^{92}Mo(^{40}Ca,2pnγ) 2002Ze01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh	NDS 121, 143 (2014)	31-May-2014

2002Ze01: E=170, 184 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO) using CLARION array of 11 segmented Clover Ge spectrometers within BGO anti-Compton shields, and ten single-volume Ge detectors. Charged particles were detected by HyBall array of 95 CsI scintillators in a 4π geometry.

1987WaZK: ^{58}Ni(^{74}Se,2pnγ). BGO shielded Ge array, γ, $\gamma\gamma$-coin. Level scheme from 1987WaZK is a short note giving no details. A strongly-coupled band proposed by 1987WaZK is the same as 7/2[523] band proposed by 2002Ze01, but in 1987WaZK no spin-parity assignments were made and the cascade was known up to Eγ=794 keV, i.e. up to 39/2$^-$.

^{129}Nd Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0+x@	7/2$^-$	1471.8+z[b] 4	17/2$^+$	4321.2+z[c] 5	35/2$^+$	8636.1+y& 12	(53/2$^-$)
0+y&	1/2$^-$	1543.0+x# 3	21/2$^-$	4374.5+x# 4	37/2$^-$	8796.7+x@ 6	(55/2$^-$)
0+z[b]	1/2$^+$	1603.7+y& 4	21/2$^-$	4413.4+z[e] 5	(35/2$^+$)	9024.0+z[c] 7	(55/2$^+$)
21.7+z[c] 3	3/2$^+$	1620.6+z[c] 4	19/2$^+$	4575.7+y& 6	37/2$^-$	9176.9+y[a] 7	(55/2$^-$)
53.8+y[a] 4	3/2$^-$	1730.3+z[e] 4	19/2$^+$	4703.9+z[d] 5	37/2$^+$	9337.2+z[e] 19	(55/2$^+$)
91.0+z[d] 4	5/2$^+$	1843.9+x@ 3	23/2$^-$	4772.2+x@ 4	39/2$^-$	9535.6+x# 6	(57/2$^-$)
99.0+y& 2	5/2$^-$	2034.7+z[d] 4	21/2$^+$	5032.4+y[a] 6	(39/2$^-$)	9643.5+z[d] 7	(57/2$^+$)
130.4+x# 2	9/2$^-$	2067.6+y[a] 4	(23/2$^-$)	5115.8+z[c] 6	39/2$^+$	9796.1+y& 16	(57/2$^-$)
178.8+z[b] 2	5/2$^+$	2076.6+z[b] 4	21/2$^+$	5192.8+z[e] 6	(39/2$^+$)	10019.4+x@ 6	(59/2$^-$)
229.9+z[c] 3	7/2$^+$	2187.3+x# 3	25/2$^-$	5210.8+x# 4	41/2$^-$	10222.2+z[c] 7	(59/2$^+$)
232.6+y[a] 3	7/2$^-$	2236.8+y& 5	25/2$^-$	5487.5+y& 6	41/2$^-$	10416.0+y[a] 8	(59/2$^-$)
236.9+z[e] 4	7/2$^+$	2248.4+z[c] 4	23/2$^+$	5522.2+z[d] 6	41/2$^+$	10857.6+x# 6	(61/2$^-$)
292.6+x@ 2	11/2$^-$	2379.2+z[e] 4	23/2$^+$	5644.3+x@ 4	43/2$^-$	10902.5+z[d] 12	(61/2$^+$)
308.5+y& 3	9/2$^-$	2516.2+x@ 3	27/2$^-$	5935.3+y[a] 6	(43/2$^-$)	11009.1+y& 19	(61/2$^-$)
415.7+z[d] 4	9/2$^+$	2666.0+z[d] 4	25/2$^+$	5973.6+z[c] 6	43/2$^+$	11326.4+x@ 6	(63/2$^-$)
491.0+x# 2	13/2$^-$	2734.9+z[b] 4	(25/2$^+$)	6079.2+z[e] 6	(43/2$^+$)	11511.1+z[c] 8	(63/2$^+$)
497.3+z[b] 3	9/2$^+$	2739.3+y[a] 5	(27/2$^-$)	6142.9+x# 4	(45/2$^-$)	11721.0+y[a] 13	(63/2$^-$)
530.1+y[a] 3	11/2$^-$	2881.7+x# 4	29/2$^-$	6415.4+z[d] 6	(45/2$^+$)	12221.5+z[d] 16	(65/2$^+$)
581.7+z[c] 3	11/2$^+$	2909.7+z[c] 5	27/2$^+$	6472.1+y& 7	45/2$^-$	12263.5+x# 6	(65/2$^-$)
629.3+z[e] 4	11/2$^+$	2949.2+y& 5	29/2$^-$	6606.4+x@ 5	47/2$^-$	12265.1+y& 21	(65/2$^-$)
630.8+y& 3	13/2$^-$	3053.8+z[e] 4	(27/2$^+$)	6901.2+z[c] 7	(47/2$^+$)	12720.4+x@ 7	(67/2$^-$)
710.7+x@ 2	15/2$^-$	3232.5+x@ 4	31/2$^-$	6927.2+y[a] 7	(47/2$^-$)	12892.1+z[c] 13	(67/2$^+$)
868.4+z[d] 4	13/2$^+$	3292.6+z[d] 4	29/2$^+$	7078.2+z[e] 12	(47/2$^+$)	13090.1+y[a] 16	(67/2$^-$)
936.3+z[b] 3	13/2$^+$	3418.6+z[b] 7	(29/2$^+$)	7176.0+x# 5	(49/2$^-$)	13575.5+z[d] 19	(69/2$^+$)
942.8+y[a] 4	15/2$^-$	3459.3+y[a] 5	(31/2$^-$)	7395.6+z[d] 6	(49/2$^+$)	13746.5+x# 12	(69/2$^-$)
969.7+x# 2	17/2$^-$	3594.4+z[c] 5	31/2$^+$	7528.1+y& 7	49/2$^-$	14202.4+x@ 12	(71/2$^-$)
1054.2+z[c] 4	15/2$^+$	3609.8+x# 4	33/2$^-$	7658.3+x@ 5	(51/2$^-$)	14365.1+z[c] 16	(71/2$^+$)
1064.7+y& 4	17/2$^-$	3712.9+z[e] 5	(31/2$^+$)	7916.4+z[c] 7	(51/2$^+$)	14528.1+y[a] 19	(71/2$^-$)
1136.9+z[e] 4	15/2$^+$	3730.4+y& 6	33/2$^-$	8010.9+y[a] 7	(51/2$^-$)	15765.4+x@ 16	(75/2$^-$)
1235.1+x@ 3	19/2$^-$	3960.5+z[d] 5	33/2$^+$	8178.2+z[e] 16	(51/2$^+$)		
1419.4+z[d] 4	17/2$^+$	3978.6+x@ 4	35/2$^-$	8307.3+x# 5	(53/2$^-$)		
1461.8+y[a] 4	19/2$^-$	4214.4+y[a] 6	(35/2$^-$)	8471.7+z[d] 7	(53/2$^+$)		

† From least-squares fit to Eγ data. It should be noted that level energies for band #2: 1/2[541], α=−1/2 as quoted by 2002Ze01 in Table I should be adjusted upwards by 54 keV above the 3/2$^-$ level. Similarly, for band #3, 1/2[411], α=−1/2, energies quoted by

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^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)

^{129}Nd Levels (continued)

2002Ze01 should be adjusted upwards by 22 keV above the $3/2^+$ level. (An e-mail reply on Jan 16/02 from one of the authors D.J. Hartley confirms this change.).

‡ Assignments are as proposed by 2002Ze01, based on γ-ray multipolarities from angular correlation data, band assignments and comparisons with cranked-shell model calculations. All assignments are the same in Adopted Levels, except that parentheses have been added there due to lack of strong supporting arguments.

Band(A): ν7/2[523], α=+1/2.

@ Band(a): ν7/2[523], α=−1/2.

& Band(B): ν1/2[541], α=+1/2.

a Band(b): ν1/2[541], α=−1/2.

b Band(C): ν1/2[411], α=+1/2.

c Band(c): ν1/2[411], α=−1/2.

d Band(D): ν5/2[402], α=+1/2.

e Band(d): ν5/2[402], α=−1/2.

γ(^{129}Nd)

DCO=1 and ≈0.5 is expected for stretched quadrupole and stretched dipole transitions, respectively, when gated on stretched quadrupoles.

E_γ†	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α#	Comments
76.0 *2*	4 *1*	308.5+y	9/2−	232.6+y	7/2−			
99.0 *2*	18 *9*	99.0+y	5/2−	0+y	1/2−	(E2)	2.27	α(K)=1.241 *19*; α(L)=0.801 *14*; α(M)=0.182 *3* α(N)=0.0394 *7*; α(O)=0.00508 *9*; α(P)=5.42×10^{-5} *9* DCO=1.0 *1*.
130.5 *2*		130.4+x	9/2−	0+x	7/2−	(M1+E2)	0.680 *19*	α(K)=0.564 *9*; α(L)=0.091 *13*; α(M)=0.020 *3* α(N)=0.0044 *7*; α(O)=0.00064 *8*; α(P)=3.57×10^{-5} *11* DCO=0.63 *4*.
133.6 *2*	14 *9*	232.6+y	7/2−	99.0+y	5/2−	(M1+E2)	0.636 *17*	α(K)=0.528 *8*; α(L)=0.085 *12*; α(M)=0.018 *3* α(N)=0.0041 *6*; α(O)=0.00060 *7*; α(P)=3.34×10^{-5} *10* DCO=0.9 *2*.
138.8 *2*	13 *4*	229.9+z	7/2+	91.0+z	5/2+	(M1+E2)	0.569 *14*	α(K)=0.474 *8*; α(L)=0.075 *10*; α(M)=0.0162 *23* α(N)=0.0036 *5*; α(O)=0.00053 *6*; α(P)=3.00×10^{-5} *9* DCO=0.43 *6*.
146.1 *2*	38 *13*	236.9+z	7/2+	91.0+z	5/2+	(M1+E2)	0.492 *11*	α(K)=0.410 *7*; α(L)=0.064 *8*; α(M)=0.0138 *18* α(N)=0.0031 *4*; α(O)=0.00046 *5*; α(P)=2.60×10^{-5} *8* DCO=0.47 *2*.
157.0 *2*	14 *2*	178.8+z	5/2+	21.7+z	3/2+	(M1+E2)	0.400 *8*	α(K)=0.335 *6*; α(L)=0.052 *5*; α(M)=0.0111 *12* α(N)=0.0025 *3*; α(O)=0.00037 *3*; α(P)=2.12×10^{-5} *7* DCO=0.55 *5*.
162.5 *2*	124 *7*	292.6+x	11/2−	130.4+x	9/2−	(M1+E2)	0.363 *6*	α(K)=0.304 *5*; α(L)=0.046 *5*; α(M)=0.0100 *10* α(N)=0.00222 *21*; α(O)=0.00033 *3*; α(P)=1.93×10^{-5} *6* DCO=0.51 *3*.
178.8 *2*	6 *1*	178.8+z	5/2+	0+z	1/2+			
178.8 *2*	12 *2*	232.6+y	7/2−	53.8+y	3/2−	(E2)	0.286	α(K)=0.206 *3*; α(L)=0.0626 *10*; α(M)=0.01399 *21* α(N)=0.00305 *5*; α(O)=0.000411 *6*;

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^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)

γ(^{129}Nd) (continued)

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								α(P)=1.023×10^{-5} *15* DCO=1.0 *2*.
179.1 *2*	32 *3*	415.7+z	9/2$^+$	236.9+z	7/2$^+$	(M1+E2)	0.276	α(K)=0.232 *4*; α(L)=0.035 *3*; α(M)=0.0074 *6* α(N)=0.00166 *13*; α(O)=0.000247 *15*; α(P)=1.47×10^{-5} *5* DCO=0.43 *7*.
198.6 *2*	96 *5*	491.0+x	13/2$^-$	292.6+x	11/2$^-$	(M1+E2)	0.207	α(K)=0.174 *4*; α(L)=0.0256 *15*; α(M)=0.0055 *4* α(N)=0.00122 *8*; α(O)=0.000183 *9*; α(P)=1.11×10^{-5} *4* DCO=0.56 *3*.
208.2 *2*	53 *9*	229.9+z	7/2$^+$	21.7+z	3/2$^+$	(E2)	0.1713	α(K)=0.1278 *19*; α(L)=0.0340 *5*; α(M)=0.00755 *11* α(N)=0.001649 *24*; α(O)=0.000225 *4*; α(P)=6.55×10^{-6} *10* DCO=0.95 *5*.
209.5 *2*	37 *7*	308.5+y	9/2$^-$	99.0+y	5/2$^-$	(E2)	0.1677	α(K)=0.1254 *18*; α(L)=0.0332 *5*; α(M)=0.00736 *11* α(N)=0.001609 *24*; α(O)=0.000220 *4*; α(P)=6.44×10^{-6} *10* DCO=0.96 *7*.
213.7 *2*	29 *2*	629.3+z	11/2$^+$	415.7+z	9/2$^+$	(M1+E2)	0.169 *3*	α(K)=0.142 *3*; α(L)=0.0207 *10*; α(M)=0.00442 *23* α(N)=0.00099 *5*; α(O)=0.000148 *6*; α(P)=9.0×10^{-6} *3* DCO=0.65 *3*.
219.8 *2*	77 *4*	710.7+x	15/2$^-$	491.0+x	13/2$^-$	(M1+E2)	0.156 *3*	α(K)=0.132 *3*; α(L)=0.0191 *8*; α(M)=0.00407 *19* α(N)=0.00091 *4*; α(O)=0.000137 *5*; α(P)=8.4×10^{-6} *3* DCO=0.47 *4*.
221.5 *2*	9 *1*	530.1+y	11/2$^-$	308.5+y	9/2$^-$			
239.3 *2*	22 *2*	868.4+z	13/2$^+$	629.3+z	11/2$^+$	(M1+E2)	0.1234 *23*	α(K)=0.1044 *25*; α(L)=0.0150 *5*; α(M)=0.00319 *12* α(N)=0.000713 *25*; α(O)=0.000107 *3*; α(P)=6.64×10^{-6} *23* DCO=0.72 *5*.
259.0 *2*	58 *3*	969.7+x	17/2$^-$	710.7+x	15/2$^-$	(M1+E2)	0.0995 *21*	α(K)=0.0843 *22*; α(L)=0.0120 *3*; α(M)=0.00255 *8* α(N)=0.000570 *15*; α(O)=8.59×10^{-5} *17*; α(P)=5.36×10^{-6} *19* DCO=0.47 *5*.
265.6 *2*	47 *2*	1235.1+x	19/2$^-$	969.7+x	17/2$^-$	(M1+E2)	0.0930 *20*	α(K)=0.0788 *21*; α(L)=0.0112 *3*; α(M)=0.00238 *6* α(N)=0.000531 *13*; α(O)=8.01×10^{-5} *15*; α(P)=5.01×10^{-6} *18* DCO=0.40 *7*.
267.5 *2*	8 *1*	497.3+z	9/2$^+$	229.9+z	7/2$^+$	(M1+E2)	0.0912 *20*	α(K)=0.0773 *20*; α(L)=0.01095 *25*; α(M)=0.00233 *6* α(N)=0.000521 *13*; α(O)=7.85×10^{-5} *14*; α(P)=4.92×10^{-6} *18* DCO=0.9 *1*.
268.5 *2*	14 *1*	1136.9+z	15/2$^+$	868.4+z	13/2$^+$	(M1+E2)	0.0903 *20*	α(K)=0.0765 *20*; α(L)=0.01084 *24*; α(M)=0.00230 *6* α(N)=0.000515 *12*; α(O)=7.77×10^{-5} *14*; α(P)=4.87×10^{-6} *18* DCO=0.57 *5*.

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^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)

γ(^{129}Nd) (continued)

E_γ [†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [#]	Comments
282.1 *2*	17 *1*	1419.4+z	17/2$^+$	1136.9+z	15/2$^+$	(M1+E2)	0.0790 *18*	α(K)=0.0670 *18*; α(L)=0.00945 *18*; α(M)=0.00201 *5* α(N)=0.000449 *9*; α(O)=6.78×10^{-5} *11*; α(P)=4.26×10^{-6} *16* DCO=0.72 *9*.
286.9 *2*	5.5 *7*	2666.0+z	25/2$^+$	2379.2+z	23/2$^+$	(M1+E2)	0.0755 *18*	α(K)=0.0641 *18*; α(L)=0.00902 *16*; α(M)=0.00192 *4* α(N)=0.000428 *8*; α(O)=6.47×10^{-5} *10*; α(P)=4.08×10^{-6} *15* DCO=0.5 *1*.
292.5 *2*	30 *2*	292.6+x	11/2$^-$	0+x	7/2$^-$	(E2)	0.0567	α(K)=0.0447 *7*; α(L)=0.00939 *14*; α(M)=0.00206 *3* α(N)=0.000452 *7*; α(O)=6.35×10^{-5} *9*; α(P)=2.45×10^{-6} *4* DCO=0.72 *6*.
297.5 *2*	18 *2*	530.1+y	11/2$^-$	232.6+y	7/2$^-$	(E2)	0.0538	α(K)=0.0425 *6*; α(L)=0.00883 *13*; α(M)=0.00193 *3* α(N)=0.000425 *6*; α(O)=5.98×10^{-5} *9*; α(P)=2.33×10^{-6} *4* DCO=1.1 *1*.
300.9 *2*	32 *2*	1843.9+x	23/2$^-$	1543.0+x	21/2$^-$	(M1+E2)	0.0665 *17*	α(K)=0.0564 *16*; α(L)=0.00791 *13*; α(M)=0.00168 *3* α(N)=0.000376 *6*; α(O)=5.68×10^{-5} *8*; α(P)=3.59×10^{-6} *13* DCO=0.43 *5*.
304.7 *2*	9.9 *8*	2034.7+z	21/2$^+$	1730.3+z	19/2$^+$	(M1+E2)	0.0643 *16*	α(K)=0.0546 *16*; α(L)=0.00764 *12*; α(M)=0.00162 *3* α(N)=0.000363 *6*; α(O)=5.49×10^{-5} *8*; α(P)=3.47×10^{-6} *13* DCO=0.69 *9*.
308.1 *2*	42 *2*	1543.0+x	21/2$^-$	1235.1+x	19/2$^-$	(M1+E2)	0.0624 *16*	α(K)=0.0530 *16*; α(L)=0.00741 *11*; α(M)=0.00157 *3* α(N)=0.000352 *6*; α(O)=5.32×10^{-5} *8*; α(P)=3.37×10^{-6} *13* DCO=0.45 *2*.
311.0 *2*	8 *1*	1730.3+z	19/2$^+$	1419.4+z	17/2$^+$			
312.0 *5*	<4	942.8+y	15/2$^-$	630.8+y	13/2$^-$			
318.4 *2*	13.7 *9*	497.3+z	9/2$^+$	178.8+z	5/2$^+$	(E2)	0.0435	α(K)=0.0347 *5*; α(L)=0.00694 *10*; α(M)=0.001516 *22* α(N)=0.000334 *5*; α(O)=4.71×10^{-5} *7*; α(P)=1.92×10^{-6} *3* DCO=1.02 *9*.
322.4 *2*	38 *3*	630.8+y	13/2$^-$	308.5+y	9/2$^-$	(E2)	0.0419	α(K)=0.0334 *5*; α(L)=0.00664 *10*; α(M)=0.001450 *21* α(N)=0.000319 *5*; α(O)=4.52×10^{-5} *7*; α(P)=1.86×10^{-6} *3* DCO=0.87 *7*.
324.5 *2*	28 *2*	415.7+z	9/2$^+$	91.0+z	5/2$^+$	(E2)	0.0411	α(K)=0.0328 *5*; α(L)=0.00649 *10*; α(M)=0.001417 *20* α(N)=0.000312 *5*; α(O)=4.42×10^{-5} *7*; α(P)=1.82×10^{-6} *3* DCO=0.97 *6*.
329.0 *2*	24 *1*	2516.2+x	27/2$^-$	2187.3+x	25/2$^-$			
343.4 *2*	29 *2*	2187.3+x	25/2$^-$	1843.9+x	23/2$^-$	(M1+E2)	0.0468 *13*	α(K)=0.0398 *13*; α(L)=0.00552 *8*; α(M)=0.001171 *17*

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^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)

γ(^{129}Nd) (continued)

E_γ [†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α [#]	Comments
								α(N)=0.000262 *4*; α(O)=3.97×10^{-5} *7*; α(P)=2.53×10^{-6} *10* DCO=0.57 *3*.
344.8 *2*	5.7 *6*	581.7+z	11/2$^+$	236.9+z	7/2$^+$	(E2)	0.0341	α(K)=0.0274 *4*; α(L)=0.00526 *8*; α(M)=0.001146 *17* α(N)=0.000253 *4*; α(O)=3.59×10^{-5} *5*; α(P)=1.539×10^{-6} *22* DCO=0.71 *9*.
344.8 *2*	9 *1*	2379.2+z	23/2$^+$	2034.7+z	21/2$^+$			
351.0 *2*	24 *2*	3232.5+x	31/2$^-$	2881.7+x	29/2$^-$			
351.6 *2*	75 *4*	581.7+z	11/2$^+$	229.9+z	7/2$^+$	(E2)	0.0322	α(K)=0.0259 *4*; α(L)=0.00492 *7*; α(M)=0.001071 *16* α(N)=0.000236 *4*; α(O)=3.36×10^{-5} *5*; α(P)=1.458×10^{-6} *21* DCO=0.94 *5*.
354.3 *2*	9 *1*	936.3+z	13/2$^+$	581.7+z	11/2$^+$			
360.5 *2*	53 *3*	491.0+x	13/2$^-$	130.4+x	9/2$^-$	(E2)	0.0298	α(K)=0.0241 *4*; α(L)=0.00452 *7*; α(M)=0.000983 *14* α(N)=0.000217 *3*; α(O)=3.09×10^{-5} *5*; α(P)=1.361×10^{-6} *20* DCO=1.0 *1*.
365.6 *2*	23 *1*	2881.7+x	29/2$^-$	2516.2+x	27/2$^-$			
368.6 *2*	21 *1*	3978.6+x	35/2$^-$	3609.8+x	33/2$^-$			
377.1 *2*	22 *1*	3609.8+x	33/2$^-$	3232.5+x	31/2$^-$			
392.3 *2*	21 *1*	629.3+z	11/2$^+$	236.9+z	7/2$^+$	(E2)	0.0233	α(K)=0.0189 *3*; α(L)=0.00341 *5*; α(M)=0.000740 *11* α(N)=0.0001634 *23*; α(O)=2.35×10^{-5} *4*; α(P)=1.080×10^{-6} *16* DCO=1.09 *9*.
396.0 *2*	13.7 *6*	4374.5+x	37/2$^-$	3978.6+x	35/2$^-$			
397.2 *2*	5 *1*	1461.8+y	19/2$^-$	1064.7+y	17/2$^-$			
398.0 *2*	13 *1*	4772.2+x	39/2$^-$	4374.5+x	37/2$^-$			
412.6 *2*	20 *2*	942.8+y	15/2$^-$	530.1+y	11/2$^-$	(E2)	0.0201	α(K)=0.01642 *23*; α(L)=0.00289 *4*; α(M)=0.000627 *9* α(N)=0.0001386 *20*; α(O)=2.00×10^{-5} *3*; α(P)=9.43×10^{-7} *14* DCO=1.0 *1*.
417.8 *2*	5.0 *9*	2666.0+z	25/2$^+$	2248.4+z	23/2$^+$	(M1+E2)	0.0281 *9*	α(K)=0.0239 *8*; α(L)=0.00327 *7*; α(M)=0.000693 *13* α(N)=0.000155 *3*; α(O)=2.35×10^{-5} *6*; α(P)=1.52×10^{-6} *6* DCO=0.63 *7*.
418.1 *2*	75 *4*	710.7+x	15/2$^-$	292.6+x	11/2$^-$	(E2)	0.0193	α(K)=0.01582 *23*; α(L)=0.00277 *4*; α(M)=0.000601 *9* α(N)=0.0001328 *19*; α(O)=1.91×10^{-5} *3*; α(P)=9.11×10^{-7} *13* DCO=0.94 *7*.
433.0 *2*	6.7 *7*	5644.3+x	43/2$^-$	5210.8+x	41/2$^-$			
434.0 *2*	30 *2*	1064.7+y	17/2$^-$	630.8+y	13/2$^-$	(E2)	0.01740	α(K)=0.01427 *20*; α(L)=0.00246 *4*; α(M)=0.000533 *8* α(N)=0.0001178 *17*; α(O)=1.703×10^{-5} *24*; α(P)=8.25×10^{-7} *12* DCO=1.01 *7*.
438.3 *2*	8.8 *9*	5210.8+x	41/2$^-$	4772.2+x	39/2$^-$			
439.1 *2*	25 *2*	936.3+z	13/2$^+$	497.3+z	9/2$^+$	(E2)	0.01684	α(K)=0.01382 *20*; α(L)=0.00237 *4*;

Continued on next page (footnotes at end of table)

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)

$\gamma(^{129}Nd)$ (continued)

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								α(M)=0.000513 *8* α(N)=0.0001135 *16*; α(O)=1.643×10^{-5} *24*; α(P)=8.00×10^{-7} *12* DCO=0.91 *7*.
452.7 *2*	32 *2*	868.4+z	13/2$^+$	415.7+z	9/2$^+$	(E2)	0.01546	α(K)=0.01271 *18*; α(L)=0.00216 *3*; α(M)=0.000466 *7* α(N)=0.0001032 *15*; α(O)=1.496×10^{-5} *21*; α(P)=7.38×10^{-7} *11* DCO=0.88 *6*.
464.0 *5*	<4	2067.6+y	(23/2$^-$)	1603.7+y	21/2$^-$			
472.7 *2*	65 *4*	1054.2+z	15/2$^+$	581.7+z	11/2$^+$	(E2)	0.01372	α(K)=0.01131 *16*; α(L)=0.00189 *3*; α(M)=0.000407 *6* α(N)=9.02×10^{-5} *13*; α(O)=1.312×10^{-5} *19*; α(P)=6.60×10^{-7} *10* DCO=1.09 *7*.
478.6 *2*	78 *4*	969.7+x	17/2$^-$	491.0+x	13/2$^-$	(E2)	0.01326	α(K)=0.01095 *16*; α(L)=0.00182 *3*; α(M)=0.000392 *6* α(N)=8.69×10^{-5} *13*; α(O)=1.264×10^{-5} *18*; α(P)=6.39×10^{-7} *9* DCO=0.91 *8*.
482.6 *5*	<4	1419.4+z	17/2$^+$	936.3+z	13/2$^+$	(E2)	0.01296	α(K)=0.01071 *16*; α(L)=0.00177 *3*; α(M)=0.000382 *6* α(N)=8.47×10^{-5} *13*; α(O)=1.233×10^{-5} *18*; α(P)=6.25×10^{-7} *9* DCO=0.9 *1*.
498.5 *2*	6 *1*	6142.9+x	(45/2$^-$)	5644.3+x	43/2$^-$			
507.4 *2*	30 *2*	1136.9+z	15/2$^+$	629.3+z	11/2$^+$	(E2)	0.01132	α(K)=0.00938 *14*; α(L)=0.001526 *22*; α(M)=0.000328 *5* α(N)=7.28×10^{-5} *11*; α(O)=1.063×10^{-5} *15*; α(P)=5.50×10^{-7} *8* DCO=0.92 *9*.
518.8 *2*	25 *2*	1461.8+y	19/2$^-$	942.8+y	15/2$^-$	(E2)	0.01066	α(K)=0.00885 *13*; α(L)=0.001429 *20*; α(M)=0.000307 *5* α(N)=6.81×10^{-5} *10*; α(O)=9.96×10^{-6} *14*; α(P)=5.20×10^{-7} *8* DCO=1.0 *3*.
524.3 *2*	100	1235.1+x	19/2$^-$	710.7+x	15/2$^-$	(E2)	0.01037	α(K)=0.00861 *12*; α(L)=0.001385 *20*; α(M)=0.000298 *5* α(N)=6.61×10^{-5} *10*; α(O)=9.66×10^{-6} *14*; α(P)=5.07×10^{-7} *8* DCO=0.99 *9*.
535.4 *2*	25 *2*	1471.8+z	17/2$^+$	936.3+z	13/2$^+$	(E2)	0.00981	α(K)=0.00816 *12*; α(L)=0.001303 *19*; α(M)=0.000280 *4* α(N)=6.21×10^{-5} *9*; α(O)=9.10×10^{-6} *13*; α(P)=4.81×10^{-7} *7* DCO=0.9 *1*.
539.1 *2*	28 *2*	1603.7+y	21/2$^-$	1064.7+y	17/2$^-$	(E2)	0.00964	α(K)=0.00801 *12*; α(L)=0.001277 *18*; α(M)=0.000274 *4* α(N)=6.09×10^{-5} *9*; α(O)=8.92×10^{-6} *13*; α(P)=4.73×10^{-7} *7* DCO=1.12 *4*.
551.3 *2*	36 *3*	1419.4+z	17/2$^+$	868.4+z	13/2$^+$	(E2)	0.00909	α(K)=0.00757 *11*; α(L)=0.001197 *17*; α(M)=0.000257 *4* α(N)=5.70×10^{-5} *8*; α(O)=8.37×10^{-6} *12*;

Continued on next page (footnotes at end of table)

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)

γ(^{129}Nd) (continued)

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
								α(P)=4.47×10^{-7} *7* DCO=1.00 *8*.
566.6 *2*	57 *3*	1620.6+z	19/2$^+$	1054.2+z	15/2$^+$	(E2)	0.00847	α(K)=0.00706 *10*; α(L)=0.001107 *16*; α(M)=0.000238 *4* α(N)=5.27×10^{-5} *8*; α(O)=7.75×10^{-6} *11*; α(P)=4.18×10^{-7} *6* DCO=0.97 *6*.
573.2 *2*	76 *4*	1543.0+x	21/2$^-$	969.7+x	17/2$^-$	(E2)	0.00822	α(K)=0.00686 *10*; α(L)=0.001072 *15*; α(M)=0.000230 *4* α(N)=5.10×10^{-5} *8*; α(O)=7.50×10^{-6} *11*; α(P)=4.06×10^{-7} *6* DCO=0.96 *7*.
589.2 *2*	9 *1*	2666.0+z	25/2$^+$	2076.6+z	21/2$^+$	Q		DCO=0.9 *1*.
593.4 *2*	30 *2*	1730.3+z	19/2$^+$	1136.9+z	15/2$^+$	(E2)	0.00752	α(K)=0.00629 *9*; α(L)=0.000972 *14*; α(M)=0.000208 *3* α(N)=4.63×10^{-5} *7*; α(O)=6.82×10^{-6} *10*; α(P)=3.73×10^{-7} *6* DCO=1.1 *1*.
604.7 *2*	23 *2*	2076.6+z	21/2$^+$	1471.8+z	17/2$^+$	Q		DCO=1.1 *2*.
605.8 *2*	22 *2*	2067.6+y	(23/2$^-$)	1461.8+y	19/2$^-$			
608.8 *2*	91 *5*	1843.9+x	23/2$^-$	1235.1+x	19/2$^-$	Q		DCO=0.98 *5*.
615.1 *2*	34 *3*	2034.7+z	21/2$^+$	1419.4+z	17/2$^+$	Q		DCO=1.15 *9*.
626.6 *2*	36 *3*	3292.6+z	29/2$^+$	2666.0+z	25/2$^+$	Q		DCO=0.88 *5*.
628.0 *2*	54 *3*	2248.4+z	23/2$^+$	1620.6+z	19/2$^+$	Q		DCO=0.95 *6*.
631.1 *2*	38 *3*	2666.0+z	25/2$^+$	2034.7+z	21/2$^+$	Q		DCO=1.01 *6*.
633.1 *2*	26 *2*	2236.8+y	25/2$^-$	1603.7+y	21/2$^-$	Q		DCO=0.93 *7*.
644.2 *2*	75 *4*	2187.3+x	25/2$^-$	1543.0+x	21/2$^-$	Q		DCO=1.14 *8*.
648.7 *2*	32 *2*	2379.2+z	23/2$^+$	1730.3+z	19/2$^+$	Q		DCO=1.0 *1*.
658.3 *2*	16 *2*	2734.9+z	(25/2$^+$)	2076.6+z	21/2$^+$			
659.1 *2*	14 *2*	3712.9+z	(31/2$^+$)	3053.8+z	(27/2$^+$)			
661.3 *2*	48 *3*	2909.7+z	27/2$^+$	2248.4+z	23/2$^+$	Q		DCO=1.10 *5*.
667.9 *2*	25 *2*	3960.5+z	33/2$^+$	3292.6+z	29/2$^+$	Q		DCO=0.87 *3*.
671.7 *2*	21 *3*	2739.3+y	(27/2$^-$)	2067.6+y	(23/2$^-$)			
672.3 *2*	84 *5*	2516.2+x	27/2$^-$	1843.9+x	23/2$^-$	Q		DCO=1.04 *7*.
674.6 *2*	22 *2*	3053.8+z	(27/2$^+$)	2379.2+z	23/2$^+$			
683.7 *5*	<4	3418.6+z	(29/2$^+$)	2734.9+z	(25/2$^+$)			
684.7 *2*	33 *2*	3594.4+z	31/2$^+$	2909.7+z	27/2$^+$	Q		DCO=0.93 *5*.
694.4 *2*	71 *4*	2881.7+x	29/2$^-$	2187.3+x	25/2$^-$	Q		DCO=0.99 *4*.
700.5 *2*	10 *1*	4413.4+z	(35/2$^+$)	3712.9+z	(31/2$^+$)			
712.3 *2*	25 *2*	2949.2+y	29/2$^-$	2236.8+y	25/2$^-$	Q		DCO=0.94 *7*.
716.2 *2*	72 *4*	3232.5+x	31/2$^-$	2516.2+x	27/2$^-$	Q		DCO=0.94 *4*.
720.0 *2*	19 *2*	3459.3+y	(31/2$^-$)	2739.3+y	(27/2$^-$)			
726.8 *2*	32 *2*	4321.2+z	35/2$^+$	3594.4+z	31/2$^+$	Q		DCO=1.05 *5*.
728.1 *2*	59 *4*	3609.8+x	33/2$^-$	2881.7+x	29/2$^-$	Q		DCO=1.04 *4*.
743.4 *2*	20 *2*	4703.9+z	37/2$^+$	3960.5+z	33/2$^+$	Q		DCO=0.89 *8*.
746.3 *2*	51 *3*	3978.6+x	35/2$^-$	3232.5+x	31/2$^-$	Q		DCO=0.92 *6*.
755.1 *2*	16 *1*	4214.4+y	(35/2$^-$)	3459.3+y	(31/2$^-$)			
764.6 *2*	38 *2*	4374.5+x	37/2$^-$	3609.8+x	33/2$^-$	Q		DCO=1.1 *1*.
779.4 *2*	7 *1*	5192.8+z	(39/2$^+$)	4413.4+z	(35/2$^+$)			
781.2 *2*	17 *1*	3730.4+y	33/2$^-$	2949.2+y	29/2$^-$	Q		DCO=1.09 *7*.
793.5 *2*	38 *2*	4772.2+x	39/2$^-$	3978.6+x	35/2$^-$	Q		DCO=0.91 *7*.
794.6 *2*	21 *1*	5115.8+z	39/2$^+$	4321.2+z	35/2$^+$	Q		DCO=1.10 *6*.
818.0 *2*	10 *1*	5032.4+y	(39/2$^-$)	4214.4+y	(35/2$^-$)			
818.3 *2*	20 *2*	5522.2+z	41/2$^+$	4703.9+z	37/2$^+$	Q		DCO=1.03 *5*.
836.2 *2*	33 *2*	5210.8+x	41/2$^-$	4374.5+x	37/2$^-$	Q		DCO=0.9 *1*.

Continued on next page (footnotes at end of table)

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)

γ(^{129}Nd) (continued)

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
845.3 *2*	12 *1*	4575.7+y	37/2$^-$	3730.4+y	33/2$^-$	Q	DCO=1.05 *6*.
857.8 *2*	15 *1*	5973.6+z	43/2$^+$	5115.8+z	39/2$^+$	Q	DCO=1.05 *6*.
872.5 *2*	24 *2*	5644.3+x	43/2$^-$	4772.2+x	39/2$^-$	Q	DCO=0.92 *3*.
886.4 *2*	4 *1*	6079.2+z	(43/2$^+$)	5192.8+z	(39/2$^+$)		
893.2 *2*	15 *1*	6415.4+z	(45/2$^+$)	5522.2+z	41/2$^+$		
902.9 *2*	9 *1*	5935.3+y	(43/2$^-$)	5032.4+y	(39/2$^-$)		
911.8 *2*	9 *1*	5487.5+y	41/2$^-$	4575.7+y	37/2$^-$	Q	DCO=1.06 *5*.
927.6 *2*	9.9 *4*	6901.2+z	(47/2$^+$)	5973.6+z	43/2$^+$		
932.1 *2*	22 *2*	6142.9+x	(45/2$^-$)	5210.8+x	41/2$^-$		
962.1 *2*	19 *2*	6606.4+x	47/2$^-$	5644.3+x	43/2$^-$	Q	DCO=0.91 *6*.
980.2 *2*	11 *1*	7395.6+z	(49/2$^+$)	6415.4+z	(45/2$^+$)		
984.6 *2*	8 *1*	6472.1+y	45/2$^-$	5487.5+y	41/2$^-$	Q	DCO=0.99 *8*.
991.9 *2*	8 *1*	6927.2+y	(47/2$^-$)	5935.3+y	(43/2$^-$)		
999 *1*	<4	7078.2+z	(47/2$^+$)	6079.2+z	(43/2$^+$)		
1015.2 *2*	8.7 *9*	7916.4+z	(51/2$^+$)	6901.2+z	(47/2$^+$)		
1033.1 *2*	18 *2*	7176.0+x	(49/2$^-$)	6142.9+x	(45/2$^-$)		
1051.9 *2*	13 *1*	7658.3+x	(51/2$^-$)	6606.4+x	47/2$^-$		
1056.0 *2*	6 *1*	7528.1+y	49/2$^-$	6472.1+y	45/2$^-$	Q	DCO=1.1 *1*.
1076.1 *2*	7 *1*	8471.7+z	(53/2$^+$)	7395.6+z	(49/2$^+$)		
1083.7 *2*	7 *1*	8010.9+y	(51/2$^-$)	6927.2+y	(47/2$^-$)		
1100 *1*	<4	8178.2+z	(51/2$^+$)	7078.2+z	(47/2$^+$)		
1107.6 *2*	7.1 *8*	9024.0+z	(55/2$^+$)	7916.4+z	(51/2$^+$)		
1108 *1*	<4	8636.1+y	(53/2$^-$)	7528.1+y	49/2$^-$		
1131.3 *2*	12 *1*	8307.3+x	(53/2$^-$)	7176.0+x	(49/2$^-$)		
1138.4 *2*	12 *1*	8796.7+x	(55/2$^-$)	7658.3+x	(51/2$^-$)		
1159 *1*	<4	9337.2+z	(55/2$^+$)	8178.2+z	(51/2$^+$)		Additional information 1.
1160 *1*	<4	9796.1+y	(57/2$^-$)	8636.1+y	(53/2$^-$)		
1166.0 *2*	5 *1*	9176.9+y	(55/2$^-$)	8010.9+y	(51/2$^-$)		
1171.8 *2*	4 *1*	9643.5+z	(57/2$^+$)	8471.7+z	(53/2$^+$)		
1198.2 *2*	4.9 *7*	10222.2+z	(59/2$^+$)	9024.0+z	(55/2$^+$)		
1213 *1*	<4	11009.1+y	(61/2$^-$)	9796.1+y	(57/2$^-$)		
1222.7 *2*	9 *1*	10019.4+x	(59/2$^-$)	8796.7+x	(55/2$^-$)		
1228.3 *2*	8 *1*	9535.6+x	(57/2$^-$)	8307.3+x	(53/2$^-$)		
1239.1 *2*	4 *1*	10416.0+y	(59/2$^-$)	9176.9+y	(55/2$^-$)		
1256 *1*	<4	12265.1+y	(65/2$^-$)	11009.1+y	(61/2$^-$)		Additional information 2.
1259 *1*	<4	10902.5+z	(61/2$^+$)	9643.5+z	(57/2$^+$)		
1288.9 *2*	4.5 *2*	11511.1+z	(63/2$^+$)	10222.2+z	(59/2$^+$)		
1305 *1*	<4	11721.0+y	(63/2$^-$)	10416.0+y	(59/2$^-$)		
1307.0 *2*	7 *1*	11326.4+x	(63/2$^-$)	10019.4+x	(59/2$^-$)		
1319 *1*	<4	12221.5+z	(65/2$^+$)	10902.5+z	(61/2$^+$)		
1322.0 *2*	6 *1*	10857.6+x	(61/2$^-$)	9535.6+x	(57/2$^-$)		
1354[&] *1*	<4	13575.5+z	(69/2$^+$)	12221.5+z	(65/2$^+$)		
1369 *1*	<4	13090.1+y	(67/2$^-$)	11721.0+y	(63/2$^-$)		
1381[@] *1*	<4	12892.1+z	(67/2$^+$)	11511.1+z	(63/2$^+$)		
1394.0 *2*	5 *1*	12720.4+x	(67/2$^-$)	11326.4+x	(63/2$^-$)		
1405.9 *2*	5 *1*	12263.5+x	(65/2$^-$)	10857.6+x	(61/2$^-$)		
1438 *1*	<4	14528.1+y	(71/2$^-$)	13090.1+y	(67/2$^-$)		
1473 *1*	<4	14365.1+z	(71/2$^+$)	12892.1+z	(67/2$^+$)		
1482 *1*	<4	14202.4+x	(71/2$^-$)	12720.4+x	(67/2$^-$)		
1483 *1*	<4	13746.5+x	(69/2$^-$)	12263.5+x	(65/2$^-$)		Additional information 3.
1563 *1*	<4	15765.4+x	(75/2$^-$)	14202.4+x	(71/2$^-$)		

[†] Some of the Eγ values given in figure 1 differ by 1 keV or more, but the values given in Table I are correct (as per e-mail reply

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^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)

$\gamma(^{129}Nd)$ (continued)

on Jan 22, 2002 from one of the authors D.J. Hartley). Based on a general comment by 2002Ze01, uncertainty of 0.2 keV is assigned for most γ rays, 0.5 keV for weak transitions, and 1 keV when Eγ is quoted to nearest keV.

‡ From $\gamma\gamma(\theta)$(DCO) data. The mult=Q indicates ΔJ=2, quadrupole (most likely E2) and D+Q indicates ΔJ=1, dipole+quadrupole (most likely M1+E2). Mult=(E2) or (M1+E2) assigned based on RUL for E2 and M2 with the assumption of ≈10 ns resolving time in $\gamma\gamma$ coincidence experiments.

δ(E2/M1)=0.30 assumed for M1+E2 transitions.

@ From figure 1 of 2002Ze01, and also from an e-mail reply on Jan 16, 2002 from D.J. Hartley. Eγ=13801 in table I of 2002Ze01 is a misprint.

& Placement of transition in the level scheme is uncertain.

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01

Level Scheme

Intensities: Relative I_γ

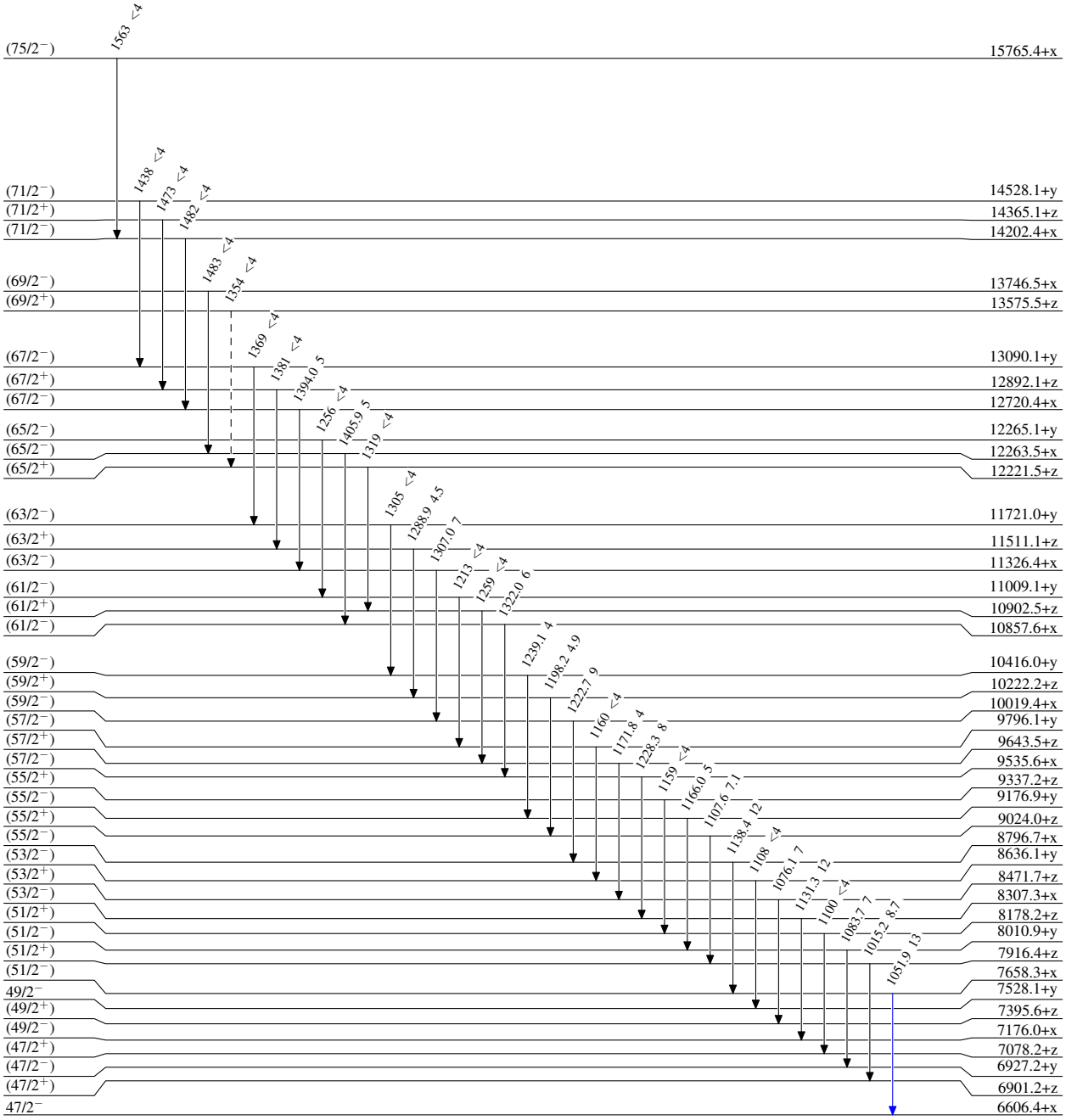
Legend

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

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

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

γ Decay (Uncertain)



$^{129}_{60}Nd_{69}$

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01

Level Scheme (continued)

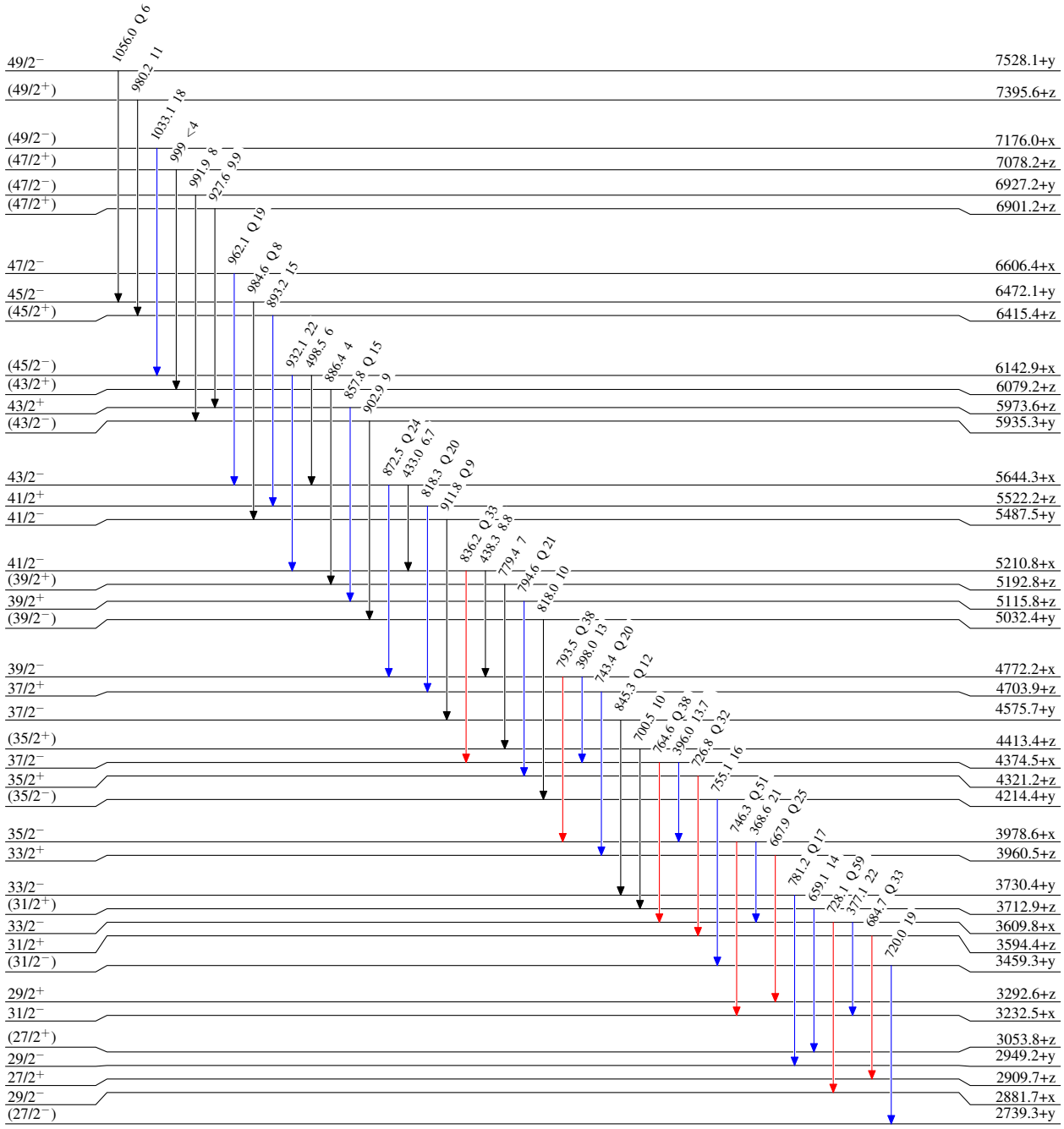
Intensities: Relative I_γ

Legend

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

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

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



$^{129}_{60}Nd_{69}$

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01

Level Scheme (continued)

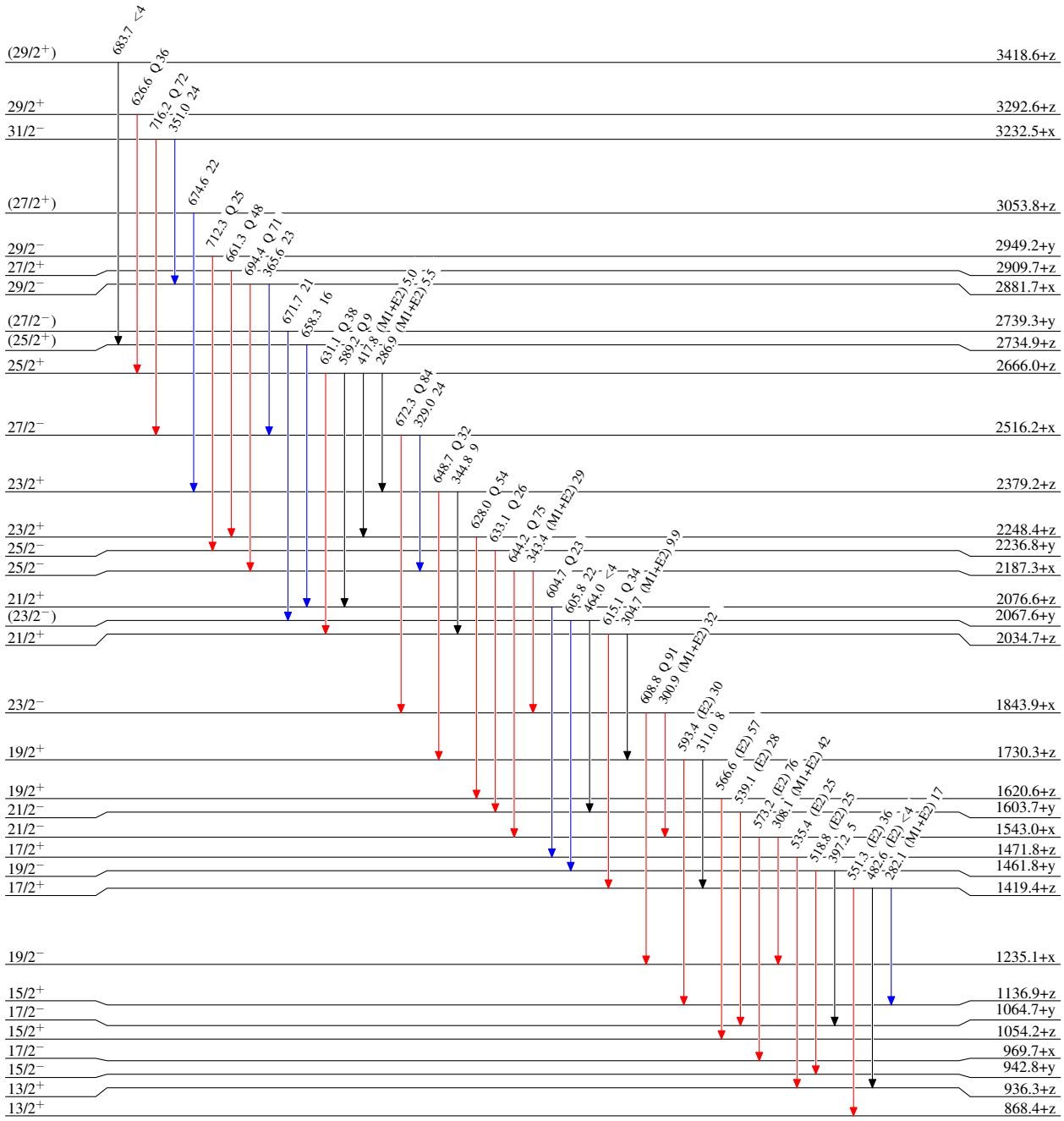
Intensities: Relative I_γ

Legend

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

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

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



$^{129}_{60}Nd_{69}$

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01

Level Scheme (continued)

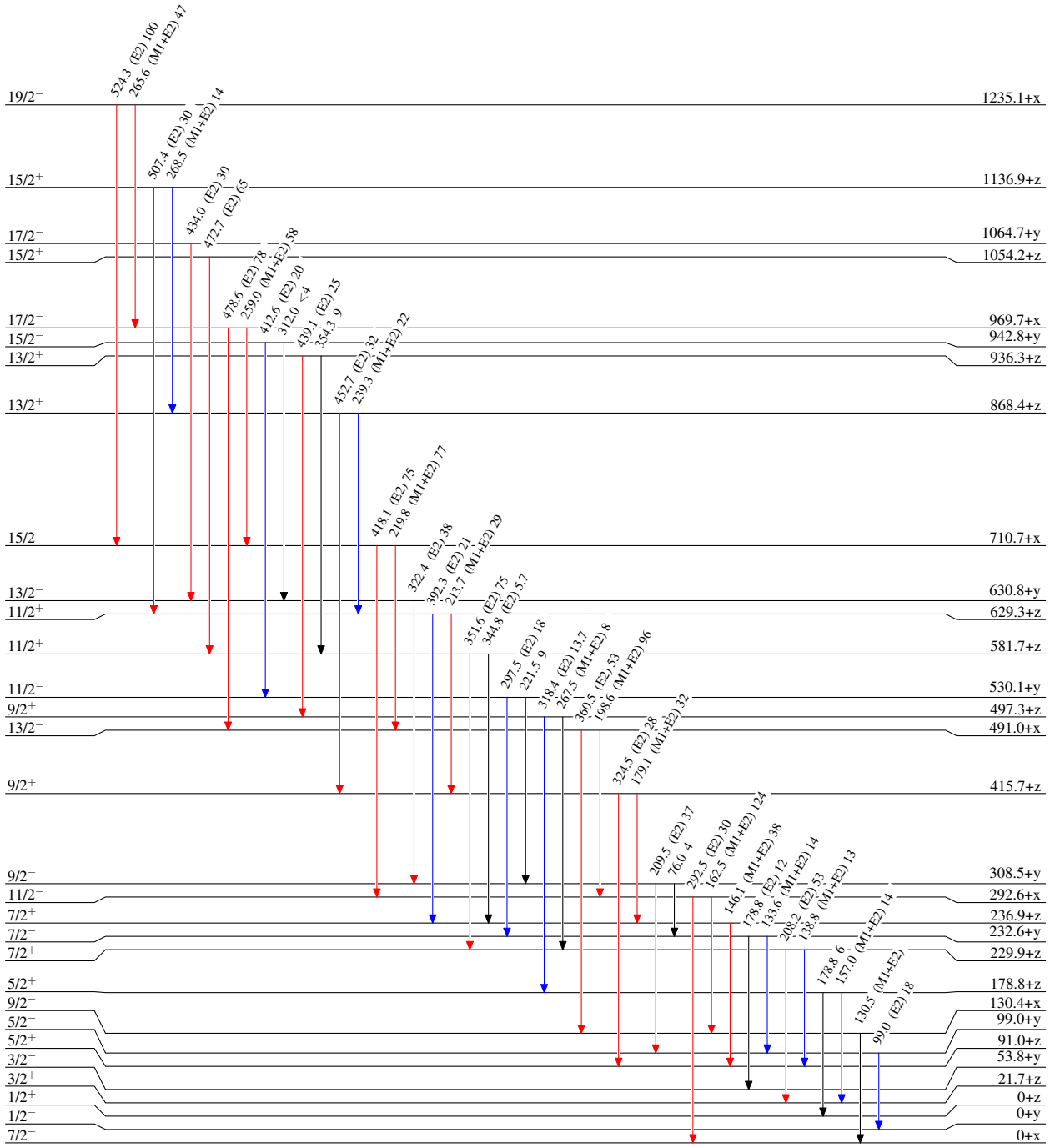
Intensities: Relative I_γ

Legend

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

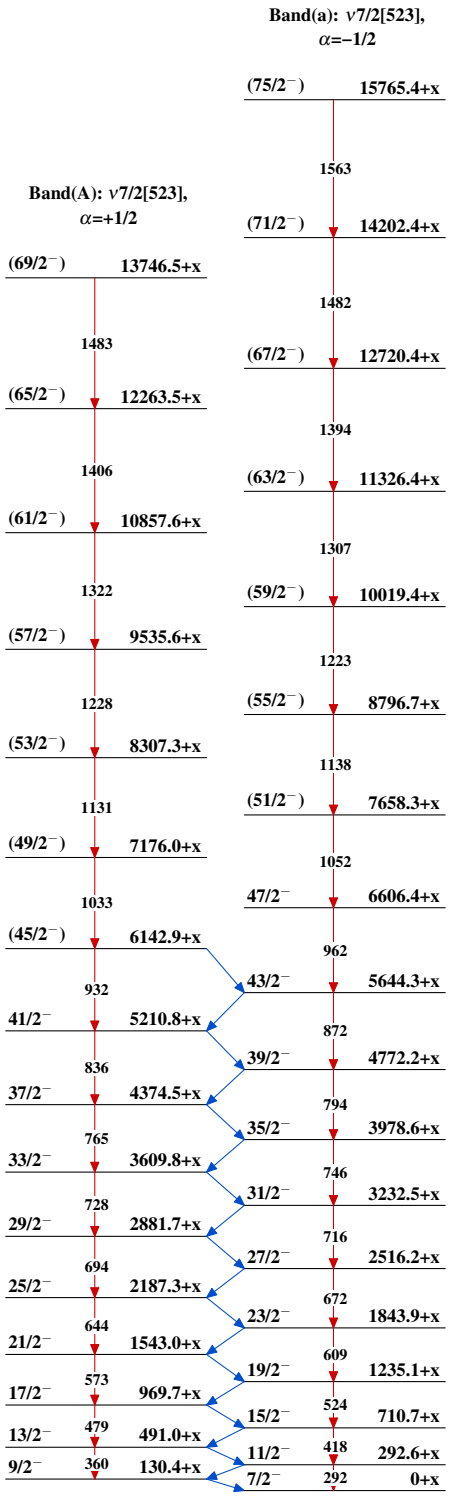
$I_\gamma < 10\% \times I_\gamma^{max}$

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



$^{129}_{60}Nd_{69}$

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01



$^{129}_{60}Nd_{69}$

^{92}Mo(^{40}Ca,2pnγ) 2002Ze01 (continued)