

²⁵²Cf SF decay 2013Cz02,2011Li34

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. A. McCutchan and A. A. Sonzogni		NDS 115, 135 (2014)	1-Nov-2013

Parent: ²⁵²Cf: E=0.0; J^π=0⁺; T_{1/2}=2.645 y 8; %SF decay=3.092 8
 2013Cz02: Measured E_γ, I_γ, γγ, and γ(θ) using Gammasphere array.
 2011Li34: Measured E_γ, I_γ, and γγ using Gammasphere array.

⁸⁸Kr Levels

E(level) [†]	J ^π [‡]	Comments
0.0	0 ⁺	
775.2 1	2 ⁺	
1644.02 14	4 ⁺	
2104.03 16	(4 ⁺)	J ^π : γγ(θ) permits J=3 to 6. Consideration of decay modes and non-zero mixing ratio suggests J=4 ⁺ .
2855.9 3	(5)	
3161.2 3	(5)	J ^π : γγ(θ) consistent with J=4 to 6. J=4 less likely as non-yrast level not favored in fission.
3167.4 3	(6)	
3275.3? 10		
3296.0 4	(5,6)	
3553.5? 10		
3905.5? 11		
3921.2 3	(7)	
4960.2? 8		
6232.5? 13		
7169.0? 16		

[†] From a least-squares fit to E_γ, by evaluators.
[‡] From the Adopted Levels.

γ(⁸⁸Kr)

E _γ [#]	I _γ	E _i (level)	J _i ^π	E _f	J _f ^π	Mult.	δ	Comments
440.1 3	5 2	3296.0	(5,6)	2855.9	(5)			
460.0 1	24 4	2104.03	(4 ⁺)	1644.02	4 ⁺	D+Q	+0.26 4	A ₂ =+0.105 15, A ₄ =+0.075 19 for (460γ)(869γ)(θ).
609.5 @&		3905.5?		3296.0	(5,6)			
751.8 3	10 2	2855.9	(5)	2104.03	(4 ⁺)	D+Q		A ₂ =-0.036 24, A ₄ =+0.02 4 for (752γ)(460γ)(θ). δ: +0.06 3 or 6.9 -12+17 for J=5 for the 2857-keV level.
753.8 ‡ 2	8 2	3921.2	(7)	3167.4	(6)	D+Q		A ₂ =+0.12 7, A ₄ =+0.01 10 for (754γ)(1523γ)(θ). δ: +0.33 17 or +2.6 -9+14 for J=7 for the 3922-keV level.
760.0 † 2	7 2	3921.2	(7)	3161.2	(5)	Q		A ₂ =+0.13 8, A ₄ =0.00 11 for (760γ)(1517γ)(θ).
775.2 1	100 5	775.2	2 ⁺	0.0	0 ⁺	Q		A ₂ =+0.115 16, A ₄ =-0.03 2 for (775γ)(869γ)(θ).
868.8 1	76 5	1644.02	4 ⁺	775.2	2 ⁺	Q		A ₂ =+0.115 16, A ₄ =-0.03 2 for (775γ)(869γ)(θ).
936.5 &		7169.0?		6232.5?				E _γ : observed only by 2011Li34. 2013Cz02 find no evidence for this transition.
1038.9 @&		4960.2?		3921.2	(7)			E _γ : observed only by 2011Li34. 2013Cz02 argue that this transition results from the ⁷⁰ Ge(n,n'γ) process.
1057.1 @&		3161.2	(5)	2104.03	(4 ⁺)			E _γ : observed only by 2011Li34. 2013Cz02 find no evidence for this transition.
1192.5 @&		3296.0	(5,6)	2104.03	(4 ⁺)			E _γ : observed only by 2011Li34. 2013Cz02 find no evidence for this transition.

Continued on next page (footnotes at end of table)

^{252}Cf SF decay [2013Cz02](#), [2011Li34](#) (continued) $\gamma(^{88}\text{Kr})$ (continued)

E_γ #	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	Comments
1272.3 @&		6232.5?		4960.2?			E_γ : observed only by 2011Li34 . 2013Cz02 find no evidence for this transition.
1328.9 3	3 1	2104.03	(4 ⁺)	775.2	2 ⁺		
1517.1 † 3	11 2	3161.2	(5)	1644.02	4 ⁺	(D+Q)	$A_2 = -0.014$, $A_4 = -0.016$ for (1517 γ)(869 γ)(θ). δ : +0.10 3 or +5.6 +16-34 for J=5 for the 3161-keV level.
1523.4 ‡ 3	10 2	3167.4	(6)	1644.02	4 ⁺		$A_2 = +0.183$, $A_4 = -0.025$ for (1523 γ)(869 γ)(θ). δ : +0.06 1 for J=4 and +0.46 11 for J=5 for the 3168-keV level.
1631.3 @&		3275.3?		1644.02	4 ⁺		
1792.8 @&		4960.2?		3167.4	(6)		
1909.5 @&		3553.5?		1644.02	4 ⁺		

† Ordering of 760 γ -1517 γ cascade is reversed in ^{248}Cm SF decay ([2000Rz02](#)).

‡ Ordering of 754 γ -1524 γ cascade is reversed in ^{248}Cm SF decay ([2000Rz02](#)).

From [2013Cz02](#), except where noted.





@ From [2011Li34](#). Not observed by [2013Cz02](#).

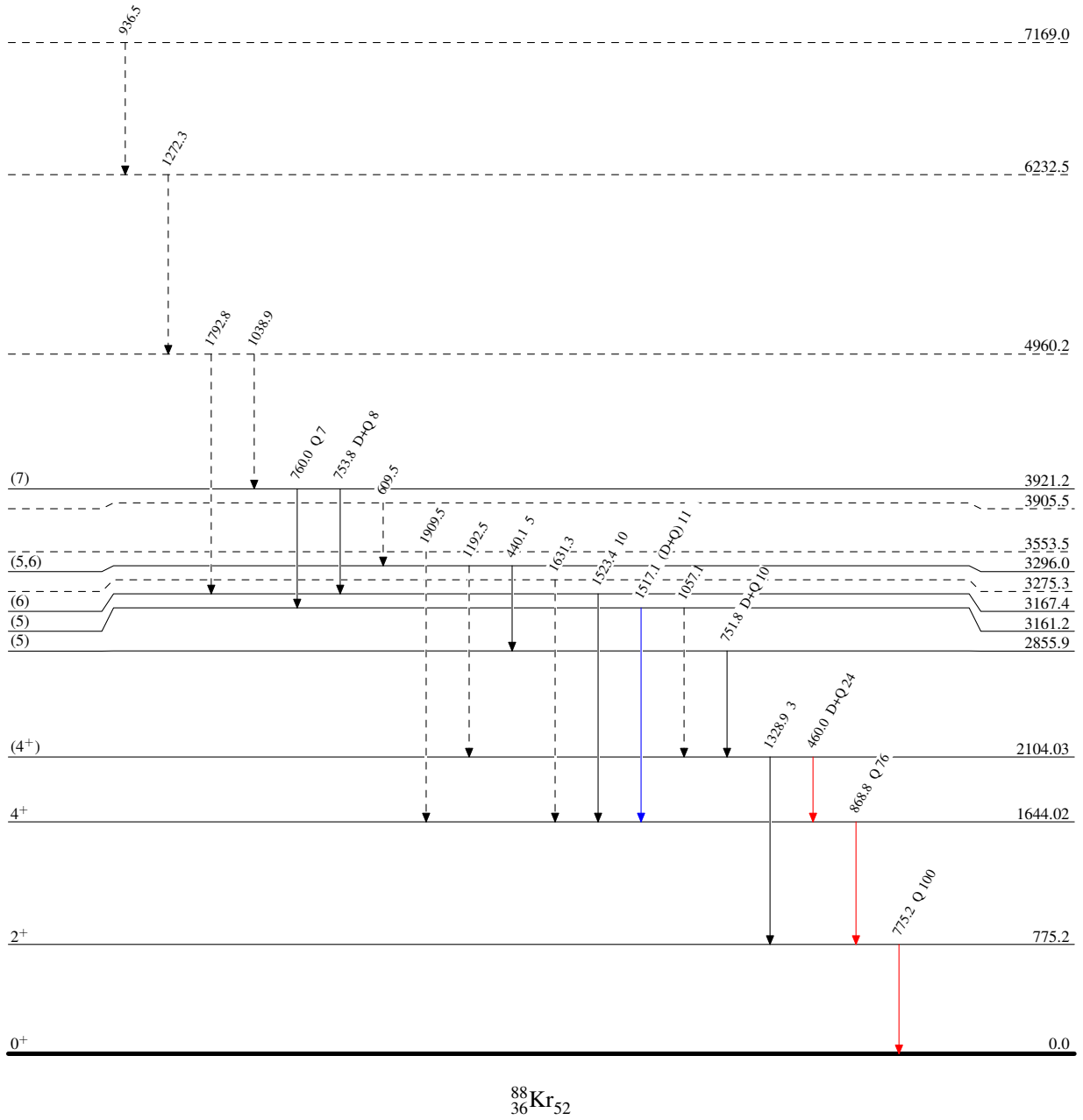
& Placement of transition in the level scheme is uncertain.

^{252}Cf SF decay 2013Cz02,2011Li34

Legend

Level Scheme
Intensities: Type not specified

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



$^{88}_{36}\text{Kr}_{52}$