^{70}Ge(^{16}O,2n2pγ) 1985Ha30

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. K. Tuli, E. Browne	NDS 157, 260 (2019)	1-Mar-2019

E=80 MeV. Enriched target. Ge(Li), FWHM=2.7 keV and 2.4 keV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, linear polarization.
See also ^{72}Ge(^{12}C,2nγ), ^{66}Zn(^{19}F,p2nγ), and ^{79}Br(^{6}Li,3nγ) measurements of 1981DeYW (measured γ, $\gamma\gamma$, $\gamma(\theta)$, γ(t)) and ^{68}Zn(^{16}O,2nγ) measurement of 1974No08.

^{82}Sr Levels

E(level)	J$^\pi$†	T$_{1/2}$‡	E(level)	J$^\pi$†	T$_{1/2}$‡	E(level)	J$^\pi$†	T$_{1/2}$‡
0	0$^+$		2836.28 *12*	6$^+$	0.6 ps *4*	4350.33 *17*	10$^+$	
573.57 *8*	2$^+$	8.9 ps *4*	3086.28 *12*	6$^-$		4367.16 *15*	9$^-$	
1175.69 *8*	2$^+$	7.5 ps *24*	3242.85 *14*	8$^+$		4386.99 *16*	(9$^-$)	
1328.47 *10*	4$^+$	1.0 ps *2*	3477.88 *19*	7$^+$		4423.88 *15*	(10$^+$)	0.9 ps *2*
1689.35 *12*	3$^+$		3510.91 *17*	(7)$^-$		5308.49 *18*	11$^-$	
1995.99 *11*	4$^+$	1.3 ps *4*	3525.93 *13*	7$^-$		5392.42 *19*		
2229.51 *12*	6$^+$	0.9 ps *1*	3566.03 *14*	7$^-$		5427.15 *18*	12$^+$	
2401.96 *11*	3$^-$		3608.37 *14*	7$^-$		5914.51 *21*	12$^-$	
2526.73 *16*	5$^+$		3622.81 *13*	8$^+$	0.7 ps *4*	6364.52 *21*	13$^-$	
2817.29 *12*	5$^-$	3.0 ps *6*	3686.13 *17*	(8$^+$)		6544.06 *21*	14$^+$	
2824.67 *13*	4$^-$		4197.0? *10*			7827.8? *5*		

† From Adopted Levels.
‡ From recoil-distance Doppler shift observed in ^{66}Zn(^{19}F,p2nγ) (1981DeYW).

γ(^{82}Sr)

E_γ[†]	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡b]	α[a]	Comments
[x]85.35 10	6.5 9								
[x]156.94[@] 10	0.93 6								
261.83 10	1.8 2	3086.28	6^-	2824.67	4^-				
269.02 10	1.7 2	3086.28	6^-	2817.29	5^-				
379.96 10	2.0 2	3622.81	8^+	3242.85	8^+				
[x]403.91[@] 10	6.7 5								
406.47[d] 10	3.2 3	2401.96	3^-	1995.99	4^+				
415.17[#] 10	1.5 15	2817.29	5^-	2401.96	3^-				
[x]423.51[@] 10	6.2 5					M1(+E2)	−0.5 5	0.0043 7	α(K)=0.0038 6; α(L)=0.00043 8; α(M)=7.2×10^{-5} 13 α(N)=8.9×10^{-6} 15; α(O)=5.7×10^{-7} 8 P(lin pol)=−0.02 12.
439.88 10	3.9 3	3525.93	7^-	3086.28	6^-				
443.28 10	3.5 3	3686.13	(8^+)	3242.85	8^+				
511[d]		4197.0?		3686.13	(8^+)				
513.7[#] 2	10.3 8	1689.35	3^+	1175.69	2^+				
522.09[c] 10	9.6[c] 7	3608.37	7^-	3086.28	6^-	(M1+E2)	−0.7 5	0.0027 3	α(K)=0.00234 22; α(L)=0.00026 3; α(M)=4.4×10^{-5} 5 α(N)=5.5×10^{-6} 6; α(O)=3.5×10^{-7} 3
522.09[c@d] 10	9.6[c] 7	5914.51	12^-	5392.42		(M1+E2)	−0.7 5	0.0027 3	α(K)=0.00234 22; α(L)=0.00026 3; α(M)=4.4×10^{-5} 5 α(N)=5.5×10^{-6} 6; α(O)=3.5×10^{-7} 3 P(lin pol)=0.13 7.
[x]534.11 10	4.3 4								
[x]537.00 10	6.5 5								
[x]569.57 10	12.6 9								
573.64 10	100 7	573.57	2^+	0	0^+	E2		0.00245	α(K)=0.00216 3; α(L)=0.000243 4; α(M)=4.07×10^{-5} 6 α(N)=5.07×10^{-6} 7; α(O)=3.16×10^{-7} 5 P(lin pol)=0.30 3.
[x]598.56 10	8.0 6								
602.15 10	24.0 17	1175.69	2^+	573.57	2^+	M1(+E2)	+1.2 14	0.00196 24	α(K)=0.00173 21; α(L)=0.00019 3; α(M)=3.2×10^{-5} 5 α(N)=4.0×10^{-6} 6; α(O)=2.6×10^{-7} 3 P(lin pol)=−0.09 6.
606.65 10	11.7 8	2836.28	6^+	2229.51	6^+	M1(+E2)	+0.2 3	0.00170 7	α(K)=0.00150 6; α(L)=0.000163 8; α(M)=2.74×10^{-5} 13 α(N)=3.45×10^{-6} 16; α(O)=2.26×10^{-7} 8 P(lin pol)=0.1 6.
667.53 10	7.5 5	1995.99	4^+	1328.47	4^+	M1(+E2)	+0.3 7	0.00137 11	α(K)=0.00122 10; α(L)=0.000132 12; α(M)=2.22×10^{-5} 20 α(N)=2.79×10^{-6} 24; α(O)=1.82×10^{-7} 12 P(lin pol)=−0.31 20.
694.04[@d] 10	23.7 17	3510.91	$(7)^-$	2817.29	5^-	E2		1.44×10^{-3}	α(K)=0.001273 18; α(L)=0.0001413 20;

γ(^{82}Sr) (continued)

E$_\gamma$[†]	I$_\gamma$	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.[‡]	α[a]	Comments
								α(M)=2.37×10^{-5} *4* α(N)=2.96×10^{-6} *5*; α(O)=1.87×10^{-7} *3* P(lin pol)=0.57 11.
712.4 *1*	2.4 *2*	2401.96	3$^-$	1689.35	3$^+$			
754.9[#] *1*	69 *4*	1328.47	4$^+$	573.57	2$^+$	E2	1.15×10^{-3}	α(K)=0.001020 *15*; α(L)=0.0001127 *16*; α(M)=1.89×10^{-5} *3* α(N)=2.36×10^{-6} *4*; α(O)=1.503×10^{-7} *21* P(lin pol)=0.47 8.
758.8[#] *1*	7.3 *6*	4367.16	9$^-$	3608.37	7$^-$			
786.36 *10*	22.7 *15*	3622.81	8$^+$	2836.28	6$^+$	E2	1.04×10^{-3}	α(K)=0.000918 *13*; α(L)=0.0001013 *15*; α(M)=1.699×10^{-5} *24* α(N)=2.12×10^{-6} *3*; α(O)=1.355×10^{-7} *19* P(lin pol)=0.46 11.
801.11[c] *10*	24.4[c] *19*	4367.16	9$^-$	3566.03	7$^-$	(E2)	9.91×10^{-4}	α(K)=0.000876 *13*; α(L)=9.65×10^{-5} *14*; α(M)=1.620×10^{-5} *23* α(N)=2.02×10^{-6} *3*; α(O)=1.293×10^{-7} *19* P(lin pol)=0.61 8.
801.11[c] *10*	24.4[c] *19*	4423.88	(10$^+$)	3622.81	8$^+$	(E2)	9.91×10^{-4}	α(K)=0.000876 *13*; α(L)=9.65×10^{-5} *14*; α(M)=1.620×10^{-5} *23* α(N)=2.02×10^{-6} *3*; α(O)=1.293×10^{-7} *19* P(lin pol)=0.61 8.
[x]802.95 *10*	16.0 *12*							
820.25 *10*	16.6 *13*	1995.99	4$^+$	1175.69	2$^+$	E2	9.34×10^{-4}	α(K)=0.000826 *12*; α(L)=9.08×10^{-5} *13*; α(M)=1.524×10^{-5} *22* α(N)=1.91×10^{-6} *3*; α(O)=1.219×10^{-7} *17* P(lin pol)=0.67 10.
837.37 *10*	9.7 *7*	2526.73	5$^+$	1689.35	3$^+$			
840.24 *10*	23.3 *18*	2836.28	6$^+$	1995.99	4$^+$	E2	8.79×10^{-4}	α(K)=0.000778 *11*; α(L)=8.54×10^{-5} *12*; α(M)=1.434×10^{-5} *20* α(N)=1.79×10^{-6} *3*; α(O)=1.148×10^{-7} *16* P(lin pol)=0.51 22.
841.3 *3*	7.7 *9*	4367.16	9$^-$	3525.93	7$^-$			
876.0[@] *1*	7.2 *13*	4386.99	(9$^-$)	3510.91	(7)$^-$	(E2)	7.93×10^{-4}	α(K)=0.000702 *10*; α(L)=7.69×10^{-5} *11*; α(M)=1.291×10^{-5} *18* α(N)=1.616×10^{-6} *23*; α(O)=1.037×10^{-7} *15*
900.84 *10*	48 *3*	2229.51	6$^+$	1328.47	4$^+$	E2	7.41×10^{-4}	α(K)=0.000656 *10*; α(L)=7.18×10^{-5} *10*; α(M)=1.205×10^{-5} *17* α(N)=1.508×10^{-6} *22*; α(O)=9.70×10^{-8} *14* P(lin pol)=0.66 10.
941.32 *10*	10.7 *8*	5308.49	11$^-$	4367.16	9$^-$	E2	6.67×10^{-4}	α(K)=0.000590 *9*; α(L)=6.45×10^{-5} *9*; α(M)=1.082×10^{-5} *16* α(N)=1.356×10^{-6} *19*; α(O)=8.73×10^{-8} *13* P(lin pol)=0.26 16.
951.15 *10*	5.7 *4*	3477.88	7$^+$	2526.73	5$^+$			
1003.26 *10*	17.3 *13*	5427.15	12$^+$	4423.88	(10$^+$)	E2	5.74×10^{-4}	α(K)=0.000508 *8*; α(L)=5.54×10^{-5} *8*; α(M)=9.30×10^{-6} *13* α(N)=1.165×10^{-6} *17*; α(O)=7.53×10^{-8} *11* P(lin pol)=0.66 32.
1005.43[&] *10*	8.5 *8*	5392.42		4386.99	(9$^-$)			
1013.36 *10*	22.1 *15*	3242.85	8$^+$	2229.51	6$^+$	E2	5.61×10^{-4}	α(K)=0.000497 *7*; α(L)=5.41×10^{-5} *8*; α(M)=9.08×10^{-6} *13* α(N)=1.138×10^{-6} *16*; α(O)=7.36×10^{-8} *11* P(lin pol)=−0.05 14.

γ(^{82}Sr) (continued)

E_γ †	I_γ	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡b	α a	Comments
1056.03 *10*	3.2 *3*	6364.52	13$^-$	5308.49	11$^-$	E2		5.11×10^{-4}	α(K)=0.000452 *7*; α(L)=4.92×10^{-5} *7*; α(M)=8.25×10^{-6} *12* α(N)=1.034×10^{-6} *15*; α(O)=6.70×10^{-8} *10* P(lin pol)=0.54 57.
^{x}1058.87 *10*	5.1 *4*								
^{x}1085.90 *10*	1.5 *6*								
1107.47 *10*	4.8 *4*	4350.33	10$^+$	3242.85	8$^+$				
1115.8 *2*	9.1 *7*	1689.35	3$^+$	573.57	2$^+$				
1116.9 *1*	9.8 *8*	6544.06	14$^+$	5427.15	12$^+$				
1135.52 *10*	2.7 *2*	2824.67	4$^-$	1689.35	3$^+$	E1(+M2)	+0.03 *5*	2.11×10^{-4} *5*	α(K)=0.000175 *5*; α(L)=1.86×10^{-5} *5*; α(M)=3.12×10^{-6} *9* α(N)=3.93×10^{-7} *11*; α(O)=2.58×10^{-8} *7*; α(IPF)=1.430×10^{-5} *22* P(lin pol)=−0.52 29.
1144.20& *10*	6.3 *5*	4386.99	(9$^-$)	3242.85	8$^+$				
^{x}1163.74 *10*	1.8 *2*								
1175.6 *1*	2.5 *2*	1175.69	2$^+$	0	0$^+$				
1180.98 *10*	2.0 *2*	4423.88	(10$^+$)	3242.85	8$^+$				
^{x}1196.6 *2*	2.0 *2*								
^{x}1268.7 *5*	1.5 *2*								
1281.1 *2*	1.1 *2*	3510.91	(7)$^-$	2229.51	6$^+$				
1283.9^d *4*	0.8 *3*	7827.8?		6544.06	14$^+$				
1296.19 *10*	7.4 *5*	3525.93	7$^-$	2229.51	6$^+$	D+Q	+0.5 *5*		P(lin pol)=0.49 21.
1336.49 *10*	3.9 *14*	3566.03	7$^-$	2229.51	6$^+$				
1393.5 *1*	4.1 *14*	3622.81	8$^+$	2229.51	6$^+$				
1489.00 *10*	11.9 *16*	2817.29	5$^-$	1328.47	4$^+$	E1		3.59×10^{-4}	α(K)=0.0001086 *16*; α(L)=1.154×10^{-5} *17*; α(M)=1.93×10^{-6} *3* α(N)=2.43×10^{-7} *4*; α(O)=1.602×10^{-8} *23*; α(IPF)=0.000237 *4* P(lin pol)=−0.24 43.
^{x}1551.0 *5*	0.8 *2*								
1828.4 *1*	0.7 *2*	2401.96	3$^-$	573.57	2$^+$				

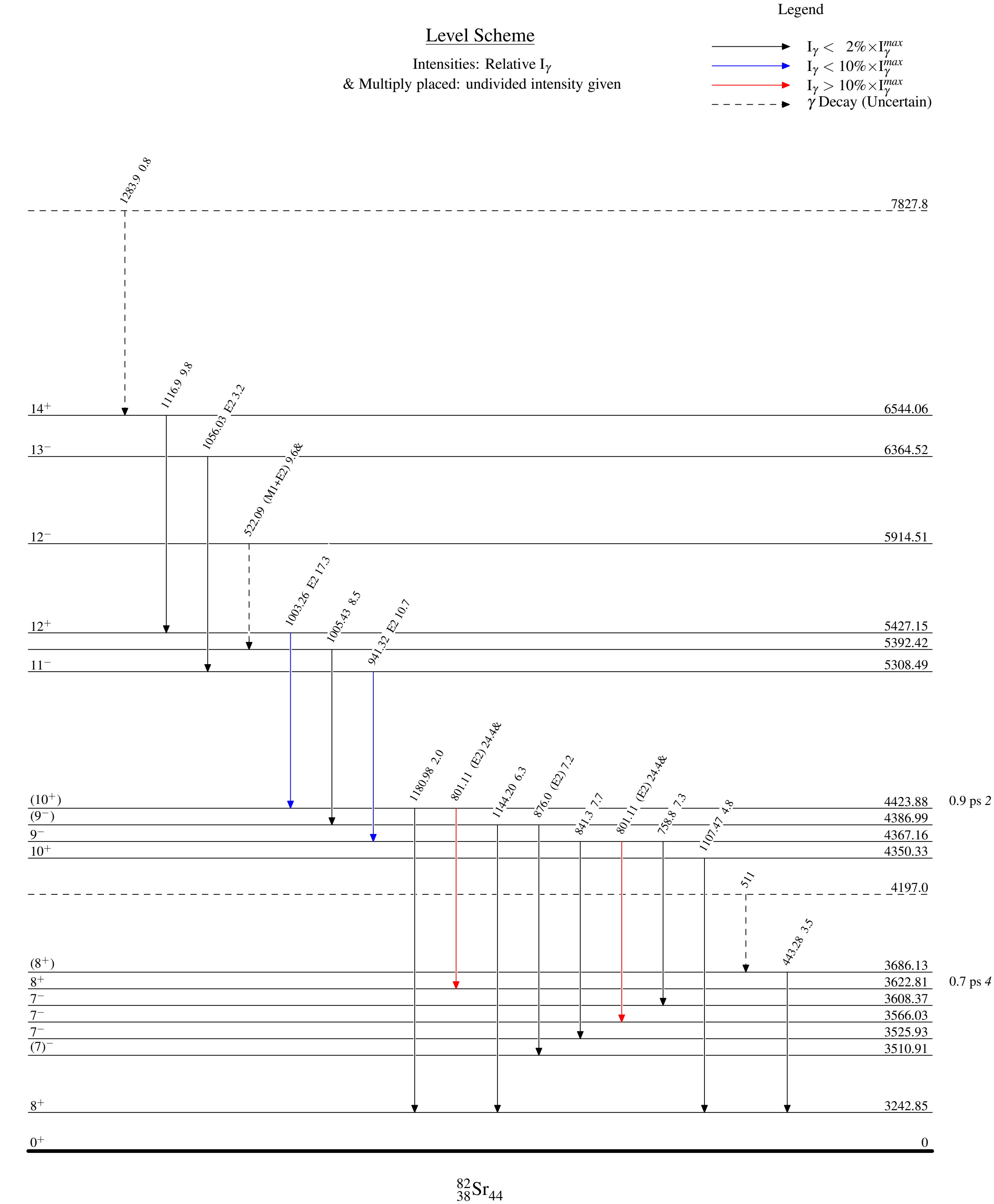
† Uncertainties are underestimated by 1985Ha30 as indicated by the Ritz combination principle. Evaluators set all smaller $\Delta E\gamma$ to 0.1 keV.
‡ From $\gamma(\theta)$ and linear polarization.
\# Uncertainty increased to account for contaminant.
@ Probably misplaced by 1985Ha30, as indicated by 1994Ta01 who studied the reaction (^{29}Si,2pnγ).
& Not confirmed in (^{29}Si,2pnγ).
a Additional information 1.
b If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.
c Multiply placed with undivided intensity.
d Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

$^{82}_{38}$Sr$_{44}$-4

$^{70}Ge(^{16}O,2n2p\gamma)$ 1985Ha30

Level Scheme

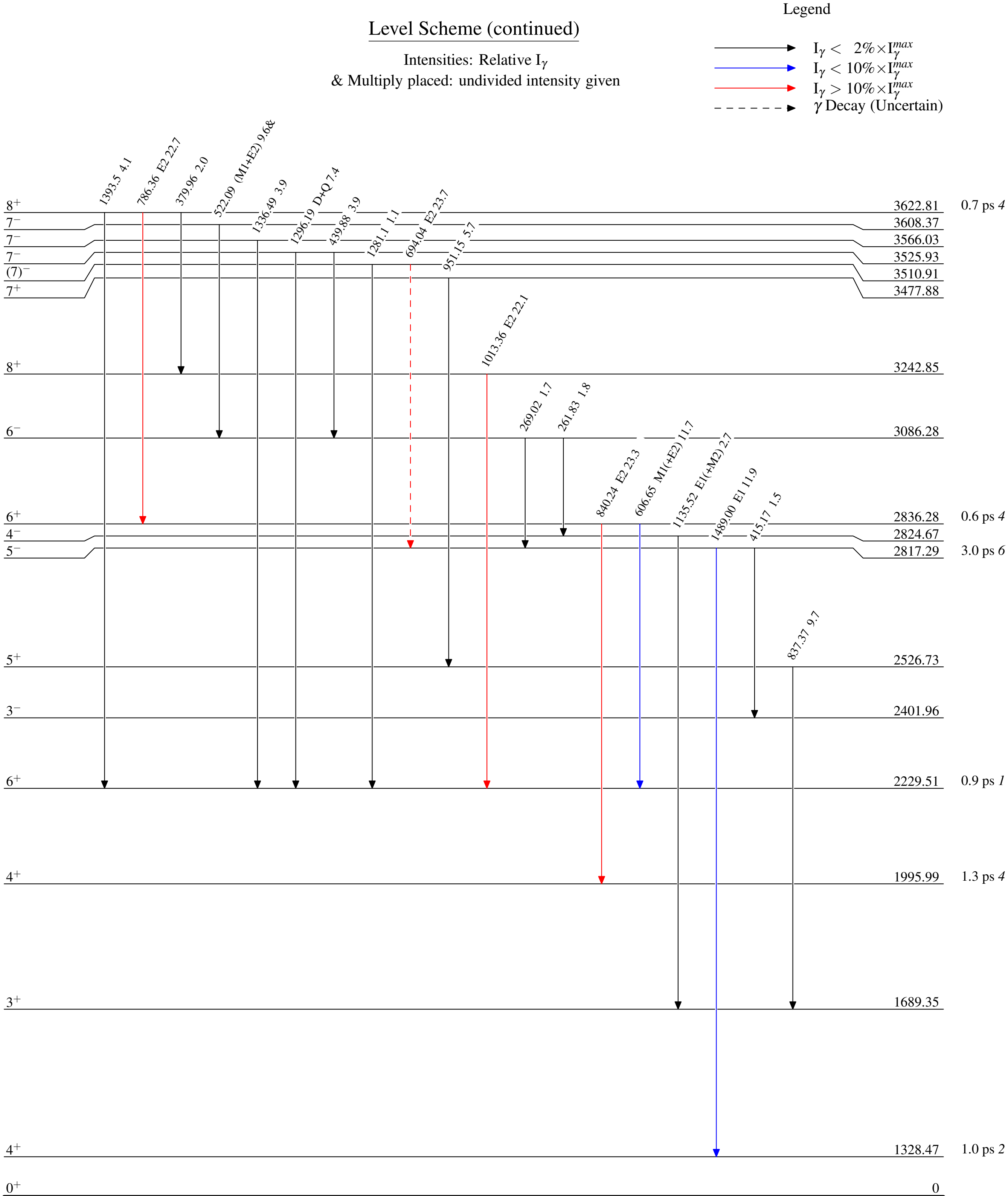
Intensities: Relative I_γ
& Multiply placed: undivided intensity given



$^{70}Ge(^{16}O,2n2p\gamma)$ 1985Ha30

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given



$^{82}_{38}Sr_{44}$

^{70}Ge(^{16}O,2n2pγ) 1985Ha30

Level Scheme (continued)

Intensities: Relative I_γ

& Multiply placed: undivided intensity given