^{68}Zn(^{19}F,α3nγ) 1992Do10

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 105, 223 (2005)	22-Jun-2005

Includes reactions ^{76}Se(^{7}Li,3nγ); ^{77}Se(^{7}Li,4nγ); ^{66}Zn(^{16}O,pnγ), ^{79}Br(^{3}He,2nγ).

1992Do11: E=72 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO), $\alpha\gamma\gamma$ coin, $\gamma\gamma$(t) using ÑORDBALL array of 19 Compton-suppressed HPGe detectors and 39 BaF_2 detectors. Charged particles were detected with HYSTRIX system. The data are displayed only in a level scheme figure where the transition energies are generally quoted to a tenth of a keV and the intensities are expressed in terms of thickness of arrows. Other reactions used for prompt and delayed singles gamma-ray spectra: ^{76}Se(^{7}Li,3nγ) and ^{77}Se(^{7}Li,4nγ) at 35 MeV.

Others:

1996Io01: ^{79}Br(^{3}He,2nγ) E=25 MeV. Measured $\gamma(\theta$,H,t), g factor and half-life of microsecond isomer at 494 keV.

1980RaZL, 1979RaZS: ^{66}Zn(^{16}O,pnγ) E=53 MeV. Measured lifetime of a microsecond isomer and its g factor and quadrupole moment by differential PAD method.

^{80}Rb Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	Comments
0	1^+		
175.53 *25*	$2^{(-)}$		
334.8 *4*	$3^{(-)}$	3.5 ns *7*	
376.07 *25*	3^+		
397.9 *5*	(4^-)	2.70 ns *21*	
418.8 *5*	(4^-)	1.11 ns *21*	
469.9 *5*	(4^-)	0.76 ns *21*	
472.7 *4*	$4^{(+)}$	4.9 ns *7*	
486.3 *5*	(5^-)		
494.3 *5*	6^+	1.63 μs *4*	g=+0.563 *4* (1996Io01) Q=0.51 *5* (1989Ra17) E(level): microsecond isomer first reported by 1980RaZL in ^{66}Zn(^{16}O,pnγ) reaction. From its possible deexcitation through a transition of high internal conversion, the estimated value was ≤50 keV above the 486 level. The current level energy is from 1992Do10. $T_{1/2}$: γ(t) (1996Io01). Others: 1.60 μs *2* (1980RaZL,1979RaZS), 2.4 μs *2* (quoted by 1992Do10 from HMI-318 report, p80 (1979)). g: others: =0.56 *1* (1980RaZL),1979RaZS), +0.557 *5* (quoted by 1989Ra17 from HMI-318 report, p80 (1979)). Differential PAD method. Q: 1989Ra17 quote from work by Stenzel,thesis, 1986,HMI). Differential PAD method.
496.7 *5*	(5^-)	0.42 ns *21*	
644.4 *5*	(6^-)		
651.1 *6*	(8^+)	13.9 ns *14*	
658.1 *5*	(7^+)		J$^\pi$: $(7^+,6^-)$ in 'Adopted Levels'.
884.4[a] *5*	(7^-)		
1123.4[@] *7*	(9^+)		
1205.5[b] *5*	(8^-)		
1542.3[&] *7*	(10^+)		
1592.1[a] *5*	(9^-)		
1999.9[b] *6*	(10^-)		
2026.8[@] *7*	(11^+)		
2507.2[a] *6*	(11^-)		
2680.3[&] *7*	(12^+)		
2999.1[b] *7*	(12^-)		
3152.3[@] *7*	(13^+)		
3599.2[a] *12*	(13^-)		

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^{68}Zn(^{19}F,α3nγ) 1992Do10 (continued)

^{80}Rb Levels (continued)

E(level)[†]	J$^{\pi}$[‡]
4033.3[&] *13*	(14$^+$)
4446.3[@] *13*	(15$^+$)

[†] From least-squares fit to Eγ's, assuming Δ(Eγ)=0.3 keV for Eγ quoted to nearest tenth of a keV and 1 keV otherwise.
[‡] As proposed by 1992Do10. The assignments are the same in 'Adopted Levels', except that some of these are placed in parentheses there.
[#] From $\gamma\gamma$(t) (1992Do10), unless otherwise stated.
[@] Band(A): $\pi g_{9/2}\nu g_{9/2}$, α=1.
[&] Band(a): $\pi g_{9/2}\nu g_{9/2}$, α=0.
[a] Band(B): $\pi f_{5/2}\nu g_{9/2}$, α=1.
[b] Band(b): $\pi f_{5/2}\nu g_{9/2}$, α=0.

γ(^{80}Rb)

E$_\gamma$	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Comments
(8.0)	494.3	6$^+$	486.3	(5$^-$)	
(16.4)	486.3	(5$^-$)	469.9	(4$^-$)	
(21.6)	494.3	6$^+$	472.7	4$^{(+)}$	
51.1	469.9	(4$^-$)	418.8	(4$^-$)	
63.1	397.9	(4$^-$)	334.8	3$^{(-)}$	
67.5	486.3	(5$^-$)	418.8	(4$^-$)	
72.0	469.9	(4$^-$)	397.9	(4$^-$)	
78.0	496.7	(5$^-$)	418.8	(4$^-$)	
83.9	418.8	(4$^-$)	334.8	3$^{(-)}$	
88.4	486.3	(5$^-$)	397.9	(4$^-$)	
96.6	472.7	4$^{(+)}$	376.07	3$^+$	
98.7	496.7	(5$^-$)	397.9	(4$^-$)	
135.0	469.9	(4$^-$)	334.8	3$^{(-)}$	
147.8	644.4	(6$^-$)	496.7	(5$^-$)	
150.2	644.4	(6$^-$)	494.3	6$^+$	
151.5	486.3	(5$^-$)	334.8	3$^{(-)}$	
156.8	651.1	(8$^+$)	494.3	6$^+$	DCO=1.17 *21*
158.1	644.4	(6$^-$)	486.3	(5$^-$)	
159.3	334.8	3$^{(-)}$	175.53	2$^{(-)}$	
164.0	658.1	(7$^+$)	494.3	6$^+$	
175.6	175.53	2$^{(-)}$	0	1$^+$	
200.6	376.07	3$^+$	175.53	2$^{(-)}$	
226.3	884.4	(7$^-$)	658.1	(7$^+$)	
239.9	884.4	(7$^-$)	644.4	(6$^-$)	
246.6	644.4	(6$^-$)	397.9	(4$^-$)	
321.2	1205.5	(8$^-$)	884.4	(7$^-$)	
376.0	376.07	3$^+$	0	1$^+$	
386.8	1592.1	(9$^-$)	1205.5	(8$^-$)	
387.5	884.4	(7$^-$)	496.7	(5$^-$)	
390.0	884.4	(7$^-$)	494.3	6$^+$	
398.1	884.4	(7$^-$)	486.3	(5$^-$)	
418.8	1542.3	(10$^+$)	1123.4	(9$^+$)	
472.3	1123.4	(9$^+$)	651.1	(8$^+$)	
484.5	2026.8	(11$^+$)	1542.3	(10$^+$)	
547.4	1205.5	(8$^-$)	658.1	(7$^+$)	

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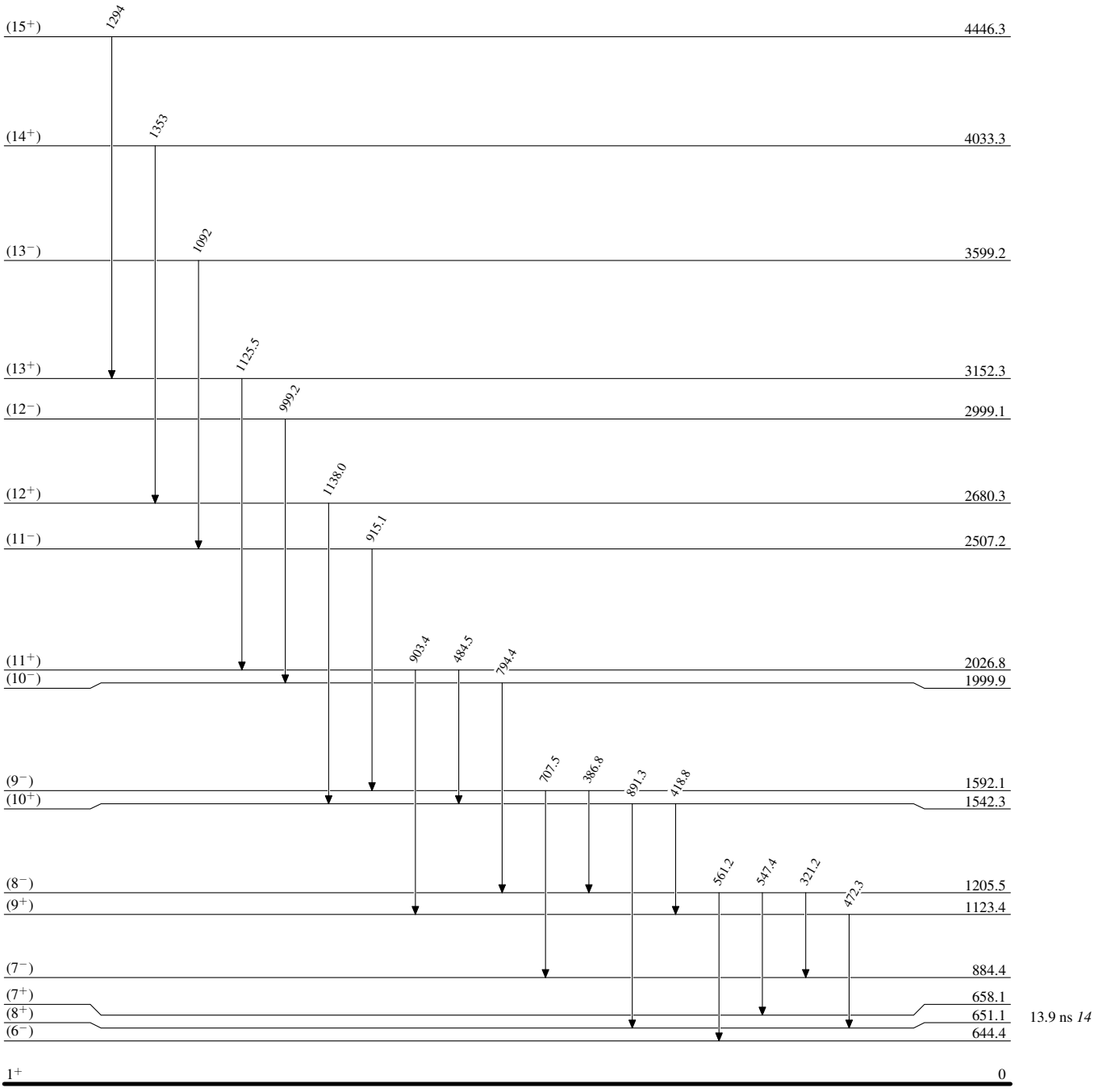
^{68}Zn(^{19}F,α3nγ) 1992Do10 (continued)

$\gamma(^{80}Rb)$ (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	E_γ	E_i(level)	J_i^π	E_f	J_f^π
561.2	1205.5	(8^-)	644.4	(6^-)	999.2	2999.1	(12^-)	1999.9	(10^-)
707.5	1592.1	(9^-)	884.4	(7^-)	1092	3599.2	(13^-)	2507.2	(11^-)
794.4	1999.9	(10^-)	1205.5	(8^-)	1125.5	3152.3	(13^+)	2026.8	(11^+)
891.3	1542.3	(10^+)	651.1	(8^+)	1138.0	2680.3	(12^+)	1542.3	(10^+)
903.4	2026.8	(11^+)	1123.4	(9^+)	1294	4446.3	(15^+)	3152.3	(13^+)
915.1	2507.2	(11^-)	1592.1	(9^-)	1353	4033.3	(14^+)	2680.3	(12^+)

^{68}Zn(^{19}F,α3nγ) 1992Do10

Level Scheme



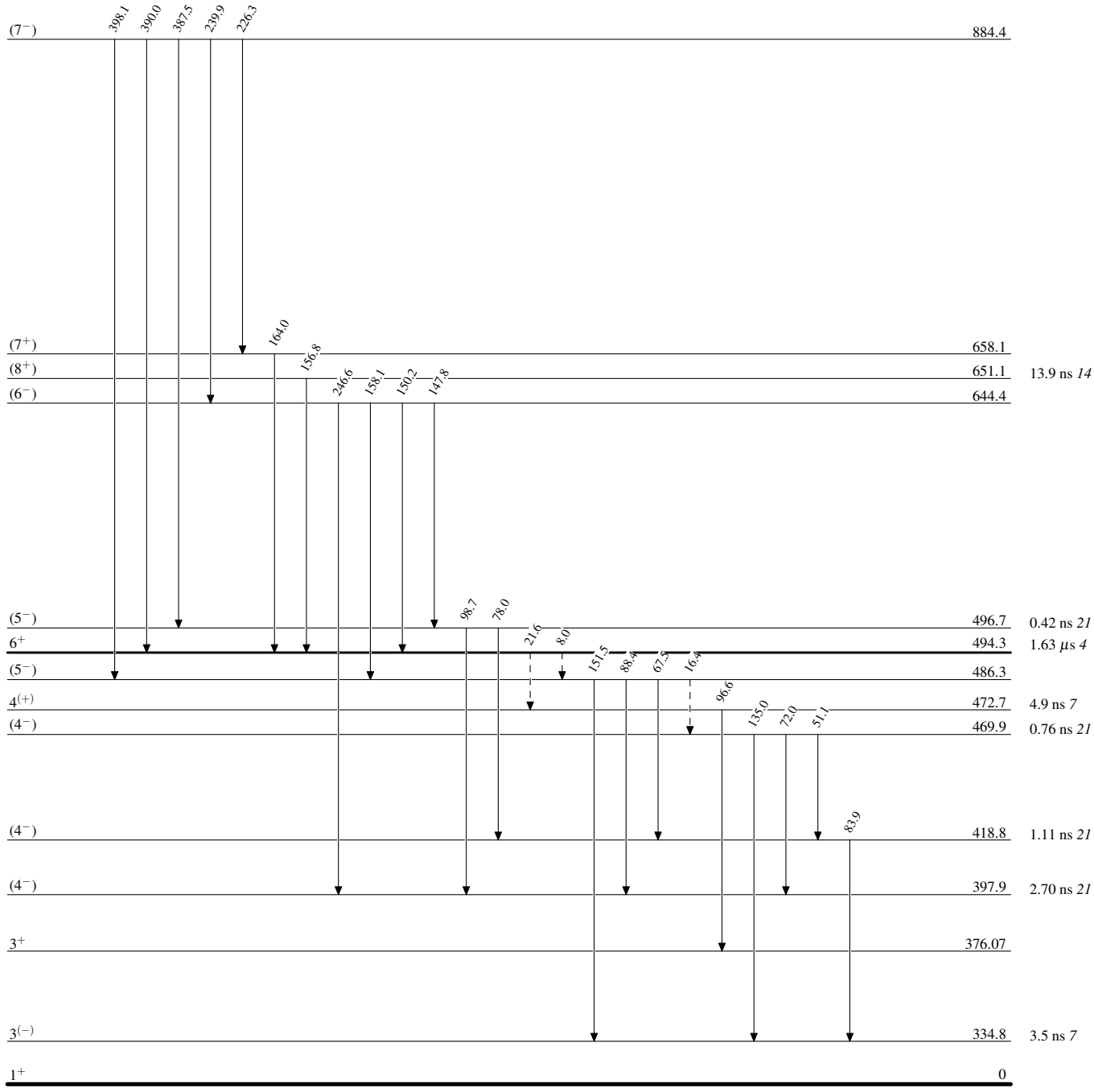
$^{80}_{37}Rb_{43}$

Legend

^{68}Zn(^{19}F,α3nγ) **1992Do10**

Level Scheme (continued)

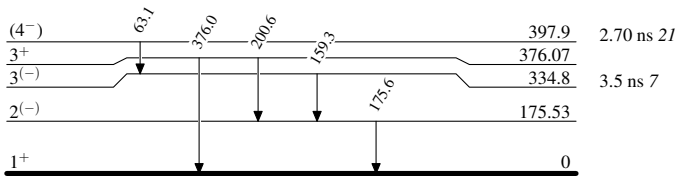
- - - - - - ► γ Decay (Uncertain)



$^{80}_{37}Rb_{43}$

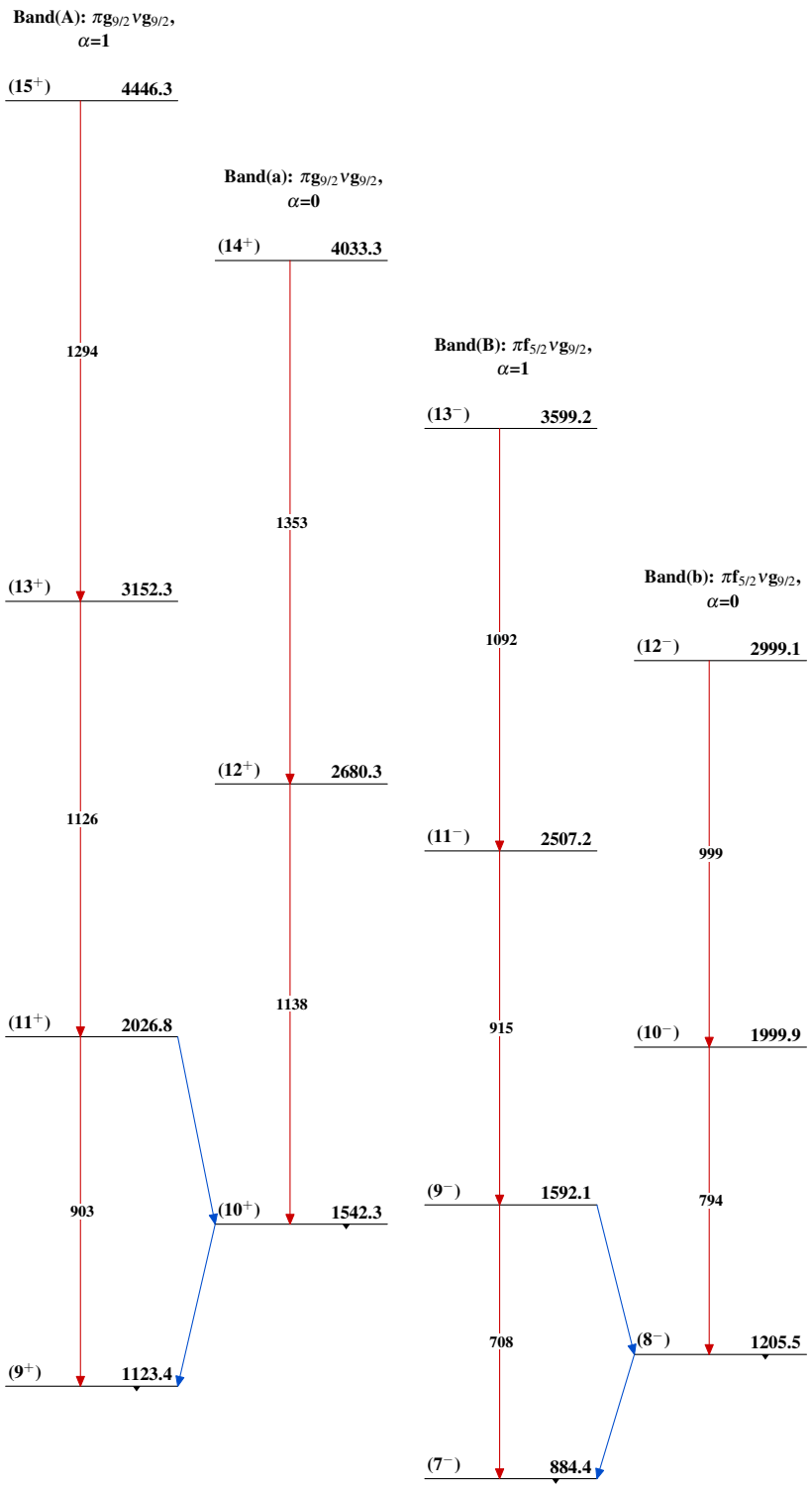
^{68}Zn(^{19}F,α3nγ) 1992Do10

Level Scheme (continued)



$^{80}_{37}Rb_{43}$

^{68}Zn(^{19}F,α3nγ) 1992Do10



$^{80}_{37}Rb_{43}$