^{252}Cf SF decay 2005Lu21,2005Lu24

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 145, 25 (2017)	1-Jul-2017

Parent: ^{252}Cf: E=0.0; $J^\pi=0^+$; $T_{1/2}$=2.645 y *8*; %SF decay=?
Others: 2012Ma13, 2010Hw03, 2010Rz02.
Additional information 1.
Based on XUNDL. Compiled by J. Roediger and B. Singh (McMaster) October 5, 2005.
All data are from 2005Lu21.
Measured Eγ, Iγ, γγ, Gammasphere array with 102 Compton- suppressed Ge detectors.

^{99}Y Levels

E(level)[†]	J^π	$T_{1/2}$[‡#]	Comments
0.0[@]	$5/2^+$		
125.21[&] *7*	$7/2^+$	47 ps *6*	$T_{1/2}$: From Adopted Levels.
283.84[@] *7*	$9/2^+$		
482.37[&] *9*	$(11/2^+)$		
487.36[d] *10*	$(5/2^-)$		
535.78[c] *8*	$(3/2^-)$		
624.24[d] *12*	$(7/2^-)$		
657.36[c] *8*	$(5/2^-)$		
706.28[@] *10*	$(13/2^+)$		
818.12[c] *9*	$(7/2^-)$		
975.87[&] *10*	$(15/2^+)$		
1259.17[@] *11*	$(17/2^+)$		
1595.81[&] *11*	$(19/2^+)$		
1654.66[a] *9*	$(11/2^+)$	≈1.4 ns	$T_{1/2}$: From Adopted Levels.
1868.79[b] *11*	$(13/2^+)$		
1933.24[@] *13*	$(21/2^+)$		
2113.79[a] *12*	$(15/2^+)$		
2141.95 *10*	$(17/2^+)$	8.6 μs *8*	Configuration=π5/2[422]⊗ν3/2[411]⊗ν9/2[404], $K^\pi=(17/2^+)$. $T_{1/2}$: From Adopted Levels.
2332.21[&] *13*	$(23/2^+)$		
2389.26[b] *13*	$(17/2^+)$		
2693.96[a] *13*	$(19/2^+)$		
2717.78[@] *14*	$(25/2^+)$		
3028.01[b] *14*	$(21/2^+)$		
3178.91[&] *17*	$(27/2^+)$		
3389.46[a] *17*	$(23/2^+)$		

[†] From least-squares fit to Eγ′s.
[‡] Additional information 2.
[#] From Adopted Levels.
[@] Band(A): 5/2[422], α=+1/2.
[&] Band(a): 5/2[422], α=−1/2.
[a] Band(B): $K^\pi=(11/2^+)$, 3-qp band, α=−1/2. Configuration=π5/2[422]⊗ν3/2[411]⊗ν9/2[404].
[b] Band(b): $K^\pi=(11/2^+)$, 3-qp band, α=+1/2. Configuration=π5/2[422]⊗ν3/2[411]⊗ν9/2[404].
[c] Band(C): 3/2[301] band.
[d] Band(D): 5/2[303] band.

^{252}Cf SF decay 2005Lu21,2005Lu24 (continued)

γ(^{99}Y)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π
(27.7#)		2141.95	(17/2$^+$)	2113.79	(15/2$^+$)	459.2 *1*	2	2113.79	(15/2$^+$)	1654.66	(11/2$^+$)
121.7 *1*		657.36	(5/2$^-$)	535.78	(3/2$^-$)	461.1@		3178.91	(27/2$^+$)	2717.78	(25/2$^+$)
125.3 *1*	100	125.21	7/2$^+$	0.0	5/2$^+$	(487.3#)		487.36	(5/2$^-$)	0.0	5/2$^+$
158.7 *1*	54.2	283.84	9/2$^+$	125.21	7/2$^+$	493.5 *1*	6.8	975.87	(15/2$^+$)	482.37	(11/2$^+$)
160.7 *1*		818.12	(7/2$^-$)	657.36	(5/2$^-$)	(499.3#)		624.24	(7/2$^-$)	125.21	7/2$^+$
(169.6#)		657.36	(5/2$^-$)	487.36	(5/2$^-$)	520.4 *1*	1.8	2389.26	(17/2$^+$)	1868.79	(13/2$^+$)
198.6 *1*	35.6	482.37	(11/2$^+$)	283.84	9/2$^+$	(531.8#)		657.36	(5/2$^-$)	125.21	7/2$^+$
214.1 *1*	7.8	1868.79	(13/2$^+$)	1654.66	(11/2$^+$)	534.3 *1*		818.12	(7/2$^-$)	283.84	9/2$^+$
223.9 *1*	23.3	706.28	(13/2$^+$)	482.37	(11/2$^+$)	535.9 *1*		535.78	(3/2$^-$)	0.0	5/2$^+$
245.0 *1*	3.6	2113.79	(15/2$^+$)	1868.79	(13/2$^+$)	546.1 *1*	0.3	2141.95	(17/2$^+$)	1595.81	(19/2$^+$)
269.6 *1*	10.7	975.87	(15/2$^+$)	706.28	(13/2$^+$)	552.9 *1*	4.4	1259.17	(17/2$^+$)	706.28	(13/2$^+$)
273.2 *1*	2.4	2141.95	(17/2$^+$)	1868.79	(13/2$^+$)	580.2 *1*	1.2	2693.96	(19/2$^+$)	2113.79	(15/2$^+$)
275.5 *1*	1.8	2389.26	(17/2$^+$)	2113.79	(15/2$^+$)	619.9 *1*	2.6	1595.81	(19/2$^+$)	975.87	(15/2$^+$)
282.4@		818.12	(7/2$^-$)	535.78	(3/2$^-$)	(624.3#)		624.24	(7/2$^-$)	0.0	5/2$^+$
283.3 *1*	7.6	1259.17	(17/2$^+$)	975.87	(15/2$^+$)	638.7 *1*	1.1	3028.01	(21/2$^+$)	2389.26	(17/2$^+$)
283.8 *1*	9.6	283.84	9/2$^+$	0.0	5/2$^+$	(657.2#)		657.36	(5/2$^-$)	0.0	5/2$^+$
304.7 *1*	1.1	2693.96	(19/2$^+$)	2389.26	(17/2$^+$)	674.0 *1*	2.8	1933.24	(21/2$^+$)	1259.17	(17/2$^+$)
330.8 *1*		818.12	(7/2$^-$)	487.36	(5/2$^-$)	(692.0#)		818.12	(7/2$^-$)	125.21	7/2$^+$
334.1 *1*	0.6	3028.01	(21/2$^+$)	2693.96	(19/2$^+$)	695.5 *1*	0.9	3389.46	(23/2$^+$)	2693.96	(19/2$^+$)
336.8 *1*	4.2	1595.81	(19/2$^+$)	1259.17	(17/2$^+$)	736.5 *1*	1.2	2332.21	(23/2$^+$)	1595.81	(19/2$^+$)
337.4 *1*	2.2	1933.24	(21/2$^+$)	1595.81	(19/2$^+$)	784.5 *1*	1.1	2717.78	(25/2$^+$)	1933.24	(21/2$^+$)
340.4 *1*		624.24	(7/2$^-$)	283.84	9/2$^+$	(817.0#)		818.12	(7/2$^-$)	0.0	5/2$^+$
357.2 *1*	12.5	482.37	(11/2$^+$)	125.21	7/2$^+$	846.7 *1*	0.9	3178.91	(27/2$^+$)	2332.21	(23/2$^+$)
361.5@		3389.46	(23/2$^+$)	3028.01	(21/2$^+$)	882.8 *1*	1.8	2141.95	(17/2$^+$)	1259.17	(17/2$^+$)
362.2 *1*		487.36	(5/2$^-$)	125.21	7/2$^+$	1166.1 *1*	0.9	2141.95	(17/2$^+$)	975.87	(15/2$^+$)
385.6 *1*		2717.78	(25/2$^+$)	2332.21	(23/2$^+$)	1370.9 *1*	2.8	1654.66	(11/2$^+$)	283.84	9/2$^+$
398.9 *1*	1.6	2332.21	(23/2$^+$)	1933.24	(21/2$^+$)	1435.6 *1*	1.4	2141.95	(17/2$^+$)	706.28	(13/2$^+$)
422.4 *1*	10.6	706.28	(13/2$^+$)	283.84	9/2$^+$	1529.4 *1*	6.2	1654.66	(11/2$^+$)	125.21	7/2$^+$

† 2005Lu21 state 0.1 keV as a general estimated uncertainty in γ-ray energies.

‡ Uncertainty varies from 3% for strong transitions to 20% for weaker ones. When no intensity is listed, the peak has very small intensity or is overlapped by other transitions.

From ^{99}Sr β^- decay, not seen by 2005Lu21.

@ Placement of transition in the level scheme is uncertain.

^{252}Cf SF decay 2005Lu21,2005Lu24

Level Scheme

Intensities: Relative I_γ

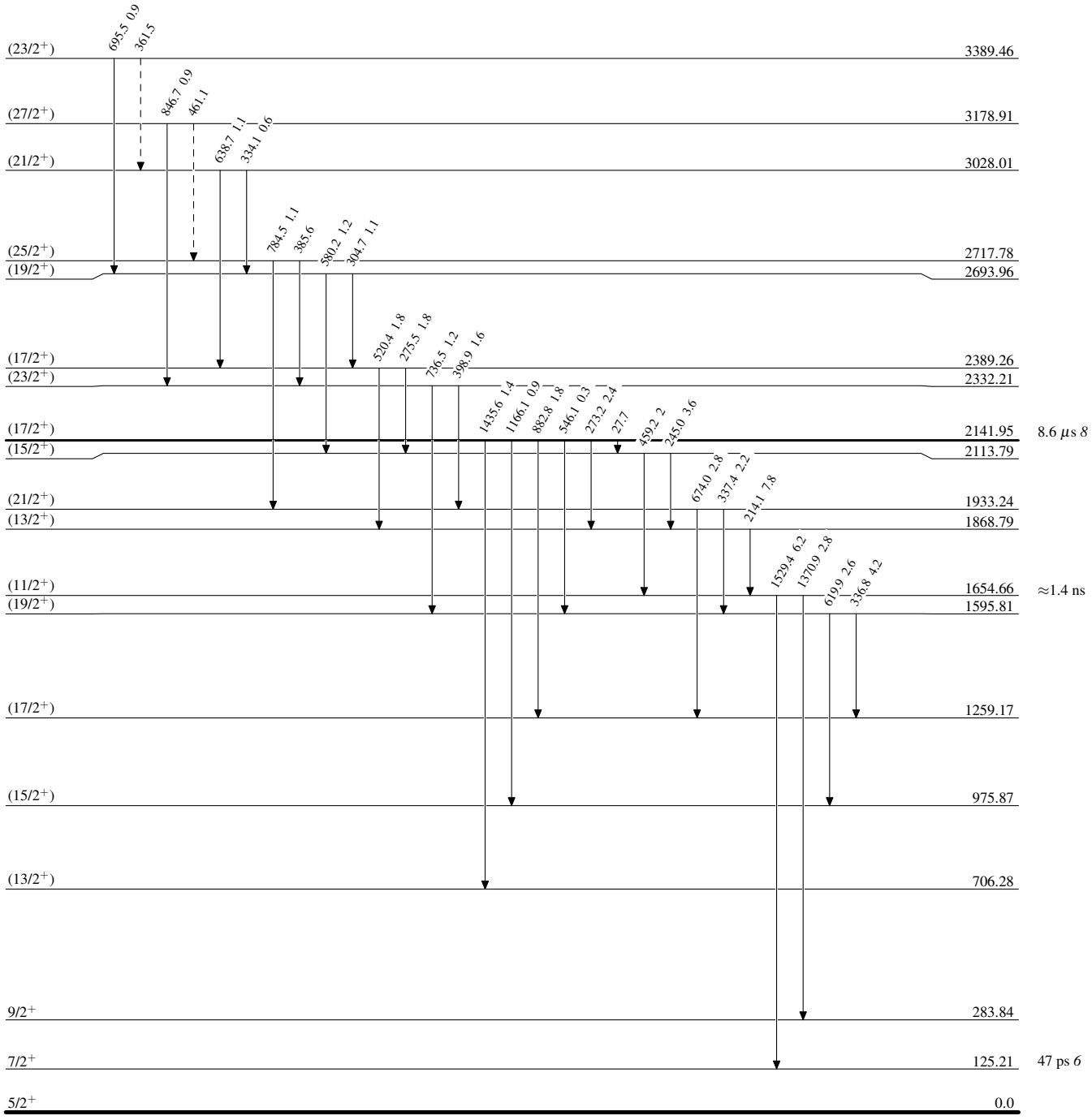
Legend

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

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

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

γ Decay (Uncertain)



$^{99}_{39}Y_{60}$

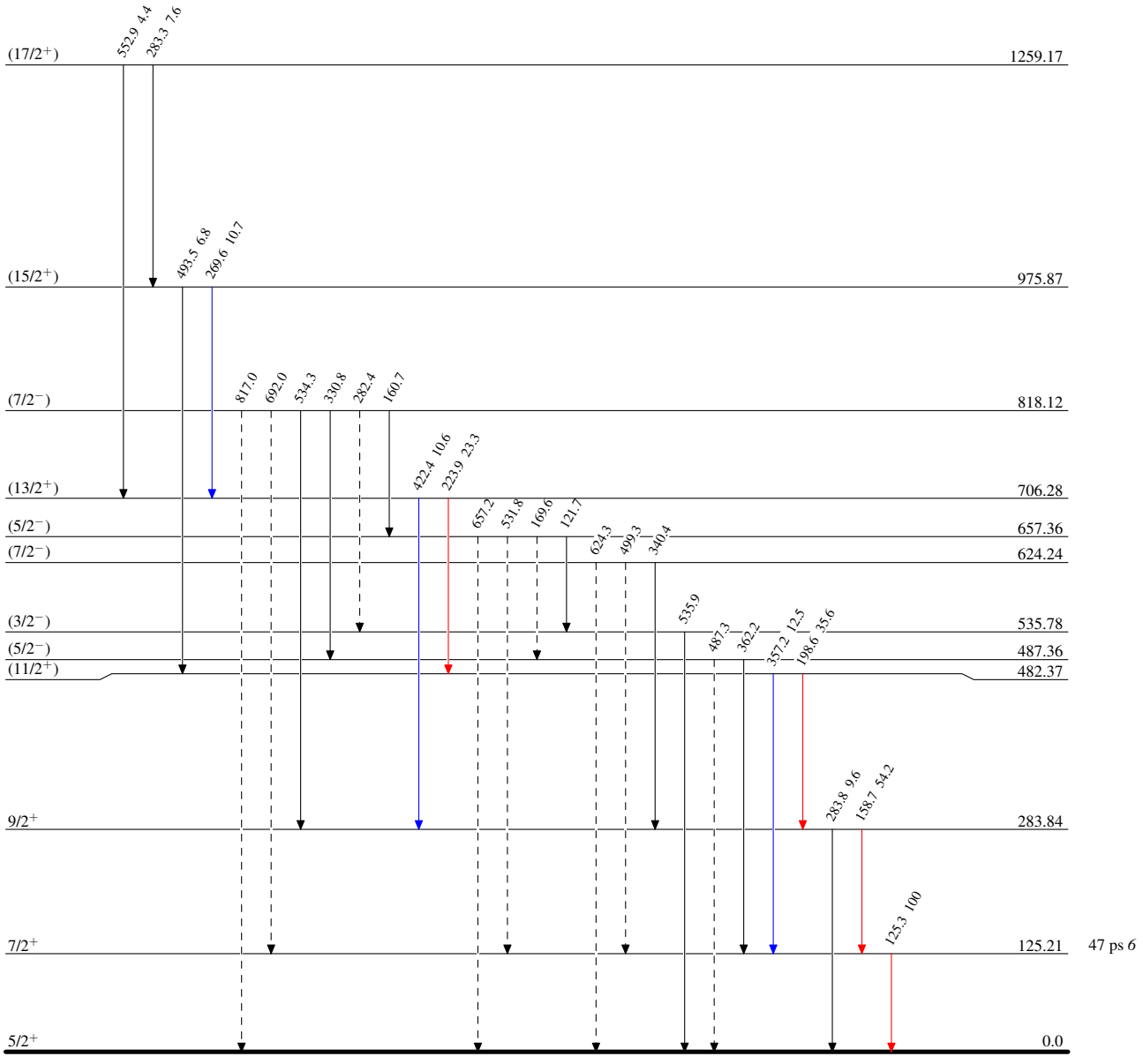
^{252}Cf SF decay 2005Lu21,2005Lu24

Level Scheme (continued)

Intensities: Relative I_γ

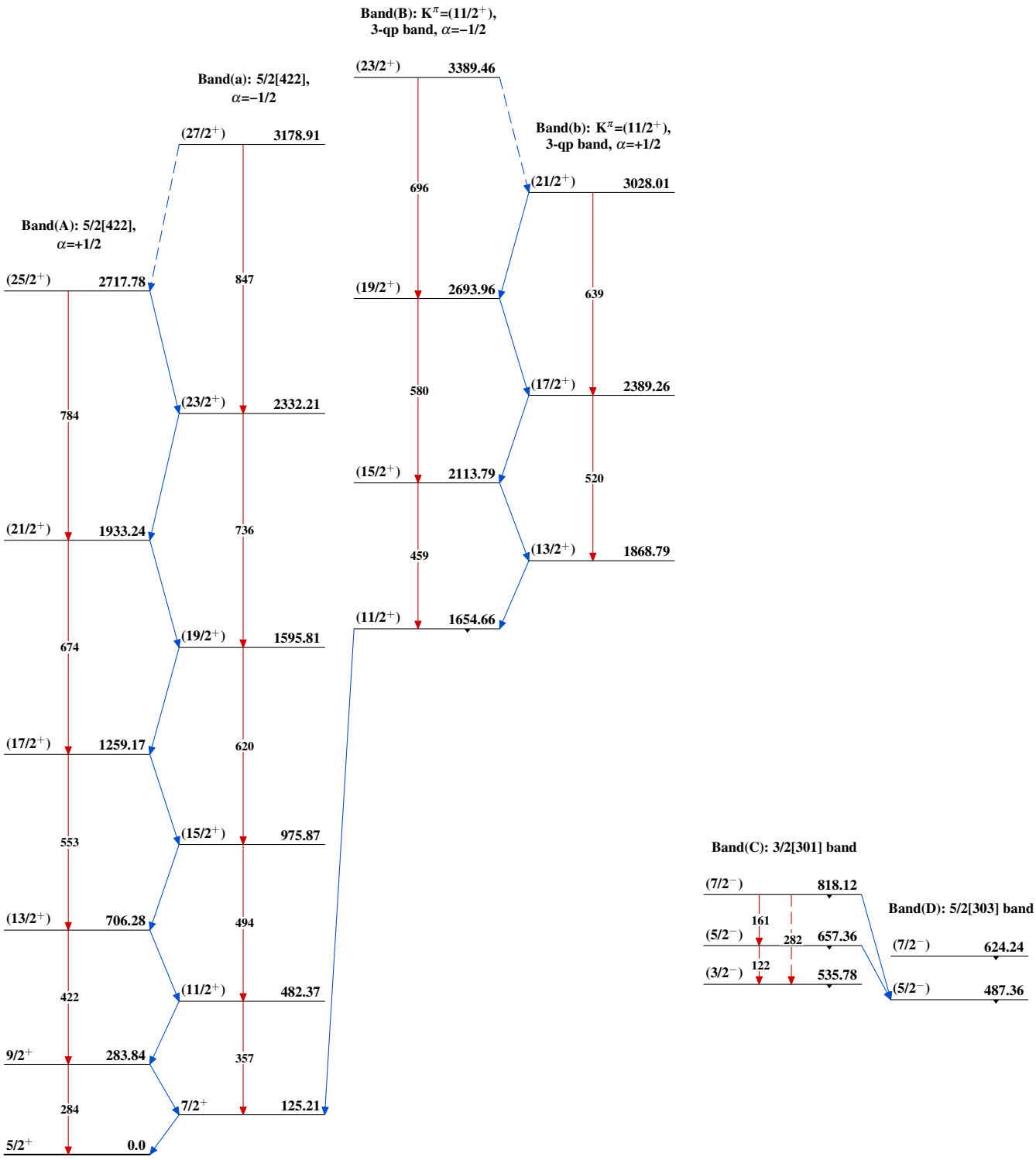
Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)



$^{99}_{39}Y_{60}$

^{252}Cf SF decay 2005Lu21,2005Lu24



$^{99}_{39}Y_{60}$