(HI,xnγ) 1992St09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Shaofei Zhu and E. A. Mccutchan	NDS 175,1 (2021)	1-May-2021

1992St09: ^{206}Pb(^{12}C,4nγ), E(^{12}C)=66-84 MeV, ^{206}Pb(^{13}C,5nγ), E(^{13}C)=66-84 MeV; Enriched targets, pulsed-beam; Ge hyper-pure, planar Ge, Compton suppressed detectors, superconducting solenoidal electron spectrometer, Si(Li) detector; measured Eγ, Iγ, γ(θ), γγ(t), Xγ(t), I(ce)(t), Iγ(E,t), Iγ(θ,H,t). ^{214}Ra deduced levels, J^{π}, $T_{1/2}$, g-factors, B(λ), ICC.

Others: 2004He25,1986AdZV,1979Ho06,1974Ya09,1971MaXH,1971MaXI.

α: Additional information 1.

^{214}Ra Levels

E(level)†	Jπ‡	$T_{1/2}$#	Comments
0.0	0^{+}@		
1382.4 *10*	2^{+}@		
1639.3 *15*	4^{+}@	35.1 ns *3*	$T_{1/2}$: from 1992St09; other: 32 ns *8* (1971MaXH,1971MaXI).
1819.7 *18*	6^{+}@	118 ns *7*	$T_{1/2}$: from 1992St09.
1865.2 *20*	8^{+}@	67 μs *3*	g=0.887 *3* $T_{1/2}$: from 1971MaXH,1971MaXI and 1992St09; other: 57 μs *6* (1972Co18). g: weighted average of 0.88 *1* (1974Ya09), 0.890 *4* (1976Ha37), 0.885 *4* (1977Be56).
2073.9 *22*	8^{+}&		
2683.2 *22*	11^{-}*a*	295 ns *7*	g=1.088 *6* $T_{1/2}$: from 1992St09; other: 333 ns (1979Ho06). g: weighted average of 1.085 *10* (1979Ho06) and 1.089 *7* (1992St09).
2944.1 *22*	10^{+}@		
3256.4 *22*	12^{+}&		
3329.4 *23*	12^{+}@		
3478.4 *23*	14^{+}&	279 ns *4*	g=1.021 *4* $T_{1/2}$: from 1992St09; other: 285 ns (1979Ho06). g: weighted average of 1.022 *9* (1979Ho06) and 1.021 *4* (1992St09).
3771.4 *23*	13^{-}*a*		
3850.1 *24*	14^{+}*b*		
3990.1 *24*	15^{-}*a*	3.6 ns *2*	$T_{1/2}$: from 1992St09.
4146.8 *24*	17^{-}*a*	225 ns *4*	g=1.022 *3* $T_{1/2}$: from 1992St09; other: 230 ns (1979Ho06). g: weighted average of 1.028 *7* (1979Ho06) and 1.021 *3* (1992St09).
4170.1 *24*	15^{-}*e*		
4237.2 *24*	16^{+}&		
4376.8 *25*	(16^{-})		
4401.5 *24*	17^{-}*c*		
4618.3 *24*	16^{+}*b*		
4810.2 *24*	18^{+}*b*	0.76 ns *21*	$T_{1/2}$: from 1992St09.
4921.9 *25*	19^{-}		
4931 *3*	17^{-}		
4984 *3*	18^{-}		
5180.4 *24*	19^{-}*c*		
5243.8 *25*	20^{+}		
5390.3 *25*	21^{-}*c*	1.5 ns *3*	$T_{1/2}$: from 1992St09.
5462 *3*	20^{-}		
5948 *3*	$(21)^{-}$		
6030 *3*	22^{-}*c*		
6057 *3*	22^{+}		
6118 *3*			

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(HI,xnγ) 1992St09 (continued)

^{214}Ra Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Comments
6290 *3*	22^+		
6305 *3*	(22)		
6479 *3*	(22)		
6482 *3*	23^+		
6530 *3*	(24^+)[d]	1.6 ns *3*	$T_{1/2}$: tentatively determined by 1992St09.
6565 *3*	23^+		
6577 *3*	(25^-)	128 ns *4*	g=0.66 *1* $T_{1/2}$: from 1992St09. g: from 1992St09.
6613 *3*	23^-		
6660 *3*			
6766 *3*	$(^+)$		
6929 *3*	(24^+)		
6937 *3*			
7016 *3*			
7118 *3*	$(^-)$		
7243 *3*			
7302 *3*			
7394 *3*			
7542 *4*			
7870 *3*	(24^+)		

† From a least squares fit to Eγ′s by evaluators, assuming 1 keV uncertainty for Eγ′s.
‡ Deduced from γ multipolarities and decay pattern by 1992St09 unless otherwise noted.
# From pulsed beam-γ(t), γγ(t) (1992St09) unless otherwise noted.
@ Configuration=$(\pi\ h_{9/2})^{+6}$.
& Configuration=$(\pi\ h_{9/2})^{+5}(\pi\ f_{7/2})$.
a Configuration=$(\pi\ h_{9/2})^{+5}(\pi\ i_{13/2})$.
b Configuration=$(\pi\ h_{9/2})^{+4}(\pi\ f_{7/2})^{+2}$).
c Configuration=$(\pi\ h_{9/2})^{+4}(\pi\ f_{7/2})(\pi\ i_{13/2})$.
d Configuration=$(\pi\ h_{9/2})^{+4}(\pi\ i_{13/2})^{+2}$.
e Possible configuration==$(\pi\ h_{9/2})^{+3}\ (\pi f_{7/2})^{+2}(\pi\ i_{13/2})$.

γ(^{214}Ra)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α	Comments
(24.7)		4401.5	17^-	4376.8	(16^-)			E_γ: not observed; deduced from level energy difference by the authors of 1992St09.
45.5	2 *1*	1865.2	8^+	1819.7	6^+	E2	414 *6*	α(L)=304 *4*; α(M)=82.3 *12*; α(N)=21.71 *30*; α(O)=4.60 *6*; α(P)=0.659 *9*; α(Q)=0.001332 *19* Mult.: from α(tot)exp=480 *240* (1992St09).
46.8	1.7 *4*	6577	(25^-)	6530	(24^+)	E1	0.835 *12*	E_γ: other: 47 *3* (1971MaXH, 1971MaXI). α(L)=0.631 *9*; α(M)=0.1548 *22*; α(N)=0.0399 *6*; α(O)=0.00841 *12*; α(P)=0.001207 *17* $\alpha(Q)=4.64\times10^{-5}$ *7* Mult.: from α(tot)exp<7 (1992St09).
(48.1)		6530	(24^+)	6482	23^+			E_γ: not observed; deduced from level energy difference by the authors of 1992St09.
63.4	3.6 *2*	5243.8	20^+	5180.4	19^-	[E1]	0.371 *5*	α(L)=0.281 *4*; α(M)=0.0683 *10*; α(N)=0.01767 *25*; α(O)=0.00378 *5*; α(P)=0.000565 *8* $\alpha(Q)=2.428\times10^{-5}$ *34*

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(HI,xnγ) 1992St09 (continued)

γ(^{214}Ra) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	δ	α	Comments
73.0	19 *3*	3329.4	12^+	3256.4	12^+	M1+E2	0.15 *10*	8.5 *13*	α(L)=6.4 *9*; α(M)=1.56 *26*; α(N)=0.41 *7*; α(O)=0.093 *14*; α(P)=0.0159 *20*; α(Q)=0.00114 *4* Mult.,δ: from α(tot)exp=8.5 *13* (1992St09).
82.9	9 *1*	6565	23^+	6482	23^+	M1		5.36 *8*	α(L)=4.06 *6*; α(M)=0.971 *14*; α(N)=0.256 *4*; α(O)=0.0585 *8*; α(P)=0.01019 *14* α(Q)=0.000801 *11* Mult.: from 0.5<α(tot)exp<7 (1992St09).
140.0	69 *1*	3990.1	15^-	3850.1	14^+	D			Mult.: from A_2=−0.23 *4*; A_4=0 and decay pattern (1992St09).
146.5	34 *3*	5390.3	21^-	5243.8	20^+	E1		0.1908 *27*	α(K)=0.1502 *21*; α(L)=0.0308 *4*; α(M)=0.00739 *10*; α(N)=0.001925 *27*; α(O)=0.000424 *6* α(P)=6.82×10^{-5} *10*; α(Q)=3.77×10^{-6} *5* Mult.: from α(tot)exp<0.29; A_2=−0.36 *5*; A_4= 0 (1992St09).
148.9	121 *2*	3478.4	14^+	3329.4	12^+	E2		1.804 *25*	α(K)=0.265 *4*; α(L)=1.131 *16*; α(M)=0.307 *4*; α(N)=0.0811 *11*; α(O)=0.01731 *24* α(P)=0.002534 *35*; α(Q)=1.626×10^{-5} *23* Mult.: from α(L)exp=1.2 *1*; α(M)exp=0.32 *5*; A_2=+0.15 *4*; A_4=−0.09 *5* (1992St09); A_2=+0.29 *14*; A_4=−0.34 *17* (1979Ho06). E_γ: other: 149.0 (1979Ho06).
156.6	29 *2*	4146.8	17^-	3990.1	15^-	E2		1.476 *21*	α(K)=0.2468 *35*; α(L)=0.903 *13*; α(M)=0.2451 *34*; α(N)=0.0648 *9*; α(O)=0.01382 *19* α(P)=0.002027 *28*; α(Q)=1.414×10^{-5} *20* Mult.: from α(L)exp=0.78 *11*; A_2=+0.14 *7* (1992St09).
174.2	4 *1*	6479	(22)	6305	(22)				
180.4	502 *8*	1819.7	6^+	1639.3	4^+	E2		0.856 *12*	α(K)=0.1958 *27*; α(L)=0.485 *7*; α(M)=0.1313 *18*; α(N)=0.0347 *5*; α(O)=0.00742 *10* α(P)=0.001095 *15*; α(Q)=9.70×10^{-6} *14* Mult.: from α(L)exp=0.447 *10*; α(M)exp=0.152 *6* (1992St09). E_γ: others: 179.4 *5* (1971MaXH, 1971MaXI), 180.4 *2* (1972Co18) and 180.7 *4* (2004He25).
191.9	5 *2*	4810.2	18^+	4618.3	16^+	[E2]		0.680 *10*	α(K)=0.1749 *24*; α(L)=0.372 *5*; α(M)=0.1004 *14*; α(N)=0.0265 *4*; α(O)=0.00568 *8* α(P)=0.000841 *12*; α(Q)=8.27×10^{-6} *12*
192.1	17 *2*	6482	23^+	6290	22^+	M1		2.450 *34*	α(K)=1.969 *28*; α(L)=0.364 *5*; α(M)=0.0870 *12*; α(N)=0.02295 *32*; α(O)=0.00524 *7* α(P)=0.000913 *13*; α(Q)=7.15×10^{-5} *10* Mult.: from α(L)exp=0.29 *13* with contribution from the α(K 191.9γ) [E2] line; A_2=−0.33 *9*; A_4=0 (1992St09).
206.7	8 *2*	4376.8	(16$^-$)	4170.1	15^-	(M1)		1.994 *28*	α(K)=1.604 *22*; α(L)=0.296 *4*; α(M)=0.0708 *10*; α(N)=0.01867 *26*; α(O)=0.00426 *6* α(P)=0.000742 *10*; α(Q)=5.82×10^{-5} *8* Mult.: from α(L)exp=0.22 *9* (1992St09).

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(HI,xnγ) 1992St09 (continued)

γ(^{214}Ra) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	δ	α	Comments
208.7	128 *3*	2073.9	8^+	1865.2	8^+	M1		1.941 *27*	α(K)=1.561 *22*; α(L)=0.288 *4*; α(M)=0.0689 *10*; α(N)=0.01817 *25*; α(O)=0.00414 *6* α(P)=0.000722 *10*; α(Q)=5.66×10^{-5} *8* Mult.,δ: from α(K)exp=1.1 *5*; α(L)exp=0.30 *1*; α(M)exp=0.12 *3* resulted in δ=0.0 *7* (1992St09). A_2=+0.21 *5*, A_4=−0.08 *7* (1992St09); A_2=+0.33 *10*; A_4=−0.06 *11* (1979Ho06). E_γ: other: 207.9 (1979Ho06).
209.9	106 *3*	5390.3	21^-	5180.4	19^-	E2		0.492 *7*	α(K)=0.1472 *21*; α(L)=0.254 *4*; α(M)=0.0684 *10*; α(N)=0.01808 *25*; α(O)=0.00388 *5* α(P)=0.000576 *8*; α(Q)=6.60×10^{-6} *9* Mult.: from α(L)exp>0.07; α(M)exp=0.06 *2*; A_2=+0.29 *5*; A_4=−0.07 *8* (1992St09).
218.7	14 *1*	3990.1	15^-	3771.4	13^-	E2		0.426 *6*	α(K)=0.1357 *19*; α(L)=0.2137 *30*; α(M)=0.0575 *8*; α(N)=0.01519 *21*; α(O)=0.00326 *5* α(P)=0.000486 *7*; α(Q)=5.97×10^{-6} *8* Mult.: from A_2=+0.36 *13*, E2 is consistent with the half-life of the 3990.1-keV level (1992St09).
222.1	181 *3*	3478.4	14^+	3256.4	12^+	E2		0.404 *6*	α(K)=0.1316 *18*; α(L)=0.2004 *28*; α(M)=0.0539 *8*; α(N)=0.01424 *20*; α(O)=0.00306 *4* α(P)=0.000456 *6*; α(Q)=5.74×10^{-6} *8* Mult.: from α(K)exp=0.12 *3*; α(L)exp=0.20 *1*; α(M)exp=0.06 *1*; A_2=+0.16 *2*; A_4=−0.08 *4* (1992St09); A_2=+0.27 *4*; A_4=−0.11 *6* (1979Ho06). E_γ: other: 221.0 (1979Ho06).
233.4	39 *2*	6290	22^+	6057	22^+	M1(+E2)	<6	0.9 *5*	α(K)=0.6 *5*; α(L)=0.188 *23*; α(M)=0.0471 *32*; α(N)=0.0124 *8*; α(O)=0.00276 *27* α(P)=0.00045 *8*; α(Q)=2.4×10^{-5} *18* Mult.,δ: from α(L)exp=0.12 *5*; α(M)exp=0.06 *1* (1992St09); A_2=+0.38 *8*; A_4=−0.34 *12* (1992St09).
240.1	6 *2*	7542		7302					
240.2	2 *1*	6530	(24^+)	6290	22^+	[E2]		0.309 *4*	α(K)=0.1123 *16*; α(L)=0.1450 *20*; α(M)=0.0389 *5*; α(N)=0.01028 *14*; α(O)=0.002209 *31* α(P)=0.000331 *5*; α(Q)=4.75×10^{-6} *7*
248.4	8 *1*	6305	(22)	6057	22^+				
254.7	87 *2*	4401.5	17^-	4146.8	17^-	M1+E2	0.36 *21*	1.02 *11*	α(K)=0.81 *10*; α(L)=0.159 *7*; α(M)=0.0384 *13*; α(N)=0.01013 *33*; α(O)=0.00230 *9* α(P)=0.000396 *21*; α(Q)=2.9×10^{-5} *4* Mult.,δ: from α(K)exp=0.88 *15*; α(L)exp=0.155 *9* (1992St09). Mult.: A_2=+0.41 *8*; A_4=−0.6 *11* (1992St09).

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(HI,xnγ) 1992St09 (continued)

γ(^{214}Ra) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	α	Comments
								Mult.: A_2=+0.41 *8*; A_4=−0.6 *11* (1992St09).
256.9	720 *10*	1639.3	4^+	1382.4	2^+	E2	0.2475 *35*	α(K)=0.0978 *14*; α(L)=0.1104 *15*; α(M)=0.0295 *4*; α(N)=0.00781 *11*; α(O)=0.001680 *24* α(P)=0.0002529 *35*; α(Q)=4.05×10^{-6} *6* Mult.: from α(K)exp=0.098 *3*; α(L)exp=0.115 *2*; α(M)exp=0.034 *2* (1992St09). E_γ: others: 255.9 *5* (1971MaXH, 1971MaXI), 256.6 *2* (1972Co18) and 256.8 *4* (2004He25).
258.6	2 *1*	5180.4	19^-	4921.9	19^-	[M1+E2]	0.7 *4*	α(K)=0.5 *4*; α(L)=0.133 *25*; α(M)=0.033 *5*; α(N)=0.0088 *12*; α(O)=0.00195 *32* α(P)=0.00032 *8*; α(Q)=1.8×10^{-5} *14*
312.3	159 *3*	3256.4	12^+	2944.1	10^+	E2	0.1349 *19*	α(K)=0.0652 *9*; α(L)=0.0515 *7*; α(M)=0.01365 *19*; α(N)=0.00360 *5*; α(O)=0.000780 *11* α(P)=0.0001191 *17*; α(Q)=2.57×10^{-6} *4* Mult.: from α(K)exp=0.1 *2*; α(L)exp=0.037 *2*; α(M)exp=0.016 *1*; A_2=+0.20 *2* (1992St09); A_2=+0.33 *7*; A_4=−0.08 *9* (1979Ho06). E_γ: other: 311.3 (1979Ho06).
321.9	83 *2*	5243.8	20^+	4921.9	19^-	E1	0.0300 *4*	α(K)=0.02426 *34*; α(L)=0.00439 *6*; α(M)=0.001045 *15*; α(N)=0.000274 *4*; α(O)=6.12×10^{-5} *9* α(P)=1.025×10^{-5} *14*; α(Q)=6.72×10^{-7} *9* Mult.: from α(K)exp<0.05; α(L)exp<0.006; A_2=−0.30 *3* A_4=0 1992St09.
324.1	15 *1*	6937		6613	23^-			
364.4	8 *1*	6929	(24^+)	6565	23^+	(M1+E2)	0.25 *16*	α(K)=0.19 *14*; α(L)=0.045 *16*; α(M)=0.0111 *35*; α(N)=0.0029 *9*; α(O)=6.6×10^{-4} *22* α(P)=1.1×10^{-4} *4*; α(Q)=7.E−6 *5* Mult.: from α(K 364.4γ)+α(K 365.1γ)≈0.12 suggesting M1+E2 for both γ′s (1992St09).
365.1	8 *1*	7302		6937		(M1+E2)	0.25 *16*	α(K)=0.19 *14*; α(L)=0.045 *16*; α(M)=0.0111 *35*; α(N)=0.0029 *9*; α(O)=6.6×10^{-4} *22* α(P)=1.1×10^{-4} *4*; α(Q)=7.E−6 *5* Mult.: from α(K 364.4γ)+α(K 365.1γ)≈0.12 suggesting M1+E2 for both γ′s (1992St09).
370.2	62 *1*	5180.4	19^-	4810.2	18^+	E1	0.02212 *31*	α(K)=0.01792 *25*; α(L)=0.00319 *4*; α(M)=0.000758 *11*; α(N)=0.0001983 *28* α(O)=4.45×10^{-5} *6*; α(P)=7.49×10^{-6} *10*; α(Q)=5.03×10^{-7} *7* Mult.: from α(K)exp<0.022; A_2=−0.27 *6*; A_4=0 (1992St09).
371.7	73 *3*	3850.1	14^+	3478.4	14^+	M1	0.395 *6*	α(K)=0.318 *4*; α(L)=0.0581 *8*; α(M)=0.01386 *19*; α(N)=0.00365 *5*; α(O)=0.000834 *12* α(P)=0.0001454 *20*; α(Q)=1.140×10^{-5} *16* Mult.: from α(K)exp=0.33 *2*; α(L)exp=0.070 *6*; α(M)exp=0.016 *4* (1992St09). A_2=+0.30 *3*, A_4=−0.01 *10* (1992St09).
408.7	30 *2*	4810.2	18^+	4401.5	17^-	E1	0.01790 *25*	α(K)=0.01453 *20*; α(L)=0.00256 *4*; α(M)=0.000607 *8*; α(N)=0.0001589 *22*; α(O)=3.57×10^{-5} *5* α(P)=6.03×10^{-6} *8*; α(Q)=4.12×10^{-7} *6* Mult.: from α(K 408.7γ+K 407γ)<0.02 with contribution from the E1, 407γ in ^{215}Ra; A_2=−0.4 *1*; A_4=0 (1992St09).

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(HI,xnγ) 1992St09 (continued)

γ(^{214}Ra) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	α	Comments
438.6	4 *1*	7016		6577	(25$^-$)			
464.8	3 *1*	7394		6929	(24$^+$)			
475.7	12 *2*	6766	(+)	6290	22$^+$	(M1)	0.2027 *28*	α(K)=0.1635 *23*; α(L)=0.0297 *4*; α(M)=0.00708 *10*; α(N)=0.001866 *26*; α(O)=0.000426 *6* α(P)=7.43×10^{-5} *10*; α(Q)=5.83×10^{-6} *8* Mult.: from α(K)exp=0.053 *4*; α(M)exp=0.015 *2* with contribution from overlaping conversion-electron lines of other E2 transitions in ^{216}Ra, and another γ in ^{214}Ra and an E2 transition in ^{212}Rn (1992St09).
475.7	1 *1*	7870	(24$^+$)	7394				
486.3	6 *1*	5948	(21)$^-$	5462	20$^-$			
540.0	7 *1*	5462	20$^-$	4921.9	19$^-$	(M1)	0.1444 *20*	α(K)=0.1166 *16*; α(L)=0.02110 *30*; α(M)=0.00503 *7*; α(N)=0.001325 *19*; α(O)=0.000302 *4* α(P)=5.27×10^{-5} *7*; α(Q)=4.14×10^{-6} *6* Mult.: from α(K)exp>0.047 (1992St09).
540.7	3 *1*	7118	(−)	6577	(25$^-$)	(M1)	0.1439 *20*	α(K)=0.1162 *16*; α(L)=0.02103 *29*; α(M)=0.00501 *7*; α(N)=0.001320 *18*; α(O)=0.000301 *4* α(P)=5.26×10^{-5} *7*; α(Q)=4.13×10^{-6} *6* Mult.: from α(K)exp>0.047 (1992St09).
557.8	10 *1*	5948	(21)$^-$	5390.3	21$^-$	M1	0.1324 *19*	α(K)=0.1070 *15*; α(L)=0.01934 *27*; α(M)=0.00461 *6*; α(N)=0.001214 *17*; α(O)=0.000277 *4* α(P)=4.83×10^{-5} *7*; α(Q)=3.80×10^{-6} *5* Mult.,δ: from α(K)exp=0.15 *2* resulted in δ=0.0 *2* (1992St09).
573.0	8 *2*	4810.2	18$^+$	4237.2	16$^+$	[E2]	0.0282 *4*	α(K)=0.01940 *27*; α(L)=0.00661 *9*; α(M)=0.001681 *24*; α(N)=0.000444 *6*; α(O)=9.79×10^{-5} *14* α(P)=1.578×10^{-5} *22*; α(Q)=6.98×10^{-7} *10*
573.2	300 *5*	3256.4	12$^+$	2683.2	11$^-$	E1	0.00898 *13*	α(K)=0.00735 *10*; α(L)=0.001245 *17*; α(M)=0.000294 *4*; α(N)=7.71×10^{-5} *11* α(O)=1.740×10^{-5} *24*; α(P)=2.97×10^{-6} *4*; α(Q)=2.133×10^{-7} *30* Mult.: from α(K)exp=0.0077 *7*; A_2=−0.23 *3*; A_4=0 (1992St09); A_2=−0.18 *4*; A_4=−0.01 *5*; polarization P(θ)=0.13 *16* (1979Ho06). E_γ: other: 573.0 (1979Ho06).
582.6	8 *4*	6613	23$^-$	6030	22$^-$	[M1]	0.1180 *17*	α(K)=0.0953 *13*; α(L)=0.01721 *24*; α(M)=0.00410 *6*; α(N)=0.001080 *15* α(O)=0.0002465 *35*; α(P)=4.30×10^{-5} *6*; α(Q)=3.38×10^{-6} *5*
582.9	20 *5*	4984	18$^-$	4401.5	17$^-$	M1	0.1178 *16*	α(K)=0.0952 *13*; α(L)=0.01719 *24*; α(M)=0.00409 *6*; α(N)=0.001079 *15* α(O)=0.0002462 *34*; α(P)=4.30×10^{-5} *6*; α(Q)=3.38×10^{-6} *5* Mult.: from α(K)=0.09 *1* with contribution from the α(K 582.6γ) line (1992St09).
603.8	7 *1*	6660		6057	22$^+$			
609.3	252 *2*	2683.2	11$^-$	2073.9	8$^+$	E3	0.0766 *11*	α(K)=0.0416 *6*; α(L)=0.0259 *4*; α(M)=0.00685 *10*; α(N)=0.001817 *25*; α(O)=0.000398 *6* α(P)=6.30×10^{-5} *9*; α(Q)=2.090×10^{-6} *29* Mult.: from α(K)exp=0.042 *3*; α(L)exp=0.028 *2*; α(M)exp=0.0067 *6*; A_2=+0.31 *3*; A_4=+0.03 *4* (1992St09); A_2=+0.39 *5*; A_4=+0.02 *6*; polarization P(θ)=0.39 *21* (1979Ho06). E_γ: other: 608.8 (1979Ho06).

Continued on next page (footnotes at end of table)

(HI,xnγ) 1992St09 (continued)

γ(^{214}Ra) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	α	Comments
639.8	19 *1*	6030	22^-	5390.3	21^-	M1	0.0920 *13*	α(K)=0.0744 *10*; α(L)=0.01340 *19*; α(M)=0.00319 *4*; α(N)=0.000841 *12* α(O)=0.0001919 *27*; α(P)=3.35×10^{-5} *5*; α(Q)=2.63×10^{-6} *4* Mult.,δ: from α(K)exp=0.12 *2* resulted in δ=0.0 *3* (1992St09); A_2=−0.58 *15*; A_4=0.3 *2* (1992St09).
646.2	138 *2*	3329.4	12^+	2683.2	11^-	E1	0.00712 *10*	α(K)=0.00584 *8*; α(L)=0.000977 *14*; α(M)=0.0002306 *32*; α(N)=6.04×10^{-5} *8* α(O)=1.367×10^{-5} *19*; α(P)=2.339×10^{-6} *33*; α(Q)=1.706×10^{-7} *24* Mult.: from α(K)exp<0.016; A_2=−0.24 *3*; A_4=0 (1992St09); A_2=−0.15 *4*; A_4=−0.08 *5*, polarization P(θ)=0.04 *24* (1979Ho06). E_γ: other: 645.8 (1979Ho06).
663.4	47 *3*	4810.2	18^+	4146.8	17^-	E1	0.00677 *9*	α(K)=0.00555 *8*; α(L)=0.000928 *13*; α(M)=0.0002188 *31*; α(N)=5.74×10^{-5} *8* α(O)=1.297×10^{-5} *18*; α(P)=2.221×10^{-6} *31*; α(Q)=1.626×10^{-7} *23* Mult.: from α(K)exp=0.009 *7*; A_2=−0.27 *7*; A_4=0 (1992St09).
665.9	2 *1*	7243		6577	(25^-)			
666.3	61 *6*	6057	22^+	5390.3	21^-	E1	0.00672 *9*	α(K)=0.00551 *8*; α(L)=0.000920 *13*; α(M)=0.0002169 *30*; α(N)=5.69×10^{-5} *8* α(O)=1.286×10^{-5} *18*; α(P)=2.202×10^{-6} *31*; α(Q)=1.613×10^{-7} *23* Mult.: from α(K)exp<0.007; A_2=−0.27 *7*; A_4=0 (1992St09).
668.4	312 *4*	4146.8	17^-	3478.4	14^+	E3	0.0591 *8*	α(K)=0.0343 *5*; α(L)=0.01837 *26*; α(M)=0.00483 *7*; α(N)=0.001280 *18*; α(O)=0.000282 *4* α(P)=4.49×10^{-5} *6*; α(Q)=1.646×10^{-6} *23* Mult.: from α(K)exp=0.034 *1*; α(L)exp=0.019 *1*; α(M)exp=0.006 *1*; A_2=+0.38 *3*; A_4=−0.01 *4* (1992St09).
691.7	39 *4*	4170.1	15^-	3478.4	14^+	E1	0.00626 *9*	α(K)=0.00513 *7*; α(L)=0.000854 *12*; α(M)=0.0002014 *28*; α(N)=5.28×10^{-5} *7* α(O)=1.195×10^{-5} *17*; α(P)=2.048×10^{-6} *29*; α(Q)=1.506×10^{-7} *21* Mult.: from α(K)exp<0.008 (1992St09).
727.5	6 *1*	6118		5390.3	21^-			
758.8	22 *1*	4237.2	16^+	3478.4	14^+	E2	0.01552 *22*	α(K)=0.01147 *16*; α(L)=0.00304 *4*; α(M)=0.000756 *11*; α(N)=0.0001992 *28* α(O)=4.44×10^{-5} *6*; α(P)=7.33×10^{-6} *10*; α(Q)=4.00×10^{-7} *6* Mult.: from α(K)exp=0.02 *1*; α(L)exp=0.006 *3*; A_2=+0.15 *13* (1992St09).
760.8	8 *1*	4931	17^-	4170.1	15^-	E2	0.01543 *22*	α(K)=0.01142 *16*; α(L)=0.00302 *4*; α(M)=0.000750 *11*; α(N)=0.0001978 *28* α(O)=4.41×10^{-5} *6*; α(P)=7.28×10^{-6} *10*; α(Q)=3.98×10^{-7} *6* Mult.: from α(K)exp=0.014 *7*; α(L)exp=0.009 *7* (1992St09).
768.2	17 *1*	4618.3	16^+	3850.1	14^+	E2	0.01513 *21*	α(K)=0.01122 *16*; α(L)=0.00294 *4*; α(M)=0.000731 *10*; α(N)=0.0001928 *27*

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(HI,xnγ) 1992St09 (continued)

γ(^{214}Ra) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α	Comments
								α(O)=4.30×10^{-5} *6*; α(P)=7.10×10^{-6} *10*; α(Q)=3.91×10^{-7} *5* Mult.: from α(K)exp=0.016 *5*; α(L)exp=0.009 *7* (1992St09).
775.1	134 *5*	4921.9	19$^-$	4146.8	17$^-$	E2	0.01486 *21*	α(K)=0.01104 *15*; α(L)=0.00287 *4*; α(M)=0.0007141 *99*; α(N)=0.0001882 *26* α(O)=4.20×10^{-5} *6*; α(P)=6.94×10^{-6} *10*; α(Q)=3.84×10^{-7} *5* Mult.: from α(K)exp=0.010 *1*; α(L)exp=0.004 *1*; α(M)exp=0.007 *4*; A_2=+0.24 *8*; A_4=−0.19 *10* (1992St09).
778.9	94 *3*	5180.4	19$^-$	4401.5	17$^-$	E2	0.01471 *21*	α(K)=0.01094 *15*; α(L)=0.00284 *4*; α(M)=0.000705 *10*; α(N)=0.0001858 *26* α(O)=4.14×10^{-5} *6*; α(P)=6.85×10^{-6} *10*; α(Q)=3.80×10^{-7} *5* Mult.: from α(K)exp=0.013 *1*; α(L)exp=0.004 *1*; α(M)exp=0.001 *1*; A_2=+0.29 *8*; A_4=−0.08 *13* (1992St09).
812.8	18 *1*	6057	22$^+$	5243.8	20$^+$	E2	0.01350 *19*	α(K)=0.01012 *14*; α(L)=0.00255 *4*; α(M)=0.000631 *9*; α(N)=0.0001662 *23*; α(O)=3.71×10^{-5} *5* α(P)=6.16×10^{-6} *9*; α(Q)=3.50×10^{-7} *5* Mult.: from α(K)exp=0.012 *2* (1992St09).
818.0	281 *4*	2683.2	11$^-$	1865.2	8$^+$	E3	0.0350 *5*	α(K)=0.02271 *32*; α(L)=0.00915 *13*; α(M)=0.002364 *33*; α(N)=0.000626 *9* α(O)=0.0001386 *19*; α(P)=2.248×10^{-5} *31*; α(Q)=9.98×10^{-7} *14* Mult.: from α(K)exp=0.0226 *5*; α(L)exp=0.0075 *4*; α(M)exp=0.0018 *2*; A_2=+0.30 *3* (1992St09) α(M)exp=0.018 *2* in 1992St09 appears to be a typo; A_2=+0.42 *6*; A_4=−0.01 *7*; polarization P(θ)=0.63 *24* (1979Ho06). E_γ: other: 817.4 (1979Ho06).
899.7	7 *1*	6290	22$^+$	5390.3	21$^-$	[E1]	0.00385 *5*	α(K)=0.00317 *4*; α(L)=0.000517 *7*; α(M)=0.0001215 *17*; α(N)=3.19×10^{-5} *4*; α(O)=7.23×10^{-6} *10* α(P)=1.247×10^{-6} *17*; α(Q)=9.43×10^{-8} *13*
1078.9	182 *3*	2944.1	10$^+$	1865.2	8$^+$	E2	0.00779 *11*	α(K)=0.00607 *9*; α(L)=0.001296 *18*; α(M)=0.000315 *4*; α(N)=8.31×10^{-5} *12* α(O)=1.869×10^{-5} *26*; α(P)=3.16×10^{-6} *4*; α(Q)=2.050×10^{-7} *29* Mult.: from α(K)exp=0.0079 *12*; α(L)exp=0.0011 *1*; α(M)exp=0.0004 *1*; A_2=+0.21 *5*; A_4=−0.14 *8* (1992St09); A_2=+0.32 *5*; A_4=−0.11 *7*; polarization P(θ)=0.6 *3* (1979Ho06). E_γ: other: 1078.4 (1979Ho06).
1088.2	39 *1*	3771.4	13$^-$	2683.2	11$^-$	E2	0.00766 *11*	α(K)=0.00598 *8*; α(L)=0.001271 *18*; α(M)=0.000309 *4*; α(N)=8.14×10^{-5} *11* α(O)=1.832×10^{-5} *26*; α(P)=3.10×10^{-6} *4*; α(Q)=2.018×10^{-7} *28* Mult.: from α(K)exp=0.0035 *10*; α(L)exp=0.0017 *6*; A_2=+0.23 *10*; A_4=−0.18 16 (1992St09).
1222.3	27 *1*	6613	23$^-$	5390.3	21$^-$	E2	0.00616 *9*	α(K)=0.00486 *7*; α(L)=0.000982 *14*; α(M)=0.0002376 *33*; α(N)=6.26×10^{-5} *9* α(O)=1.411×10^{-5} *20*; α(P)=2.400×10^{-6} *34*;

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(HI,xnγ) 1992St09 (continued)

γ(^{214}Ra) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α	Comments
								α(Q)=1.627×10^{-7} *23* Mult.: from α(K)exp=0.0055 *5*; A_2=+0.14 *8* (1992St09).
1304.9	4 *1*	7870	(24$^+$)	6565	23$^+$	(M1)	0.01422 *20*	α(K)=0.01151 *16*; α(L)=0.002034 *28*; α(M)=0.000483 *7*; α(N)=0.0001273 *18* α(O)=2.91×10^{-5} *4*; α(P)=5.08×10^{-6} *7*; α(Q)=4.03×10^{-7} *6* Mult.: from α(K)exp=0.018 *7* (1992St09).
1382.4	1000 *9*	1382.4	2$^+$	0.0	0$^+$	E2	0.00493 *7*	α(K)=0.00390 *5*; α(L)=0.000755 *11*; α(M)=0.0001816 *25*; α(N)=4.78×10^{-5} *7* α(O)=1.081×10^{-5} *15*; α(P)=1.848×10^{-6} *26*; α(Q)=1.297×10^{-7} *18* Mult.: from α(K)exp=0.0039 *1*; α(L)exp=0.00067 *2*; α(M)exp=0.00014 *3* (1992St09). E_γ: others: 1381.2 *10* (1971MaXI, 1971MaXH) and 1381.9 *5* (2004He25).
1387.9	7 *1*	7870	(24$^+$)	6482	23$^+$	(M1)	0.01214 *17*	α(K)=0.00980 *14*; α(L)=0.001730 *24*; α(M)=0.000411 *6*; α(N)=0.0001082 *15* α(O)=2.471×10^{-5} *35*; α(P)=4.32×10^{-6} *6*; α(Q)=3.43×10^{-7} *5* Mult.: from α(K)exp=0.012 *4* (1992St09).

† From 1992St09.
‡ Deduced from ce and γ(θ) data (1992St09).

(HI,xnγ) 1992St09

Level Scheme

Intensities: Relative I_γ

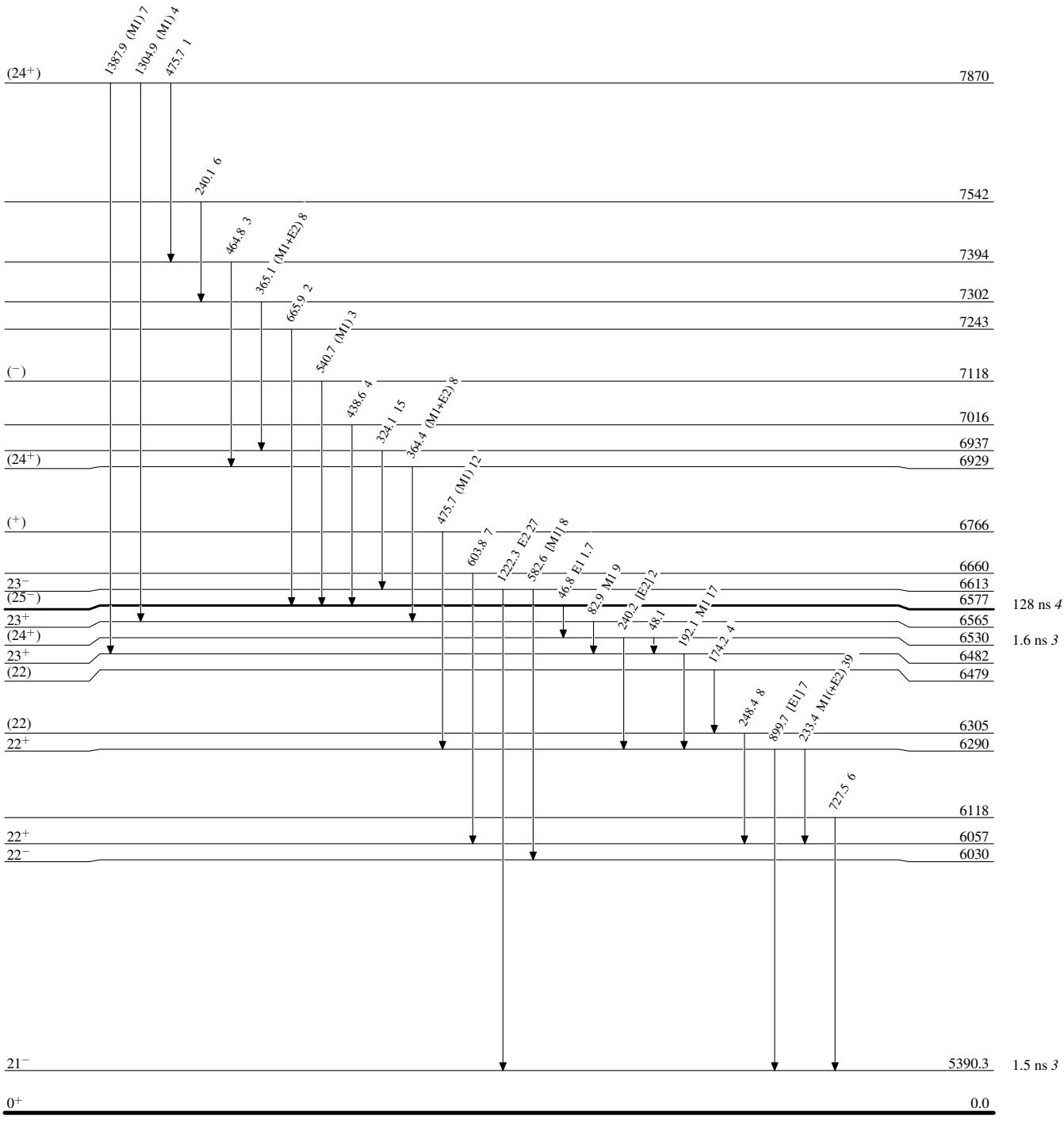
Legend

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

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

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

γ Decay (Uncertain)



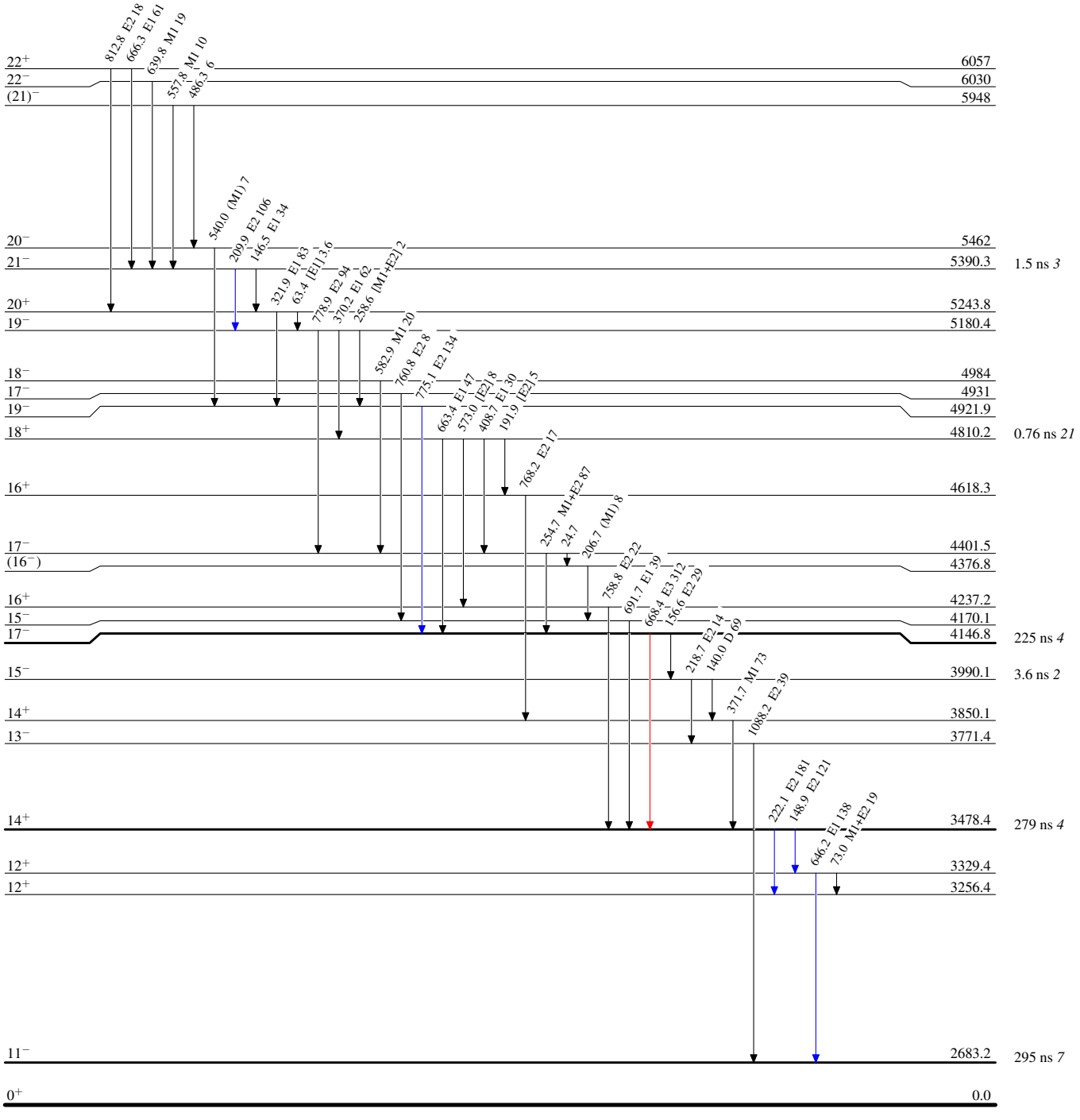
$^{214}_{88}Ra_{126}$

(HI,xnγ) 1992St09

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)

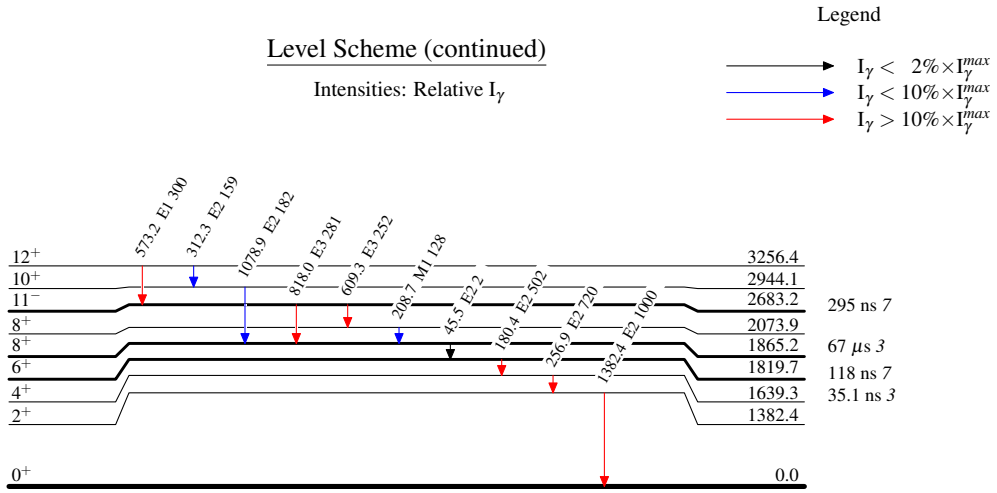


$^{214}_{88}Ra_{126}$

(HI,xnγ) 1992St09

Level Scheme (continued)

Intensities: Relative I_γ



$^{214}_{88}Ra_{126}$