(HI,xnγ) 1991Wa09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 103, 1 (2004)	31-Jul-2004

1991Wa09: ^{92}Mo(^{46}Ti,3pnγ) E=210 MeV; ^{64}Zn(^{74}Se,3pnγ) E=290 MeV, up to 6 Compton-suppressed Ge detectors.
2002La09: ^{105}Pd(^{35}Cl,2p4nγ) E=173 MeV, Gammasphere plus Microball arrays, measured Quadrupole moments using DSAM.

^{134}Pm Levels

The partial level scheme is that proposed by 1991Wa09 on the basis of coincidence data. The spin and parity assignments are based on transition multipolarities and theoretical predictions (bandhead spins assumed to be correct).

E(level)	Jπ	E(level)	Jπ	E(level)	Jπ	E(level)	Jπ
0.0+y†	(7⁻)	965.9+y‡ *3*	(12⁺)	2840.6+y‡ *4*	(17⁺)	734.3+z# *4*	(13⁺)
106.19+y† *18*	(8⁻)	1167.3+y† *3*	(13⁻)	2927.6+y† *5*	(18⁻)	1256.1+z# *4*	(15⁺)
215.02+y† *20*	(9⁻)	1316.9+y‡ *3*	(13⁺)	3291.3+y‡ *4*	(18⁺)	1907.1+z# *5*	(17⁺)
272.00+y‡ *20*	(8⁺)	1497.5+y† *3*	(14⁻)	3299.3+y† *4*	(19⁻)	2662.8+z# *5*	(19⁺)
353.9+y‡ *3*	(9⁺)	1622.0+y‡ *4*	(14⁺)	3702.0+y‡ *5*	(19⁺)	3494.2+z# *6*	(21⁺)
386.65+y† *22*	(10⁻)	1838.9+y† *3*	(15⁻)	4224.6+y‡ *5*	(20⁺)	4369.6+z# *6*	(23⁺)
485.0+y‡ *3*	(10⁺)	2029.3+y‡ *4*	(15⁺)	5198.6+y‡ *6*	(22⁺)	5299.2+z# *6*	(25⁺)
605.63+y† *23*	(11⁻)	2192.2+y† *4*	(16⁻)	0.0+z@		6318.9+z# *7*	(27⁺)
735.9+y‡ *3*	(11⁺)	2410.4+y‡ *4*	(16⁺)	127.10+z# *20*	(9⁺)	7438.9+z# *12*	(29⁺)
871.75+y† *25*	(12⁻)	2550.9+y† *4*	(17⁻)	359.3+z# *3*	(11⁺)		

† Band(A): negative-parity band built on Configuration=((π $g_{7/2}$)(ν $h_{11/2}$)).
‡ Band(B): positive-parity band built on Configuration=((π N11/2)(ν $h_{11/2}$)).
# Band(C): doubly-decoupled band built on Configuration=((π $h_{11/2}$)(ν $h_{9/2}$)), transition Quadrupole Moment=3.9 *2* (2002La09), other: 5.3 *9* (1991Wa09).
@ y>145+Y; unobserved γ from (9⁺), 127.1+Z to (8⁺), 272.0+Y level.

γ(^{134}Pm)

Eγ	Ei(level)	J_i^π	Ef	J_f^π	Mult.†	α#	I(γ+ce)‡	Comments
82.0 *2*	353.9+y	(9⁺)	272.00+y	(8⁺)	(M1)	2.79	90 *9*	α(K)= 2.364; α(L)= 0.333; α(M)= 0.0707; α(N+..)=0.02005
106.2 *2*	106.19+y	(8⁻)	0.0+y	(7⁻)	(M1)	1.323	89 *9*	α(K)= 1.122; α(L)= 0.1577; α(M)= 0.0335; α(N+..)=0.00961
108.8 *2*	215.02+y	(9⁻)	106.19+y	(8⁻)	(M1)	1.235	62 *6*	α(K)= 1.048; α(L)= 0.1471; α(M)= 0.0313; α(N+..)=0.00897
127.1 *2*	127.10+z	(9⁺)	0.0+z		D		<18	
131.1 *3*	485.0+y	(10⁺)	353.9+y	(9⁺)	(M1)	0.729	79 *8*	α(K)= 0.619; α(L)= 0.0865; α(M)=0.01835; α(N+..)=0.00527
171.6 *2*	386.65+y	(10⁻)	215.02+y	(9⁻)	(M1)	0.343	36 *4*	α(K)= 0.291; α(L)= 0.0405; α(M)=0.00859; α(N+..)=0.00245
212.9 *2*	485.0+y	(10⁺)	272.00+y	(8⁺)	(E2)	0.1654	5.5 *7*	α(K)= 0.1224; α(L)= 0.0335; α(M)=0.00745; α(N+..)=0.00201
215.0 *3*	215.02+y	(9⁻)	0.0+y	(7⁻)			<5	
219.0 *2*	605.63+y	(11⁻)	386.65+y	(10⁻)	(M1)	0.1756	15.8 *16*	α(K)= 0.1494; α(L)=0.02063; α(M)=0.00438; α(N+..)=0.00123
229.9 *2*	965.9+y	(12⁺)	735.9+y	(11⁺)	(M1)	0.1539	25 *3*	α(K)= 0.1309; α(L)=0.01806; α(M)=0.00383; α(N+..)=0.00108

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(HI,xnγ) 1991Wa09 (continued)

γ(^{134}Pm) (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[#]	$I_{(\gamma+ce)}$[‡]	Comments
232.2 *2*	359.3+z	(11$^+$)	127.10+z	(9$^+$)	(E2)	0.1241	26 *3*	α(K)= 0.0935; α(L)=0.02386; α(M)=0.00529; α(N+..)=0.00143
250.9 *2*	735.9+y	(11$^+$)	485.0+y	(10$^+$)	(M1)	0.1215	56 *6*	α(K)= 0.1034; α(L)=0.01424; α(M)=0.00302; α(N+..)=0.00085
266.1 *2*	871.75+y	(12$^-$)	605.63+y	(11$^-$)	(M1)	0.1038	10.5 *11*	α(K)= 0.0883; α(L)=0.01215; α(M)=0.00258; α(N+..)=0.00072
272.0 *2*	272.00+y	(8$^+$)	0.0+y	(7$^-$)	(E1)	0.01823	100 *10*	α(K)=0.01558; α(L)=0.00209; α(M)=0.00044; α(N+..)=0.00012
280.5 *2*	386.65+y	(10$^-$)	106.19+y	(8$^-$)	(E2)	0.0674	10.2 *10*	α(K)= 0.0524; α(L)=0.01171; α(M)=0.00258; α(N+..)=0.00069
295.7 *2*	1167.3+y	(13$^-$)	871.75+y	(12$^-$)	(M1)	0.0783	8.0 *10*	α(K)= 0.0667; α(L)=0.00915; α(M)=0.00194; α(N+..)=0.00054
305.1 *2*	1622.0+y	(14$^+$)	1316.9+y	(13$^+$)	(M1)	0.0721	8.4 *10*	α(K)= 0.0614; α(L)=0.00842; α(M)=0.00179; α(N+..)=0.00050
330.3 *3*	1497.5+y	(14$^-$)	1167.3+y	(13$^-$)	(M1)	0.0585	6.4 *7*	α(K)= 0.0499; α(L)=0.00682; α(M)=0.00145; α(N+..)=0.00040
341.4 *2*	1838.9+y	(15$^-$)	1497.5+y	(14$^-$)	(M1)	0.0537	3.0 *5*	α(K)= 0.0457; α(L)=0.00625; α(M)=0.00133; α(N+..)=0.00037
350.8 *2*	1316.9+y	(13$^+$)	965.9+y	(12$^+$)	(M1)	0.0500	17.8 *18*	α(K)= 0.0426; α(L)=0.00582; α(M)=0.00123; α(N+..)=0.00034
353.5 *3*	2192.2+y	(16$^-$)	1838.9+y	(15$^-$)			<3	
375.0 *2*	734.3+z	(13$^+$)	359.3+z	(11$^+$)	(E2)	0.0277	23 *2*	α(K)=0.02234; α(L)=0.00423; α(M)=0.00092; α(N+..)=0.00025
381.1 *2*	2410.4+y	(16$^+$)	2029.3+y	(15$^+$)			5.9 *7*	α(K)= 0.0344; α(L)=0.00468; α(M)=0.00099; α(N+..)=0.00027
382.0 *3*	735.9+y	(11$^+$)	353.9+y	(9$^+$)	(E2)	0.0263	10.0 *10*	α(K)=0.02120; α(L)=0.00398; α(M)=0.00087; α(N+..)=0.00023
390.6 *2*	605.63+y	(11$^-$)	215.02+y	(9$^-$)	(E2)	0.02462	16.0 *16*	α(K)=0.01991; α(L)=0.00370; α(M)=0.00080; α(N+..)=0.00022
407.2 *2*	2029.3+y	(15$^+$)	1622.0+y	(14$^+$)	(M1)	0.0340	6.5 *7*	α(K)= 0.0290; α(L)=0.00394; α(M)=0.00083; α(N+..)=0.00023
430.1 *2*	2840.6+y	(17$^+$)	2410.4+y	(16$^+$)			4.8 *6*	
450.0 *3*	3291.3+y	(18$^+$)	2840.6+y	(17$^+$)			3.1 *5*	
480.9 *2*	965.9+y	(12$^+$)	485.0+y	(10$^+$)	(E2)	0.01369	14.4 *15*	α(K)=0.01125; α(L)=0.00191; α(M)=0.00041; α(N+..)=0.00011
485.1 *2*	871.75+y	(12$^-$)	386.65+y	(10$^-$)	(E2)	0.01337	14.9 *15*	α(K)=0.01100; α(L)=0.00186; α(M)=0.00040; α(N+..)=0.00011
521.8 *2*	1256.1+z	(15$^+$)	734.3+z	(13$^+$)	(E2)	0.01107	21 *2*	α(K)=0.00909; α(L)=0.00149
561.7 *2*	1167.3+y	(13$^-$)	605.63+y	(11$^-$)	(E2)	0.00913	21.5 *22*	α(K)=0.00753; α(L)=0.00121
581.1 *2*	1316.9+y	(13$^+$)	735.9+y	(11$^+$)	(E2)	0.00837	32 *3*	α(K)=0.00691; α(L)=0.00110
625.6 *2*	1497.5+y	(14$^-$)	871.75+y	(12$^-$)	(E2)	0.00696	17.2 *17*	α(K)=0.00577; α(L)=0.00089
651.0 *2*	1907.1+z	(17$^+$)	1256.1+z	(15$^+$)	(E2)	0.00631	16.0 *16*	α(K)=0.00524; α(L)=0.00080
656.2 *2*	1622.0+y	(14$^+$)	965.9+y	(12$^+$)	(E2)	0.00619	29 *3*	α(K)=0.00514; α(L)=0.00079
671.7 *2*	1838.9+y	(15$^-$)	1167.3+y	(13$^-$)	(E2)	0.00585	16.8 *17*	α(K)=0.00486; α(L)=0.00074
694.6 *2*	2192.2+y	(16$^-$)	1497.5+y	(14$^-$)	(E2)	0.00539	15.8 *16*	α(K)=0.00449; α(L)=0.00068
712.0 *2*	2550.9+y	(17$^-$)	1838.9+y	(15$^-$)	(E2)	0.00509	16.0 *16*	α(K)=0.00424; α(L)=0.00064
712.4 *2*	2029.3+y	(15$^+$)	1316.9+y	(13$^+$)	(E2)	0.00508	17.3 *17*	α(K)=0.00423; α(L)=0.00063
735.4 *3*	2927.6+y	(18$^-$)	2192.2+y	(16$^-$)	(E2)	0.00471	8.4 *8*	α(K)=0.00393; α(L)=0.00058
748.4 *2*	3299.3+y	(19$^-$)	2550.9+y	(17$^-$)	(E2)	0.00452	7.2 *8*	α(K)=0.00378; α(L)=0.00056
755.7 *2*	2662.8+z	(19$^+$)	1907.1+z	(17$^+$)	(E2)	0.00442	12.4 *12*	α(K)=0.00370; α(L)=0.00055
788.5 *2*	2410.4+y	(16$^+$)	1622.0+y	(14$^+$)	(E2)	0.00401	17.2 *17*	α(K)=0.00336; α(L)=0.00049
811.1 *2*	2840.6+y	(17$^+$)	2029.3+y	(15$^+$)			13.3 *13*	
831.4 *2*	3494.2+z	(21$^+$)	2662.8+z	(19$^+$)	(E2)	0.00356	9.1 *10*	α(K)=0.00298; α(L)=0.00043
861.4 *3*	3702.0+y	(19$^+$)	2840.6+y	(17$^+$)			<10	
875.4 *2*	4369.6+z	(23$^+$)	3494.2+z	(21$^+$)	(E2)	0.00317	7.3 *8*	α(K)=0.00266; α(L)=0.00038
881.2 *2*	3291.3+y	(18$^+$)	2410.4+y	(16$^+$)	(E2)	0.00312	12.8 *13*	α(K)=0.00262; α(L)=0.00037

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(HI,xnγ) 1991Wa09 (continued)

γ(^{134}Pm) (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[#]	$I_{(\gamma+ce)}$[‡]	Comments
929.6 *2*	5299.2+z	(25$^+$)	4369.6+z	(23$^+$)	(E2)	0.00278	5.8 *7*	α(K)=0.00234; α(L)=0.00033
933.3 *2*	4224.6+y	(20$^+$)	3291.3+y	(18$^+$)	(E2)	0.00275	11.0 *14*	α(K)=0.00232; α(L)=0.00033
974.0 *3*	5198.6+y	(22$^+$)	4224.6+y	(20$^+$)			7.4 *8*	
1019.7 *3*	6318.9+z	(27$^+$)	5299.2+z	(25$^+$)	(E2)	0.00228	3.7 *7*	α(K)=0.00192; α(L)=0.00027
1120 *1*	7438.9+z	(29$^+$)	6318.9+z	(27$^+$)			<3	

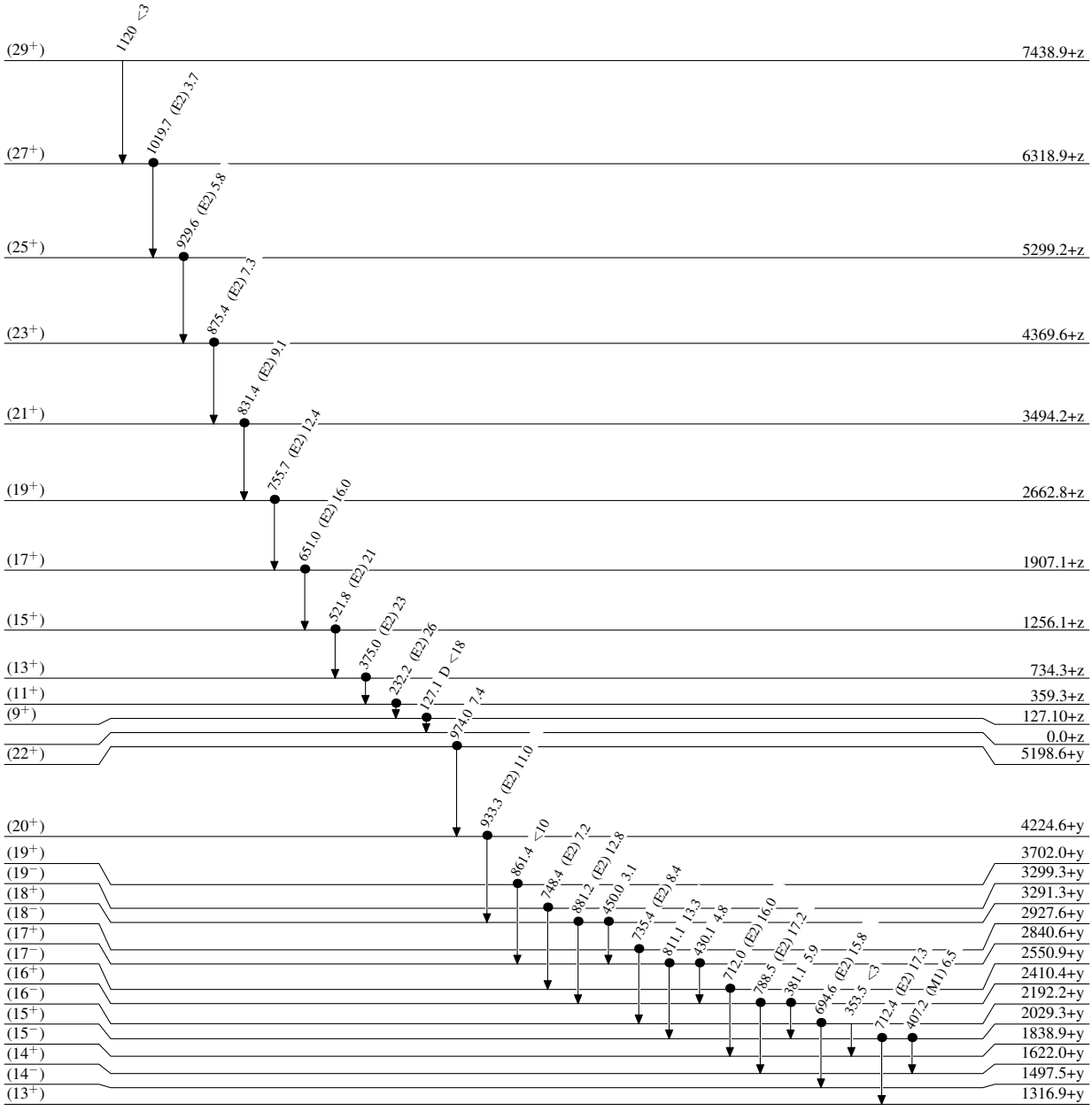
[†] From angular correlation data, assuming that D is M1 and Q is E2 for in-band transitions.
[‡] For ^{92}Mo(^{46}Ti,3pnγ).
[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Legend

(HI,xnγ) 1991Wa09

Level Scheme

● Coincidence



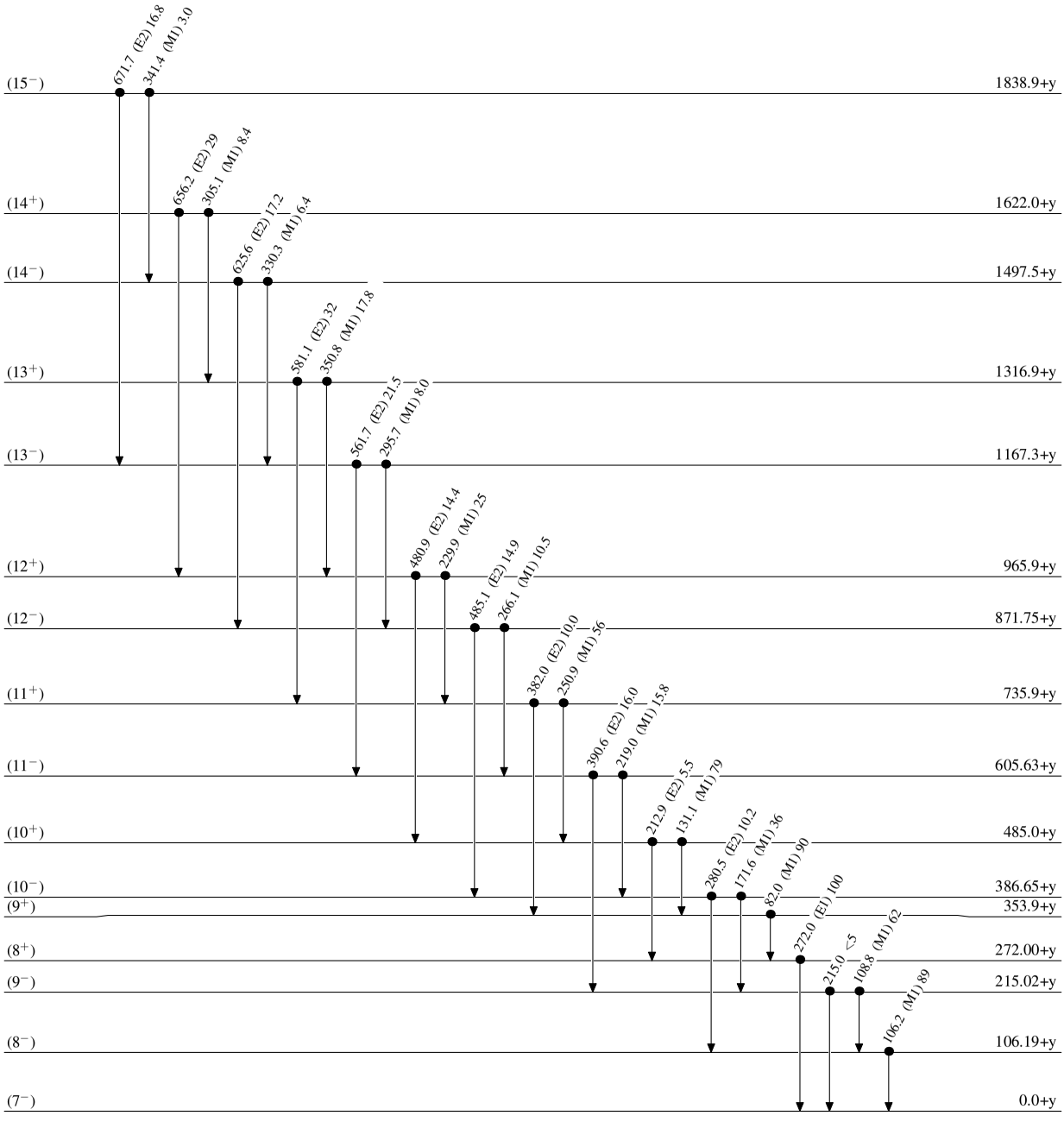
$^{134}_{61}Pm_{73}$

(HI,xnγ) 1991Wa09

Legend

● Coincidence

Level Scheme (continued)



$^{134}_{61}Pm_{73}$

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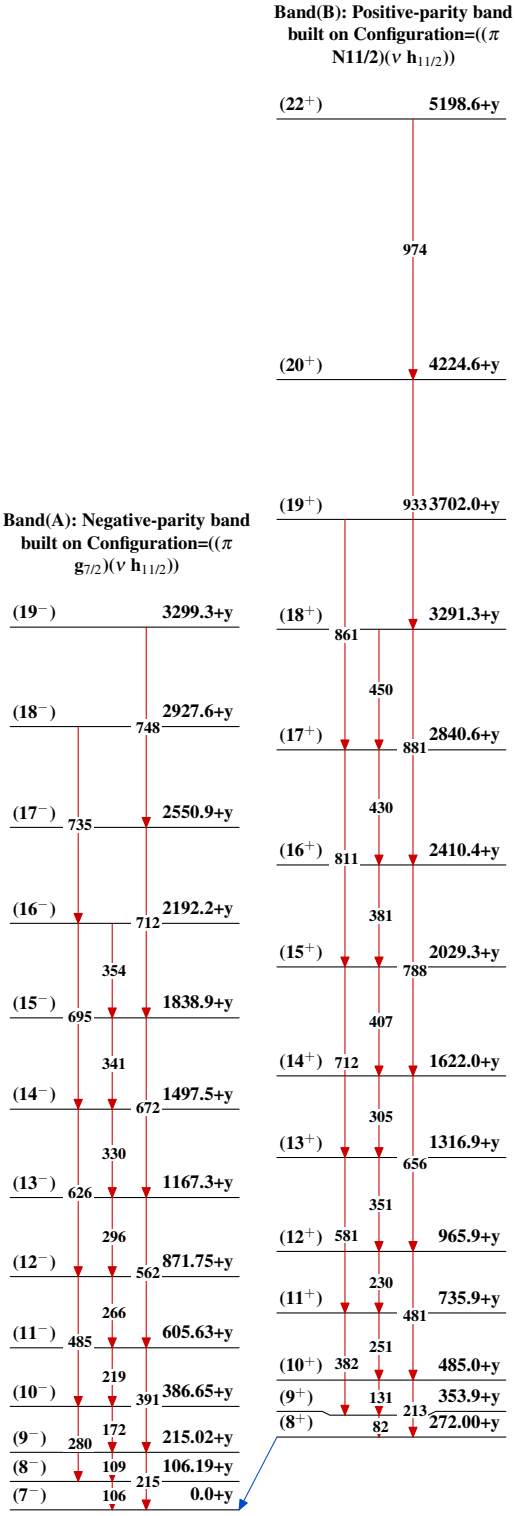

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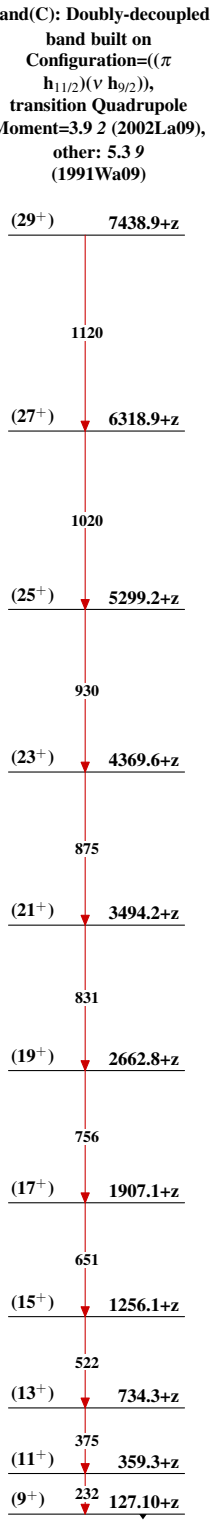
(HI,xnγ) 1991Wa09 (continued)



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