^{173}Yb(^{24}Mg,6nγ) 1998Fo02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 195,368 (2024)	1-Dec-2023

Other: 1997Fo08 (Short Note article – same group of 1998Fo02 – ^{164}Er(^{32}S,αn) and ^{166}Er(^{32}S,α3n) reactions).

1998Fo02: ^{173}Yb(^{24}Mg,6n), E=134.5 MeV, enriched ^{173}Yb target. Detectors: GAMMASPHERE array of 92 Compton-suppressed Ge detectors. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma\gamma$, $\gamma\gamma(\theta)$ (DCO). Extended level scheme up to 5.1 MeV above the 13/2$^+$ isomer, proposed J^π sequence and band structures.

In 1997Fo08 (Short Note article – same group of 1998Fo02), ^{191}Pb was studied through the ^{164}Er(^{32}S,αn) and ^{166}Er(^{32}S,α3n) reactions at E(^{32}S)=164 MeV, 73.6% enriched in ^{164}Er, 15.0% enriched in ^{166}Er. Measured prompt in-beam γ rays with 10 Compton-suppressed Ge detectors. Fragment Mass Analyzer, position-sensitive parallel-grid avalanche counter (PGAC), Double-sided Si strip detector (DSSD). Also measured recoil-γ, recoil-$\gamma\gamma$. Authors noted, recoil-$\gamma\gamma$ coincidences were only 5% of the data and no $\gamma\gamma$ coincidence relationships were established. No significant data reported in 1997Fo08 and not listed in this dataset.

^{191}Pb Levels

Level scheme, band structures and suggested structure configuration from 1998Fo02, using information from γ ray energies and intensities, double and triple coincidence relationships, DCO ratios, and systematic trends from neighboring light Pb nuclei.

E(level)[†]	J^{π}[#]	$T_{1/2}$	Comments
55[&] *12*	13/2$^+$[@]	2.18 min *8*	Additional information 1. E(level): from Adopted Levels. Suggested configuration: ν $(i_{13/2})^{-1}\otimes(0^+,^{192}Pb)$. $T_{1/2}$: from Adopted Levels.
873.49[&] *19*	17/2$^+$[@]		Suggested configuration: ν $(i13/2)^{-1}\otimes(2^+_1,^{192}Pb)$. E(level): This excitation energy is in good agreement with that for the underlying spherical 2$^+$ state in ^{192}Pb (see e.g. 2002Va13).
948.4[a] *4*	15/2$^+$[@]		Suggested configuration: $\nu(i_{13/2})^{-1}\otimes(2^+_1,^{192}Pb)$.
1172.3 *6*	(15/2$^+$,17/2$^+$)		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(2^+_2,^{192}Pb)$.
1261.7 *8*	(15/2$^+$,17/2$^+$)		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(2^+_2,^{192}Pb)$.
1356.0[&] *3*	21/2$^+$[@]		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(4^+_1,^{192}Pb)$.
1424.6[a] *4*	19/2$^+$[@]		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(4^+_1,^{192}Pb)$.
1486.4 *5*	17/2$^-$		
1695.0 *4*	21/2$^-$		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(5^-_1,^{192}Pb)$.
1742.2 *7*			
1918.2[&] *4*	25/2$^+$[@]		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(6^+_1,^{192}Pb)$.
2005.2[a] *5*	23/2$^+$[@]		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(6^+_1,^{192}Pb)$.
2136.8 *4*	21/2$^+$		J^π: Adopted value: (23/2$^+$).
2161.2 *5*	25/2$^+$		
2193.2 *11*			
2271.8 *6*	25/2$^-$		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(7^-_1,^{192}Pb)$.
2345.8[c] *7*	27/2$^+$		This is the band head of Dipole Band 2 proposed in 1998Fo02.
2471.9 *8*	29/2$^-$		
2494.6 *8*	(27/2$^-$,29/2$^-$)		J^π: From Adopted Levels. 1998Fo02 proposed the option (27/2$^+$,29/2$^-$), but the positive parity is inconsistent with conversion coefficient measurements (see adopted dataset for discussion).
2549.8[&] *6*	29/2$^+$[@]		Suggested configuration: ν $(i_{13/2})^{-1}\otimes(8^+_1,^{192}Pb)$.
2567[b] *3*	(29/2$^-$)		This is the lowest member of the (29/2$^-$) based Dipole Band 1 proposed by 1998Fo02. E(level): The energy for this Dipole Band 1 band head, relative to the 13/2$^+$ isomeric level, is determined by that of an unobserved transition to the 2439.6 keV level. The

Continued on next page (footnotes at end of table)

^{173}Yb(^{24}Mg,6nγ) 1998Fo02 (continued)

^{191}Pb Levels (continued)

E(level)[†]	J$^{\pi}$[#]	Comments
		energy for this transition is estimated by 1998Fo02 on the basis of the systematics for similar band structures in neighboring neutron-deficient Pb isotopes, which provides a value of 72 *5* keV. Therefore, the energy for this level with respect to the 13/2$^+$ isomer state, as well as the energies for the other levels in this band, is uncertain by about 5 keV. This uncertainty is not contained in the errors quoted for the other members of this band. J$^{\pi}$: from systematics of similar dipole bands in neighboring Pb nuclei.
2583.0 *9*		
2664.5[a] *9*	(27/2$^+$)[@]	Suggested configuration: ν (i$_{13/2}$)$^{-1}\otimes$(8$^+_1$,^{192}Pb).
2683.0[c] *10*	(29/2$^+$)	
2801[‡b] *3*	(31/2$^-$)	
2806.4 *15*		
2834.2 *9*		
3058.5[c] *13*	(31/2$^+$)	
3184[‡b] *3*	(33/2$^-$)	
3189.3 *10*	(33/2$^+$)	
3240.6 *11*		
3273.6 *10*		
3317.9 *12*		
3380.9 *14*		
3428.3 *12*		
3468.4[c] *17*	(33/2$^+$)	
3593[‡b] *3*	(35/2$^-$)	Accepting the assignment by 1998Fo02 of an E2 multipolarity for the 792.9 keV γ ray deexciting this level, leads to a ratio B(M1)/B(E2)=23 μ_N^2/(eb)^2 *5* (1998Fo02). This value in 1998Fo02 is comparable to the ratio for similar levels in neighboring Pb nuclei (1996Ba54,1996Du18,1996Ka15).
3615.1 *14*		
3857.4 *14*		
3872.0 *12*		
4020[‡b] *3*	(37/2$^-$)	Accepting the assignment by 1998Fo02 of an E2 multipolarity for the 835.5 keV γ ray deexciting this level, leads to a ratio B(M1)/B(E2)=20 *5* μ_N^2/(eb)^2 (1998Fo02). This value in 1998Fo02 is comparable to the ratio for similar levels in neighboring Pb nuclei (1996Ba54,1996Du18,1996Ka15).
4088.2 *14*		
4366[‡b] *3*	(39/2$^-$)	
4461.7 *17*		
4485.6 *16*		
4680[‡b] *4*	(41/2$^-$)	
4919[‡b] *4*	(43/2$^-$)	
5196[‡b] *4*	(45/2$^-$)	

[†] From a least-squares adjustment to the γ-ray energies. For total uncertainty, propagate 12 keV in quadrature, except for the isomeric state at 55 keV. Additionally, the energies for the levels in Dipole Band 1 are uncertain by about 5 keV, due to the uncertainty in the energy for the 2567 keV band head level.

[‡] Level energies are obtained assuming a value of 2512 keV above the 13/2$^+$ isomeric state at 55 keV *12* for the band head for Dipole Band 1. The uncertainties in these energies do not contain the 5 keV uncertainty in the energy of the 2567 keV (2512+x earlier) band head level, which originates in the probable 5-keV error in the energy of the 72-keV γ ray connecting this band to the lower part of the level scheme.

[#] From 1998Fo02, based on their DCO ratios, systematics of similar levels in heavier odd-A Pb isotopes, and band structures.

[@] The J^{π} value is interpreted as originating in the (weak) coupling of the i13/2 neutron hole to the nearest positive or negative parity yrast state in ^{192}Pb. See Comments column for suggested configuration (from 1998Fo02).

[&] Seq.(C): positive parity states based on 13/2$^+$ isomeric state, comprising a cascade of stretched Q (E2) transitions.

[a] Seq.(D): second positive parity states based on 15/2$^+$, comprising a cascade of stretched Q (E2) transitions.

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^{173}Yb(^{24}Mg,6nγ) 1998Fo02 (continued)

^{191}Pb Levels (continued)

[b] Band(A): Dipole Band 1. Negative-parity band based on the (29/2$^-$) state, built on a cascade of (M1) transitions, supported by coincidence and intensity arguments (1998Fo02). Possible magnetic rotational (ΔJ=1) band. Suggested configuration=$\pi[s^{-2}_{1/2}h_{9/2}i_{13/2}]_{11^-}$ $\nu[i^{-1}_{13/2}]_{13/2^+}$ for the lower part of the band and $\pi[s^{-2}_{1/2}h_{9/2}i_{13/2}]_{11^-}$ $\nu[i^{-3}_{13/2}]_{33/2^+}$ above the backbend (1998Fo02).

[c] Band(B): Dipole Band 2 (?). Tentative positive-parity band above the (27/2$^+$) state, built on a cascade of (M1) transitions (1998Fo02). Support is provided by the existence of a similar sequence in ^{193}Pb, also based on a (27/2$^+$) level. Possible magnetic rotational band (?). Suggested configuration=$\pi[s^{-2}_{1/2}h^{2}_{9/2}]_{8^+}$ $\nu[i^{-1}_{13/2}]_{13/2^+}$ or $\pi[s^{-1}_{1/2}i_{13/2}]_{7^+}$ $\nu[i^{-1}_{13/2}]_{13/2^+}$ (1998Fo02).

γ(^{191}Pb)

The DCO ratios provided in 1998Fo02 are defined by the relation I(17°+163°; 90°) / I(90°; 17°+163°), where 17° and 163° are the angles where the forward and backward detectors are placed, relative to the beam direction. The notation I(θ_1; θ_2) indicates the intensities of γ rays observed from the detectors at position θ_1 when gated by transitions from the detectors at θ_2. The intensities are corrected for efficiency and geometry. DCO ratios were obtained using ΔJ=2 gating transitions, unless stated otherwise. For ΔJ=2 gates a DCO≈1 is expected for ΔJ=2 γ rays (also for D, ΔJ=0), and DCO≈0.5, for stretched D γ rays.

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[b]	Comments
(≈23.6)		2494.6	(27/2$^-$,29/2$^-$)	2471.9	29/2$^-$			The existence of this unobserved transition has been suggested in 1998Fo02 based on coincidence data, as part of a possible alternate path for the deexcitation of the 2512.0 keV level, following the previous decay of that level via the (unobserved, see below) 72 keV γ ray. See also Comments for the 94.6 keV γ ray. E_γ: The energy for this unobserved γ ray is estimated by 1998Fo02 from energy sum relations provided by the proposed level scheme and assuming that the energy value for the 72 keV γ ray is correct. Note that in the text of 1998Fo02 a value of 23.6 keV is listed, while in the level scheme shown in that same reference the authors quote a value of 22.6 keV.
(≈24.3)		2161.2	25/2$^+$	2136.8	21/2$^+$			The existence of this unobserved γ transition is required by coincidence data (1998Fo02). E_γ: The energy is estimated from energy sum relations provided by the proposed level scheme (1998Fo02).
(72 *5*)		2567	(29/2$^-$)	2494.6	(27/2$^-$,29/2$^-$)			Unobserved transition, expected from systematics (1998Fo02), connecting to the 2439.6 keV level. Support from coincidences seen by 1998Fo02. E_γ: From systematics of dipole bands in other odd-A Pb isotopes (1998Fo02). See also Comment for the 2512+x keV level.
(≈94.6)		2567	(29/2$^-$)	2471.9	29/2$^-$			The existence of this unobserved transition has been suggested in 1998Fo02 as a possible alternate path for the deexcitation of the 2512+x keV level. If valid, it should connect to the 2416.9 keV level. See also Comments for the 22.6 keV γ ray. E_γ: The energy for this unobserved γ ray is estimated by 1998Fo02 from energy sum relations provided by the proposed level scheme and assuming that the energy value for the 72 keV γ ray is correct.
131.6 *10*	<0.5	2136.8	21/2$^+$	2005.2	23/2$^+$			
148.8 *4*	14 *1*	2494.6	(27/2$^-$,29/2$^-$)	2345.8	27/2$^+$	D		DCO=0.54 *5*. Mult.: From DCO ratio.
156.0 *10*	<0.5	2161.2	25/2$^+$	2005.2	23/2$^+$			
184.6 *4*	10.5 *10*	2345.8	27/2$^+$	2161.2	25/2$^+$	(M1)	1.639 *25*	α(K)=1.338 *20*; α(L)=0.2304 *35*; α(M)=0.0540 *8* α(N)=0.01373 *21*; α(O)=0.00274 *4*; α(P)=0.000292 *4* DCO=0.48 *4*. Mult.: From DCO ratio.

γ(^{191}Pb) (continued)

E_γ[†]	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.[a]	α[b]	Comments
200.1 *6*	10 *1*	2471.9	29/2⁻	2271.8	25/2⁻	Q		DCO=1.05 *5*.
208.7 *6*	10 *1*	1695.0	21/2⁻	1486.4	17/2⁻			
218.5 *6*	8.0 *8*	2136.8	21/2⁺	1918.2	25/2⁺			
224.7 *10*	0.8 *2*	1486.4	17/2⁻	1261.7	(15/2⁺,17/2⁺)			Mult.: from intensity balance, 1998Fo02 suggest that this is not an M1 transition.
234.0[@] *6*	5.6 *8*	2801	(31/2⁻)	2567	(29/2⁻)	(M1)	0.845 *13*	α(K)=0.691 *11*; α(L)=0.1185 *19*; α(M)=0.0278 *4* α(N)=0.00705 *11*; α(O)=0.001406 *22*; α(P)=0.0001503 *24* DCO=0.47 *8*. Mult.: Tentative multipolarity suggested by 1998Fo02, on the basis of the DCO ratio and in analogy with M1 bands in heavier Pb isotopes.
238.6[@] *10*	0.6 *2*	4919	(43/2⁻)	4680	(41/2⁻)			
243.0 *6*	7.5 *7*	2161.2	25/2⁺	1918.2	25/2⁺	D		DCO=1.07 *10*. Mult.: From DCO, assuming ΔJ=0.
270.5 *4*	11.5 *10*	1695.0	21/2⁻	1424.6	19/2⁺	(E1)	0.0376 *5*	α(K)=0.0308 *4*; α(L)=0.00526 *8*; α(M)=0.001229 *18* α(N)=0.000310 *4*; α(O)=6.00×10^{-5} *9*; α(P)=5.49×10^{-6} *8* DCO=0.79 *15* (ΔJ=1 gated).
277.2[@] *10*	<0.5	5196	(45/2⁻)	4919	(43/2⁻)			
314.0 *8*	2.5 *5*	1486.4	17/2⁻	1172.3	(15/2⁺,17/2⁺)			
314.1[@] *10*	0.7 *2*	4680	(41/2⁻)	4366	(39/2⁻)			
337.2[&] *8*	3.3 *5*	2683.0	(29/2⁺)	2345.8	27/2⁺			
339.0 *4*	23.5 *20*	1695.0	21/2⁻	1356.0	21/2⁺	(E1)	0.02230 *32*	α(K)=0.01832 *26*; α(L)=0.00306 *4*; α(M)=0.000713 *10* α(N)=0.0001798 *26*; α(O)=3.50×10^{-5} *5*; α(P)=3.29×10^{-6} *5* DCO=1.01 *7*. Mult.: From DCO, assuming ΔJ=0.
346.7[@] *10*	0.8 *2*	4366	(39/2⁻)	4020	(37/2⁻)			
375.5[&] *8*	1.7 *5*	3058.5	(31/2⁺)	2683.0	(29/2⁺)			
383.6[@] *8*	4.4 *8*	3184	(33/2⁻)	2801	(31/2⁻)			
394.8 *8*	2.6 *5*	2136.8	21/2⁺	1742.2				
409.3[@] *8*	2.7 *6*	3593	(35/2⁻)	3184	(33/2⁻)			
409.9[&] *10*	0.8 *2*	3468.4	(33/2⁺)	3058.5	(31/2⁺)			
425.8 *10*	<0.5	3615.1		3189.3	(33/2⁺)			
426.1[@] *5*	1.9 *3*	4020	(37/2⁻)	3593	(35/2⁻)			
439.4 *10*	0.8 *2*	3273.6		2834.2				
476.1[#] *4*	17 *1*	1424.6	19/2⁺	948.4	15/2⁺	(E2)	0.0331 *5*	α(K)=0.02305 *33*; α(L)=0.00757 *11*; α(M)=0.001887 *27* α(N)=0.000478 *7*; α(O)=9.01×10^{-5} *13*; α(P)=6.88×10^{-6} *10* DCO=1.75 *10* (ΔJ=1 gated). Mult.: from DCO ratio and assuming that the transition of 893.4 keV has stretched M1 character.

γ(^{191}Pb) (continued)

Eγ[†]	Iγ	Ei(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[b]	Comments
482.5[‡] 2	74 3	1356.0	21/2+	873.49	17/2+	(E2)	0.0320 4	α(K)=0.02240 31; α(L)=0.00726 10; α(M)=0.001808 25 α(N)=0.000458 6; α(O)=8.63×10^{-5} 12; α(P)=6.64×10^{-6} 9 DCO=0.98 5. Mult.: Based on DCO ratio and assuming an E2 character for the 818.5 keV transition.
498.2 10	1.0 3	2193.2		1695.0	21/2−			
538.0 8	2.6 5	1486.4	17/2−	948.4	15/2+	D		DCO=1.05 30.
551.2 6	10 1	1424.6	19/2+	873.49	17/2+			
562.1[‡] 4	33 3	1918.2	25/2+	1356.0	21/2+	(E2)	0.02231 31	α(K)=0.01627 23; α(L)=0.00456 6; α(M)=0.001125 16 α(N)=0.000285 4; α(O)=5.42×10^{-5} 8; α(P)=4.44×10^{-6} 6 DCO=1.02 6. Mult.: Based on DCO ratio, assuming an E2 character for the 818.5 keV transition.
562.4 8	1.7 4	2834.2		2271.8	25/2−			
576.8 4	20 2	2271.8	25/2−	1695.0	21/2−	(E2)	0.02103 30	α(K)=0.01544 22; α(L)=0.00423 6; α(M)=0.001042 15 α(N)=0.000264 4; α(O)=5.03×10^{-5} 7; α(P)=4.15×10^{-6} 6 DCO=1.05 6. Mult.: From DCO ratio.
580.6[#] 4	11.5 10	2005.2	23/2+	1424.6	19/2+	(E2)	0.02072 29	α(K)=0.01523 21; α(L)=0.00415 6; α(M)=0.001022 14 α(N)=0.000259 4; α(O)=4.93×10^{-5} 7; α(P)=4.08×10^{-6} 6 DCO=2.3 4 (ΔJ=1 gated). Mult.: from DCO ratio, assuming that the transition of 893.4 keV has stretched M1 character.
583.8 10	0.8 2	3857.4		3273.6				
598.4 10	0.7 2	3872.0		3273.6				
604.3 10	<0.5	4461.7		3857.4				
612.9 8	5 1	1486.4	17/2−	873.49	17/2+	D		DCO=1.01 9. Mult.: From DCO, assuming ΔJ=0.
613.2 10	<0.5	2806.4		2193.2				
613.6 10	<0.5	4485.6		3872.0				
631.5 10	<0.5	3872.0		3240.6				
631.6[‡] 4	10.5 10	2549.8	29/2+	1918.2	25/2+	(E2)	0.01716 24	α(K)=0.01285 18; α(L)=0.00327 5; α(M)=0.000801 11 α(N)=0.0002028 29; α(O)=3.88×10^{-5} 5; α(P)=3.31×10^{-6} 5 DCO=0.99 10. Mult.: From DCO ratio and assuming that the 818.5 keV transition has a stretched E2 character.
639.5 8	3.0 5	3189.3	(33/2+)	2549.8	29/2+			
649.1 8	2.4 5	2005.2	23/2+	1356.0	21/2+			
653.4 8	1.1 3	3317.9		2664.5	(27/2+)			
659.3[#] 8	2.1 5	2664.5	(27/2+)	2005.2	23/2+			

γ(^{191}Pb) (continued)

E_γ [†]	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult. [a]	α [b]	Comments
664.8 *8*	2.6 *5*	2583.0		1918.2	$25/2^+$			
712.2 *6*	6.2 *7*	2136.8	$21/2^+$	1424.6	$19/2^+$			
716.4 *10*	0.9 *2*	3380.9		2664.5	$(27/2^+)$			
768.7 *10*	0.7 *2*	3240.6		2471.9	$29/2^-$			
780.9 *4*	12 *1*	2136.8	$21/2^+$	1356.0	$21/2^+$	D		DCO=1.05 *8*. Mult.: From DCO, assuming ΔJ=0.
792.9 *10*	0.6 *2*	3593	$(35/2^-)$	2801	$(31/2^-)$			
801.7 *8*	1.2 *3*	3273.6		2471.9	$29/2^-$			
805.2 *6*	5.5 *5*	2161.2	$25/2^+$	1356.0	$21/2^+$			
818.5 [‡] *2*	100	873.49	$17/2^+$	55	$13/2^+$	(E2)	0.00992 *14*	α(K)=0.00774 *11*; α(L)=0.001661 *23*; α(M)=0.000400 *6* α(N)=0.0001013 *14*; α(O)=1.963×10^{-5} *28*; α(P)=1.811×10^{-6} *25* DCO=1.05 *7*. Mult.: This stretched Q transition is assumed to be a stretched E2 in 1998Fo02, based on systematics of similar transitions in heavier neighboring Pb nuclei, and the assumed configuration for the connected levels.
835.5 *10*	0.5 *2*	4020	$(37/2^-)$	3184	$(33/2^-)$			
868.8 *8*	4.4 *8*	1742.2		873.49	$17/2^+$			
878.5 *10*	0.8 *2*	3428.3		2549.8	$29/2^+$			
893.4 *4*	24 *2*	948.4	$15/2^+$	55	$13/2^+$	(M1)	0.02376 *33*	α(K)=0.01954 *27*; α(L)=0.00323 *5*; α(M)=0.000754 *11* α(N)=0.0001915 *27*; α(O)=3.82×10^{-5} *5*; α(P)=4.11×10^{-6} *6* DCO=0.42 *7*. Mult.: A stretched M1 character is suggested by 1998Fo02, consistent with the DCO ratio.
898.9 *10*	<0.5	4088.2		3189.3	$(33/2^+)$			
1117.3 *8*	1.3 *3*	1172.3	$(15/2^+,17/2^+)$	55	$13/2^+$			
1206.7 *10*	0.6 *2*	1261.7	$(15/2^+,17/2^+)$	55	$13/2^+$			

[†] γ ray energy uncertainties have been assigned by the evaluator based on a general statement by 1998Fo02 that Δ(Eγ)′s vary from 0.2 to 0.4 keV for the strong transitions and from 0.8 to 1.0 keV for the weakest lines. The following assignments were made: ΔEγ(keV)=1.0, 0.8, 0.6, 0.4, 0.2 for Iγ(%)≤1, 1<Iγ(%)≤5, 5<Iγ(%)≤10, 10<Iγ(%)≤50, Iγ(%)>50, respectively.

[‡] Transition connecting levels in SEQ to $13/2^+$.

[#] Transition connecting levels in SEQ to $15/2^+$.

[@] Transition connecting levels in Dipole Band 1.

[&] Transition connecting levels in Dipole Band 2.

[a] From γγ(θ) data. All quoted assignments correspond to stretched quadrupole or dipole transitions, unless stated otherwise.

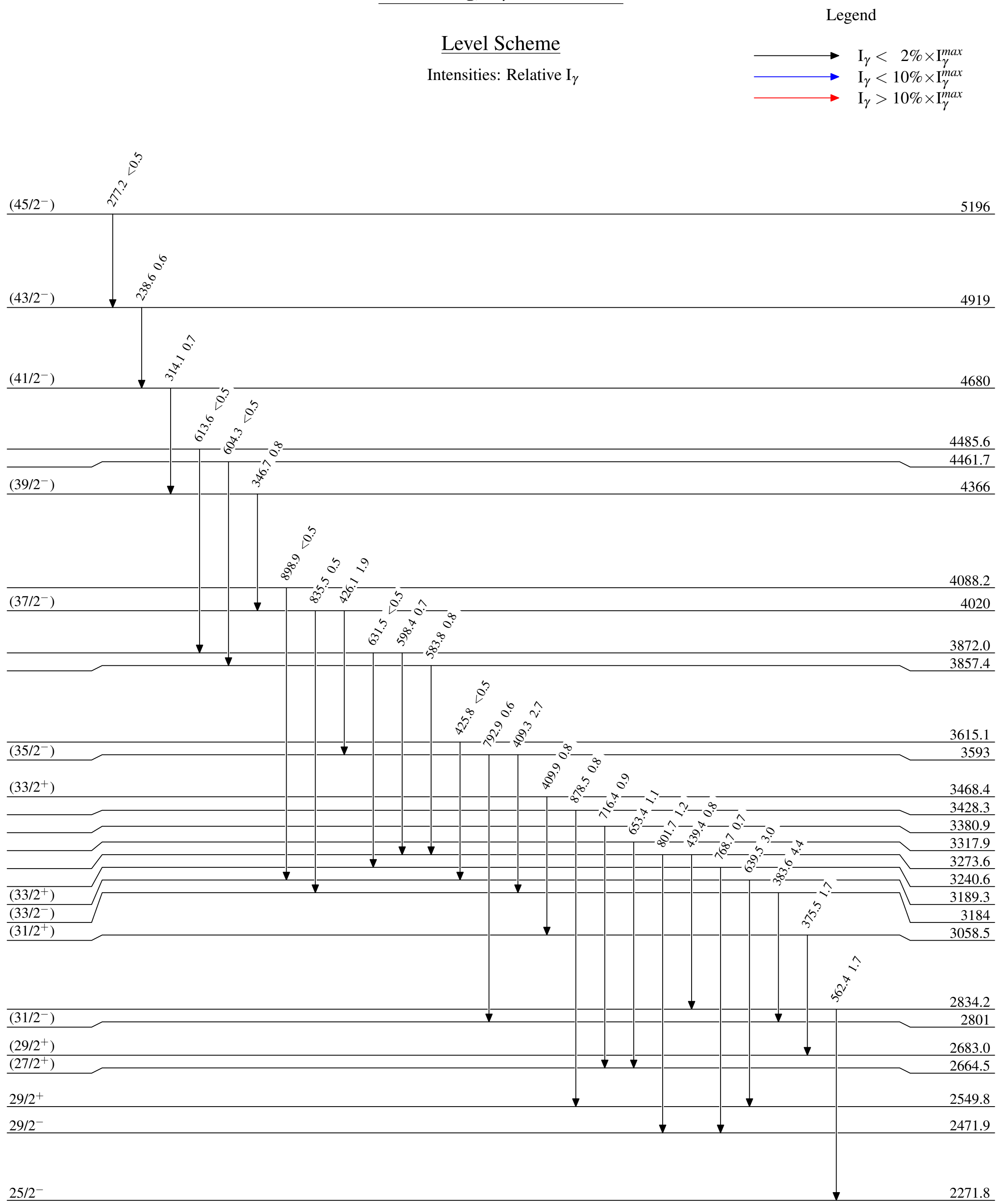
[b] Additional information 2.

From ENSDF

$^{173}Yb(^{24}Mg,6n\gamma)$ 1998Fo02

Level Scheme

Intensities: Relative I_γ



$^{191}_{82}Pb_{109}$

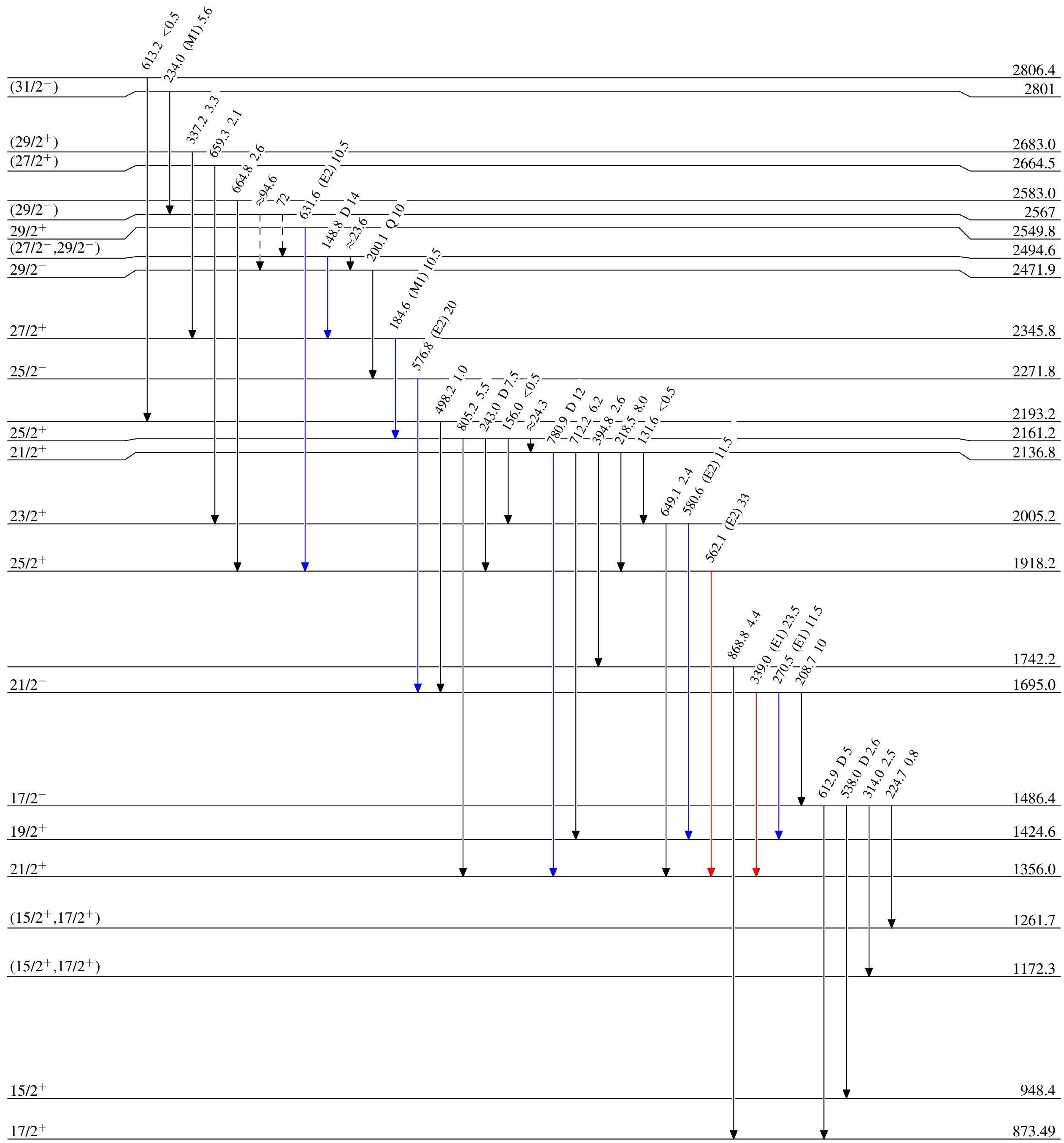
$^{173}Yb(^{24}Mg,6n\gamma)$ 1998Fo02

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)

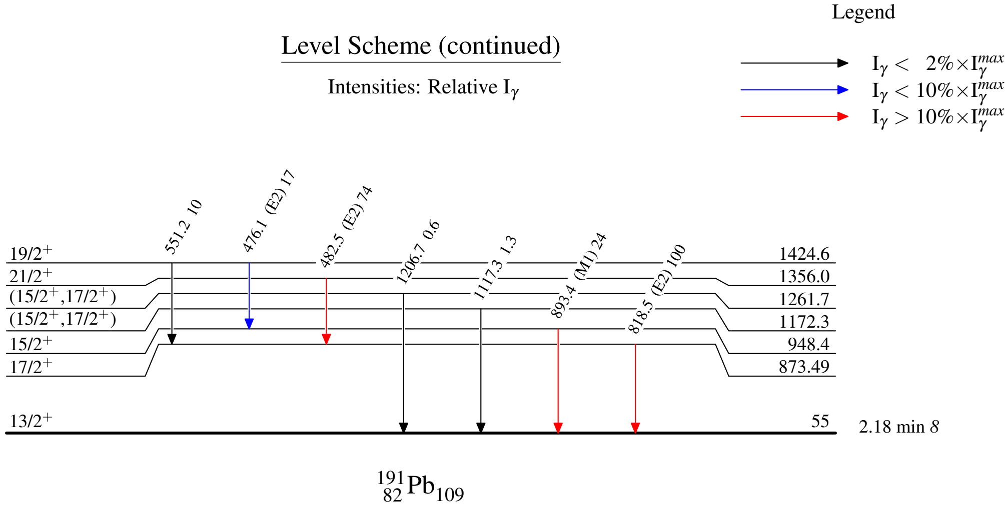


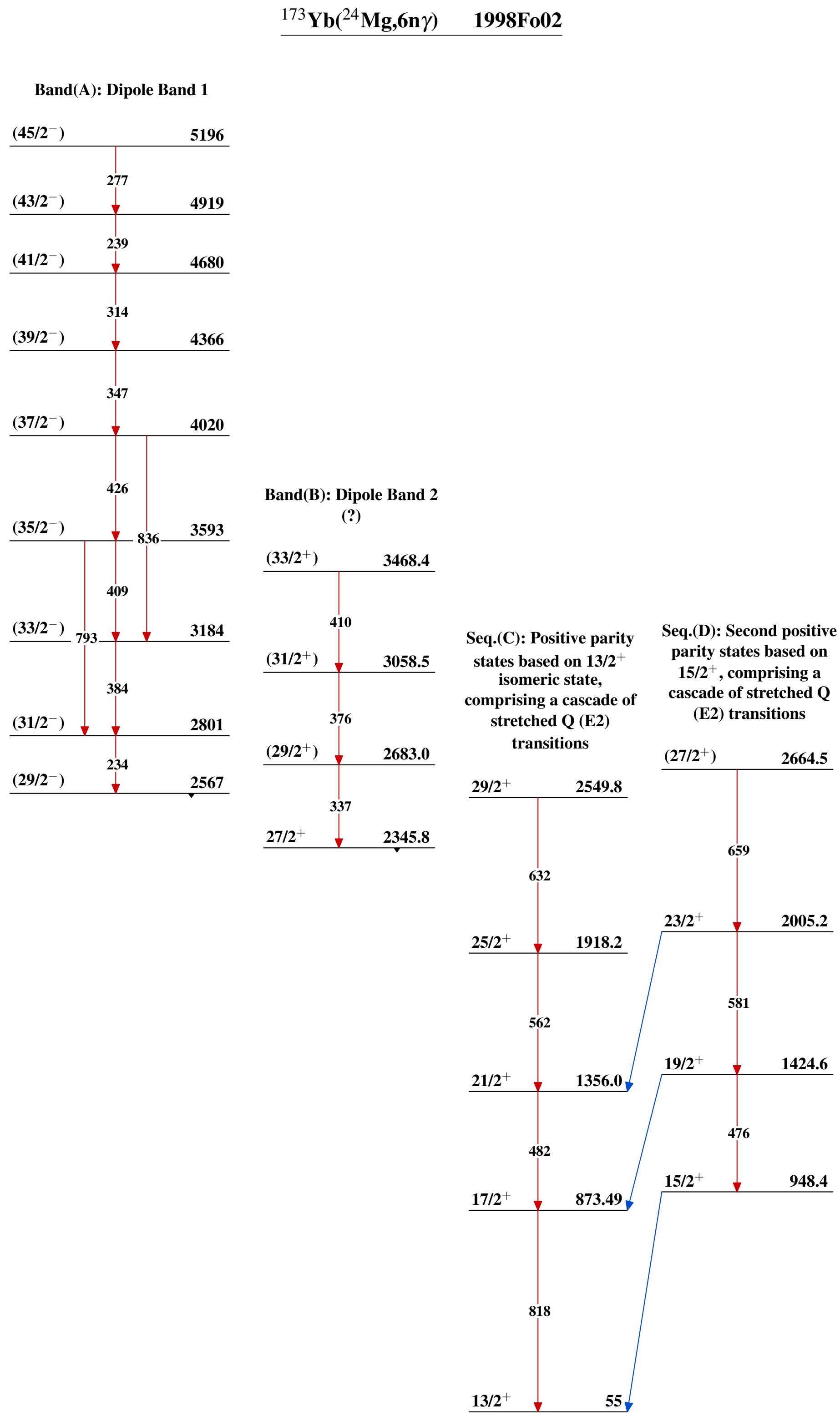
$^{191}_{82}Pb_{109}$

^{173}Yb(^{24}Mg,6nγ) 1998Fo02

Level Scheme (continued)

Intensities: Relative I_γ





173Yb(24Mg,6nγ) 1998Fo02
Band(A): Dipole Band 1
(45/2−) 5196
277
(43/2−) 4919
239
(41/2−) 4680
314
(39/2−) 4366
347
(37/2−) 4020
426
(35/2−) 3593
836
409
(33/2−) 3184
793
384
(31/2−) 2801
234
(29/2−) 2567
Band(B): Dipole Band 2
(?)
(33/2+) 3468.4
410
(31/2+) 3058.5
376
(29/2+) 2683.0
337
27/2+ 2345.8
Seq.(C): Positive parity states based on 13/2+ isomeric state, comprising a cascade of stretched Q (E2) transitions
29/2+ 2549.8
632
25/2+ 1918.2
562
21/2+ 1356.0
482
17/2+ 873.49
818
13/2+ 55
Seq.(D): Second positive parity states based on 15/2+, comprising a cascade of stretched Q (E2) transitions
(27/2+) 2664.5
659
23/2+ 2005.2
581
19/2+ 1424.6
476
15/2+ 948.4

$^{191}_{82}Pb_{109}$