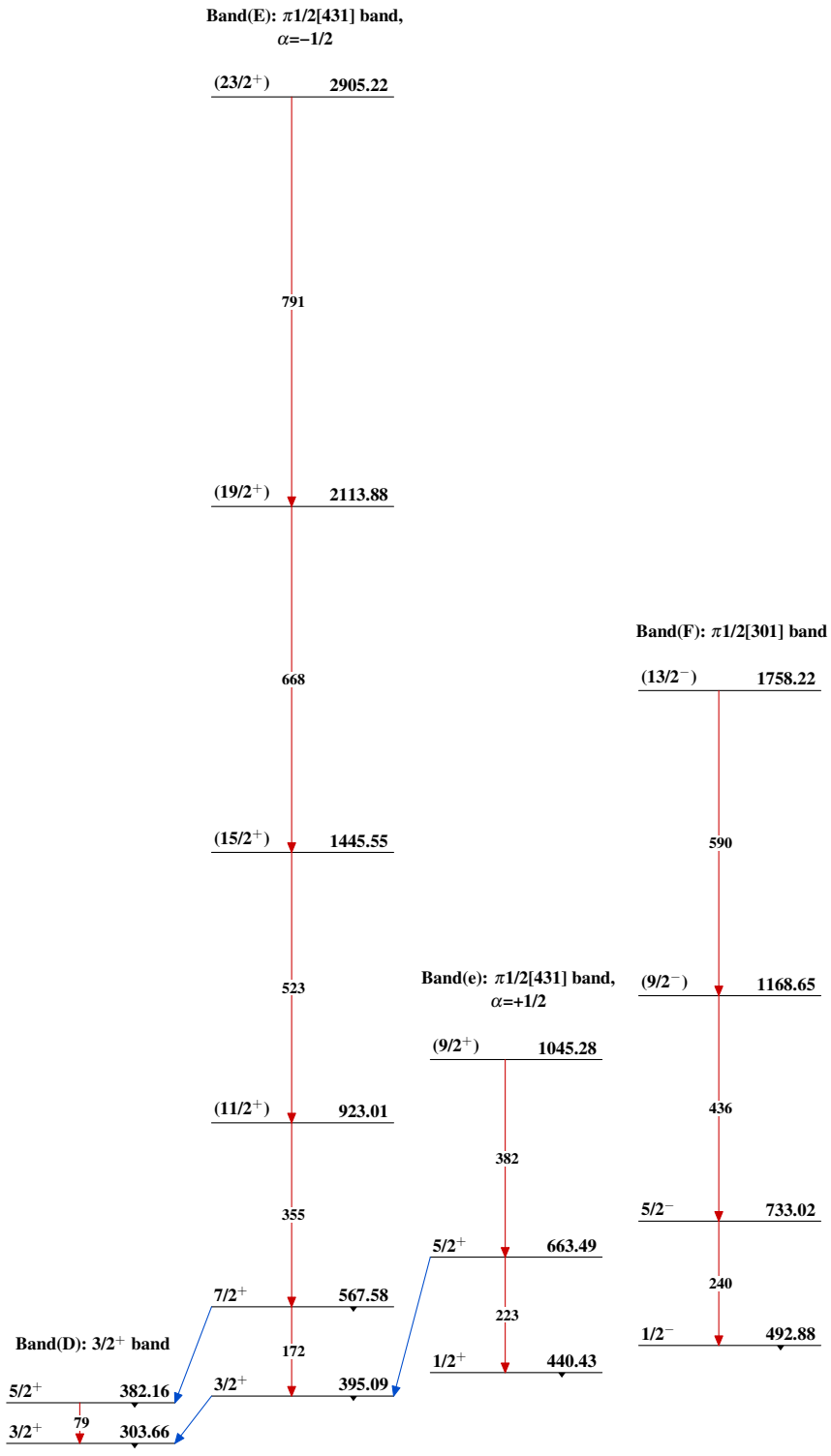


$^{111}_{45}Rh_{66}$

^{252}Cf SF decay 2004Lu03



^{252}Cf SF decay 2004Lu03 (continued)



$^{111}_{45}Rh_{66}$