^{252}Cf SF decay 1999Bu32

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 717 (2010)	1-Dec-2009

Parent: ^{252}Cf: E=0.0; $T_{1/2}$=2.645 y *8*; %SF decay=3.092 *8*

1999BU32: Measured Eγ, γγ, Iγ, γγ(θ), using Gammasphere array of 36 and 72 Ge detectors and one x-ray detector.
The level scheme is as given by 1999Bu32 based on γγ,γγ(θ) and band assignments.

1995HaZZ: ^{252}Cf(SF). Measured prompt γ-rays emitted by fission fragments. Their level scheme show g.s. band, the band based on 5^-, and partly the gamma band.

1990DuZW: ^{232}Th(^{18}O,xnγ). Measured prompt γ-rays emitted by fission fragments from ^{246}Cf fissioning system. They have shown only the g.s. band until the 12^+.

1970Ch11, 1974JaZN: ^{252}Cf(SF). Measured: K x ray, γ, γ(t), $T_{1/2}$, recoil-distance Doppler shift (1974JaZN). A and Z identification from multiparameter coincidences.

The identification is based on gating on $2^+ - 0^+$ known transitions and on the fact that complementary fragments are in coin (Cd,Sn).

^{116}Pd Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$	E(level)[†]	Jπ[‡]
0.0[@]	0^+		2826.1[&] *6*	(8^-)
340.6[@]	2^+	0.11[#] ns *3*	2840.4[c] *9*	(8^+)
738.3[c] *3*	$(2)^+$		2971.4[a] *6*	(9^-)
877.6[@] *4*	(4^+)		3068.2[b] *8*	(9^-)
1066.9[c] *4*	(3^+)		3092.3[@] *8*	10^+
1373.8[c] *5*	(4^+)		3256.9[c] *9*	$(9^+,8^-)$
1533.0[&] *5*	(4^-)		3492.7[&] *8*	(10^-)
1559.4[@] *5*	(6^+)		3631.2[a] *8*	(11^-)
1718.7[c] *5*	(5^+)		3683.9[@] *9*	(12^+)
1983.9[a] *5*	(5^-)		3697.3[b] *9*	(11^-)
2101.4[c] *7*	(6^+)		3807.2[c] *10*	$(11^+,10^-)$
2276.6[&] *5*	(6^-)		4394.5[@] *10*	(14^+)
2344.2[@] *5*	8^+		4416.5[a] *10*	(13^-)
2436.7[a] *5*	(7^-)		4506.7[c] *12*	$(13^+,12^-)$
2492.9[c] *7*	7^+		5244.0[@] *12*	(16^+)
2655.1[b] *6*	(7^-)			

[†] From least-squares fit to Eγ′s.
[‡] J^π based on γγ(θ), known γ mult and the others from band assignments.
[#] From 1974JaZN.
[@] Band(A): g.s. Band.
[&] Band(B): band based on 4^-.
[a] Band(C): band based on 5^-.
[b] Band(D): band based on (7^-).
[c] Band(E): γ band.

^{252}Cf SF decay 1999Bu32 (continued)

$\gamma(^{116}Pd)$

E_γ [†‡]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
292.7 *5*	1.9	2276.6	(6^-)	1983.9	(5^-)		
328.6 *3*	14	1066.9	(3^+)	738.3	$(2)^+$		
340.5 *3*	100	340.6	2^+	0.0	0^+	E2	B(E2)(W.u.)=33 *10*
378.5 *5*	0.7	2655.1	(7^-)	2276.6	(6^-)		
389.4 *5*		2826.1	(8^-)	2436.7	(7^-)		
397.8 *3*	16	738.3	$(2)^+$	340.6	2^+		
413.1 *5*	2.2	3068.2	(9^-)	2655.1	(7^-)		
452.8 *5*	3.8	2436.7	(7^-)	1983.9	(5^-)		
466.1 *5*	3.6	1533.0	(4^-)	1066.9	(3^+)	E1	
496.2 *5*	1.9	1373.8	(4^+)	877.6	(4^+)		
534.7 *5*	1.2	2971.4	(9^-)	2436.7	(7^-)		
537.1 *3*	61	877.6	(4^+)	340.6	2^+	E2	
549.5 *5*	1.9	2826.1	(8^-)	2276.6	(6^-)		
550.3 *5*	0.5	3807.2	$(11^+,10^-)$	3256.9	$(9^+,8^-)$		
557.9 *5*	2	2276.6	(6^-)	1718.7	(5^+)		
591.6 *5*	4.9	3683.9	(12^+)	3092.3	10^+		
627.2 *5*	1.1	2971.4	(9^-)	2344.2	8^+		
629.1[#] *5*	0.9	3697.3	(11^-)	3068.2	(9^-)		
635.5 *5*	7.0	1373.8	(4^+)	738.3	$(2)^+$	E2	
651.8 *5*	7.5	1718.7	(5^+)	1066.9	(3^+)	E2	
659.8 *5*	0.6	3631.2	(11^-)	2971.4	(9^-)		
666.6 *5*	0.4	3492.7	(10^-)	2826.1	(8^-)		
681.8 *3*	28	1559.4	(6^+)	877.6	(4^+)	E2	
699.5 *5*		4506.7	$(13^+,12^-)$	3807.2	$(11^+,10^-)$		
710.6 *5*	3.1	4394.5	(14^+)	3683.9	(12^+)		
726.4 *3*	15	1066.9	(3^+)	340.6	2^+	M1	
727.6 *5*	2.3	2101.4	(6^+)	1373.8	(4^+)		
738.3 *5*	8.2	738.3	$(2)^+$	0.0	0^+	E2	
739.0[#] *5*		2840.4	(8^+)	2101.4	(6^+)		
743.6 *5*	3.6	2276.6	(6^-)	1533.0	(4^-)		
748.1 *5*	7.3	3092.3	10^+	2344.2	8^+	E2	
764.0 *5*	1.6	3256.9	$(9^+,8^-)$	2492.9	7^+		
774.2 *5*	2.5	2492.9	7^+	1718.7	(5^+)	E2	
784.8 *3*	13	2344.2	8^+	1559.4	(6^+)	E2	
785.3 *5*	0.5	4416.5	(13^-)	3631.2	(11^-)		
849.5 *5*	1.1	5244.0	(16^+)	4394.5	(14^+)		
877.3 *5*	5.4	2436.7	(7^-)	1559.4	(6^+)	E1	
1095.7 *5*	3.3	2655.1	(7^-)	1559.4	(6^+)		
1106.3 *3*	20	1983.9	(5^-)	877.6	(4^+)	E1	

† $\Delta(E\gamma)$=0.3 for $I\gamma$>10 and 0.5 for $I\gamma$<10 assumed by the evaluator for least-squares fit.
‡ From 1999Bu32, mult are from angular correlation. ΔJ=2 Q are assigned E2, D+Q as M1+E2.
# Placement of transition in the level scheme is uncertain.

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Level Scheme

Intensities: Relative I_γ

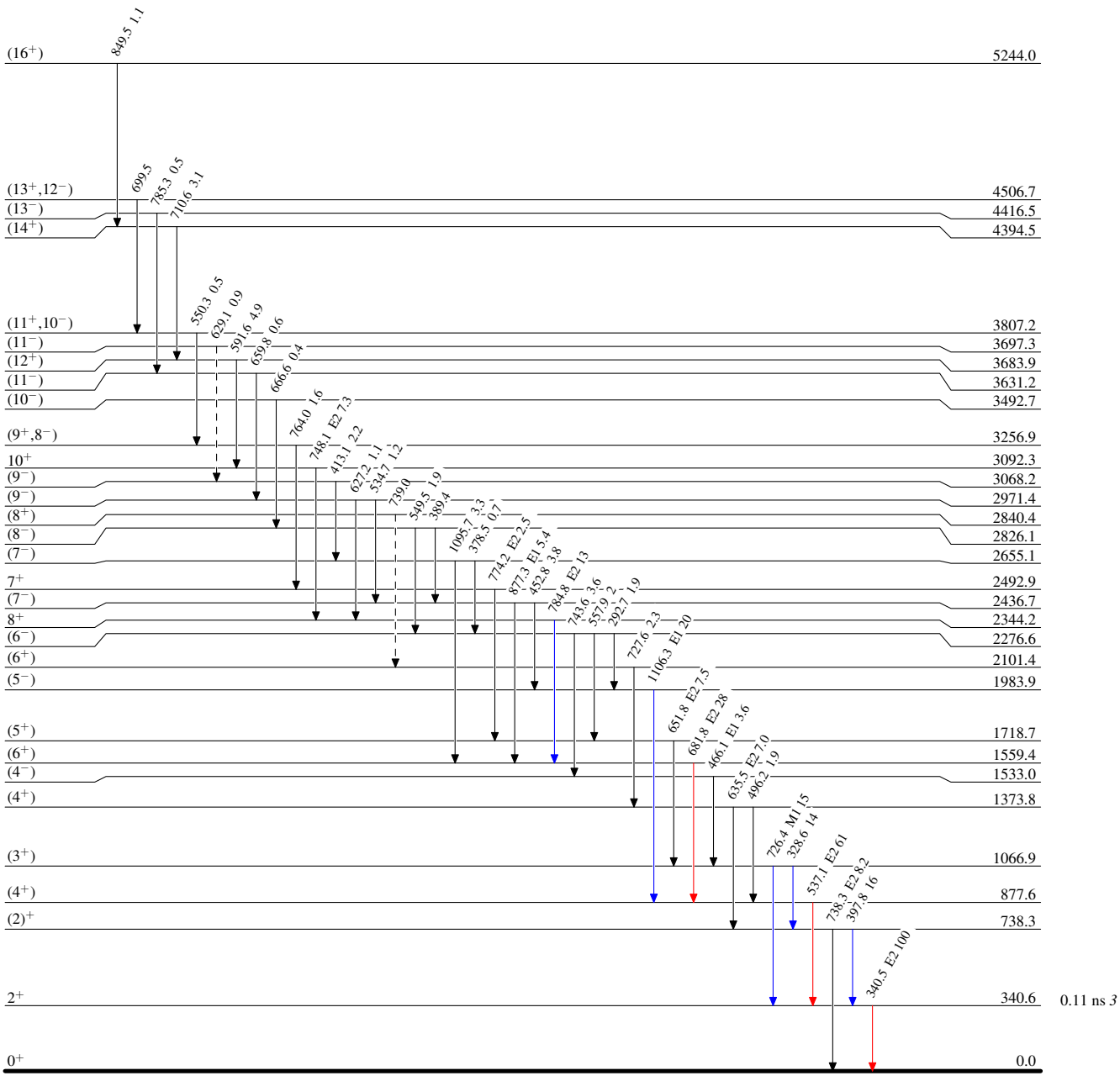
Legend

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

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

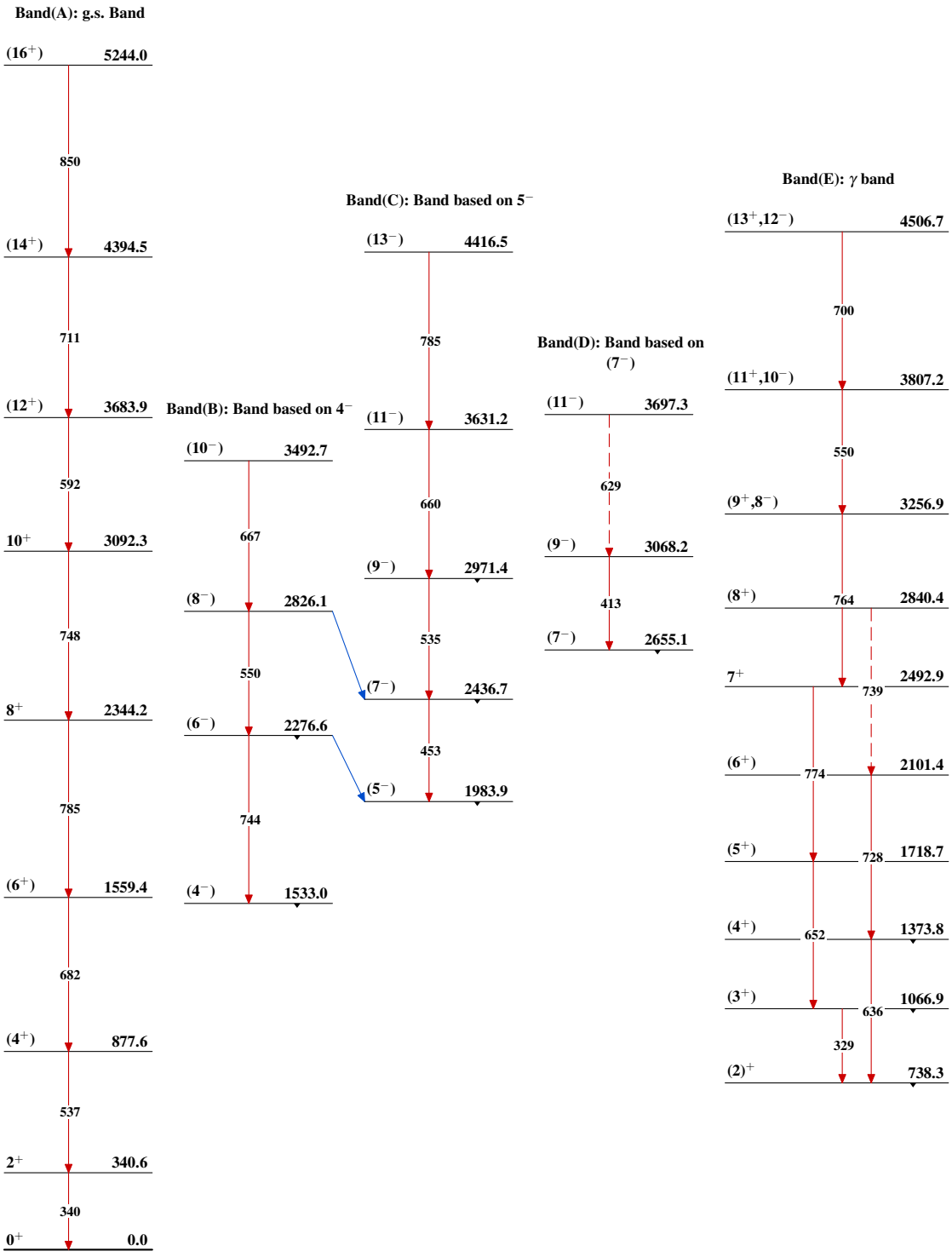
$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)



$^{116}_{46}Pd_{70}$

^{252}Cf SF decay 1999Bu32



$^{116}_{46}Pd_{70}$