Coulomb excitation

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, G. Mukherjee, A. A. Sonzogni	NDS 111, 2555 (2010)	30-Jun-2009

1958Mc02: E(p)=1.8-3.0 MeV. Measured γ-yields, $\gamma(\theta)$, and linear polarization; NaI, Compton polarimeter.
1972BoZV,1973Fi15: E(p)=3 and 4 MeV, E(^{16}O)=36 MeV, E(^{35}Cl)=52-68 MeV. Measured γ-yields, $\gamma(\theta)$, and $T_{1/2}$; Ge(Li). DSAM.
1974Ga18: E(^{16}O)=30 MeV. Measured ^{16}O-γ coin, $\gamma\gamma(\theta$,H,t); Ge(Li), annular surface-barrier detector.
1975An17: Eα=8.8 MeV, E(^{12}C)=33 MeV, E(^{14}N)=38 MeV. Measured γ's, γ-yields, and $\gamma\gamma$-coincidences; Ge(Li),NaI.
1975Ba02: Eα=6-10 MeV, E(^{16}O)=43.4 MeV. Measured γ's, γ-yields, and $\gamma(\theta)$; Ge(Li).
See 1983Lu03 for other references.

TVIncludes:
(p,p′γ) 1958Mc02,1972BoZV (^{14}N,^{14}N′γ) 1975An17
(α,α′γ) 1975An17,1975Ba02 (^{16}O,^{16}O′γ) 1972BoZV,1974Ga18,1975Ba02
(^{12}C,^{12}C′γ) 1975An17 (^{35}Cl,^{35}Cl′γ) 1972BoZV,
1973Fi15

^{95}Mo Levels

E(level)	J^π[†]	$T_{1/2}$[‡]	Comments
0.0	$5/2^+$		
204.04 *6*	$3/2^+$	0.80 ns *13*	B(E2)↑=0.0369 *19*; g=−0.24 *3* (1974Ga18) J^π: 3/2,5/2 from $\gamma(\theta)$ and ≠5/2 from linear pol (1958Mc02). B(E2)↑: Weighted av of 0.035 *3* (1958Mc02) and 0.0380 *24* (1975Ba02). Others: 0.043 *5* (1972BoZV) and 0.029 *3* (1975An17). See 1975Ba02 for other references. g: IMPAC, assuming $T_{1/2}$=756 ps *7* (weighted av of 811 ps *42* (1966An02), 756 ps *14* (1970Bo28), 742 ps *14* (1958Qu01), 769 ps *28* (1958Mc02), 762 ps *63* (1961Ho05), and 755 ps *15* (1965Me08)).
766.00 *12*	$7/2^+$	17 ps *+38−17*	B(E2)↑=0.00032 *8* (1975An17) B(E2)↑: B(E2)=0.0004 *1* (1975An17) reduced by 20% to account for feeding from 1551 state. Others: ≤0.0005 (1972BoZV) and <0.00013 (1975Ba02).
786.44 *10*	$1/2^+$	4.33 ps *27*	B(E2)↑=0.00325 *20* (1975Ba02) B(E2)↑: Others: 0.003 *1* (1972BoZV) and 0.003 *1* (1975An17).
820.89 *19*	$3/2^+$		B(E2)↑=0.00060 *15* (1975Ba02) B(E2)↑: Other: 0.0006 *3* (1975An17).
947.75 *9*	$9/2^+$	2.57 ps *12*	B(E2)↑=0.0480 *22* J^π: ≠7/2 from $\gamma(\theta)$ (1975Ba02); 3/2 or 9/2 from $\gamma(\theta)$ (1972BoZV). $T_{1/2}$: from B(E2). B(E2)↑: Weighted av of 0.048 *5* (1972BoZV), 0.0506 *31* (1975Ba02), and 0.044 *4* (1975An17). 0.050 *5* (1972BoZV) and 0.0525 *25* (1975Ba02) reduced by 3.6% *36* to account for feeding from 1551 state which was not observed by them.
1039.28 *8*	$1/2^+$	0.32 ps *7*	B(E2)↑=0.0046 *10* B(E2)↑: Unweighted av of 0.0036 *8* (1975An17) and 0.0055 *10* (1975Ba02).
1056.92 *8*	$5/2^+$	≤0.43 ps	B(E2)↑=0.010 *2* (1975An17) J^π: 3/2,5/2 consistent with $\gamma(\theta)$ (1975Ba02). B(E2)↑: Other: 0.013 *7* (1975Ba02).
1073.95 *9*	$7/2^+$	0.34 ps *11*	B(E2)↑=0.0369 *25* J^π: ≠9/2 from $\gamma(\theta)$ (1975Ba02); ≤7/2 from $\gamma(\theta)$ (1972BoZV). B(E2)↑: Unweighted av of 0.040 *5* (1972BoZV), 0.0386 *21* (1975Ba02), and 0.032 *3* (1975An17).
1376.01 *20*	$^+$		B(E2)↑=0.0015 *6* (1975An17)
1551.1 *5*	$(9/2)^+$		B(E2)↑<0.0042 (1975An17) B(E2)↑: B(E2)<0.003 (1975An17) increased by a factor of 1.4 to account for the existence of 786γ.

[†] From the Adopted Levels. Contributing arguments from this data set are given as comments.
[‡] From B(E2)↑ assuming adopted level and γ properties, except as noted.

Coulomb excitation (continued)

$\gamma(^{95}Mo)$

All data are from 1975Ba02, except as noted. Coincidences shown on the drawing are from 1975An17.

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
204.04	$3/2^+$	203.94 *8*	100	0.0	$5/2^+$	M1+E2[@]	−0.58 *20*	0.0515 *22*	δ: from linear pol (1958Mc02). Other: $-1.4\leq\delta\leq-0.4$ from $\gamma(\theta)$ (1975Ba02).
766.00	$7/2^+$	765.95 *14*	100	0.0	$5/2^+$	M1+E2[#]	−0.14[#] *9*		E_γ: Weighted average of 766.0 *2* (75An17) and 765.9 *2* (1975Ba02).
786.44	$1/2^+$	582.38 *23*	100	204.04	$3/2^+$				E_γ: Weighted average of 582.6 *1* (75An17) and 582.5 *10* (1975Ba02).
		786.31 *20*	30 *3*	0.0	$5/2^+$	(E2)[#]			E_γ: Weighted average of 786.7 *2* (75An17) and 786.21 *10* (1975Ba02).
820.89	$3/2^+$	617.4 *5*	20 *6*	204.04	$3/2^+$				
		820.8 *2*	100	0.0	$5/2^+$	M1+E2[@]	−0.15 *17*		δ: −2.7 *+10−25* excluded from B(E2)↑ and $T_{1/2\ 1/2}$=0.62 ps *14* in (γ,γ) (evaluator).
947.75	$9/2^+$	181.5 *5*	0.22 *5*	766.00	$7/2^+$	(M1,E2)[#]		0.10 *5*	
		947.72 *9*	100	0.0	$5/2^+$	E2(+M3)[@]	−0.01 *1*		E_γ: Weighted average of 947.7 *1* (75An17) and 947.8.2 (1975Ba02).
1039.28	$1/2^+$	252.8[&] *1*	2.5 *6*	786.44	$1/2^+$	M1[#]		0.0209	
		834.97 *17*	100	204.04	$3/2^+$				E_γ: Weighted average of 834.8 *1* (1975An17) and 835.14 *10* (1975Ba02).
		1039.40 *10*	9.1 *7*	0.0	$5/2^+$	(E2)[#]			E_γ: Weighted average of 1039.3 *1* (75An17) and 1039.5 *3* (1975Ba02).
1056.92	$5/2^+$	852.8[&] *1*	100	204.04	$3/2^+$	D+Q			δ: −0.02 *8* or −3.6 *+11−21*. −0.42 *7* or −6.7 *+20−45* if J=3/2.
		1057.0[&] *1*	36 *1*	0.0	$5/2^+$	M1+E2[@]	+0.55 *+45−31*		δ: −0.81 *+28−37* if J=3/2.
1073.95	$7/2^+$	125.8 *3*	1.10 *15*	947.75	$9/2^+$	(M1)[#]		0.134	
		307.8 *3*	0.72 *7*	766.00	$7/2^+$	(M1,E2)[#]		0.0128	
		870.0[&] *5*	5.6[&] *10*	204.04	$3/2^+$				
		1074.0[&] *1*	100	0.0	$5/2^+$	M1+E2[@]	−0.72 *11*		
1376.01	$^+$	1376.0[&] *2*		0.0	$5/2^+$				
1551.1	$(9/2)^+$	603.3[&] *5*		947.75	$9/2^+$				

[†] Relative photon branching ratio from each level.
[‡] From $\gamma(\theta)$, except as noted. Sign on δ changed to conform with the phase convention of 1970Kr03.
[#] From the adopted gammas.
[@] From Coulomb excitation and $\gamma(\theta)$.
[&] From 1975An17.

$^{95}_{42}Mo_{53}$-2

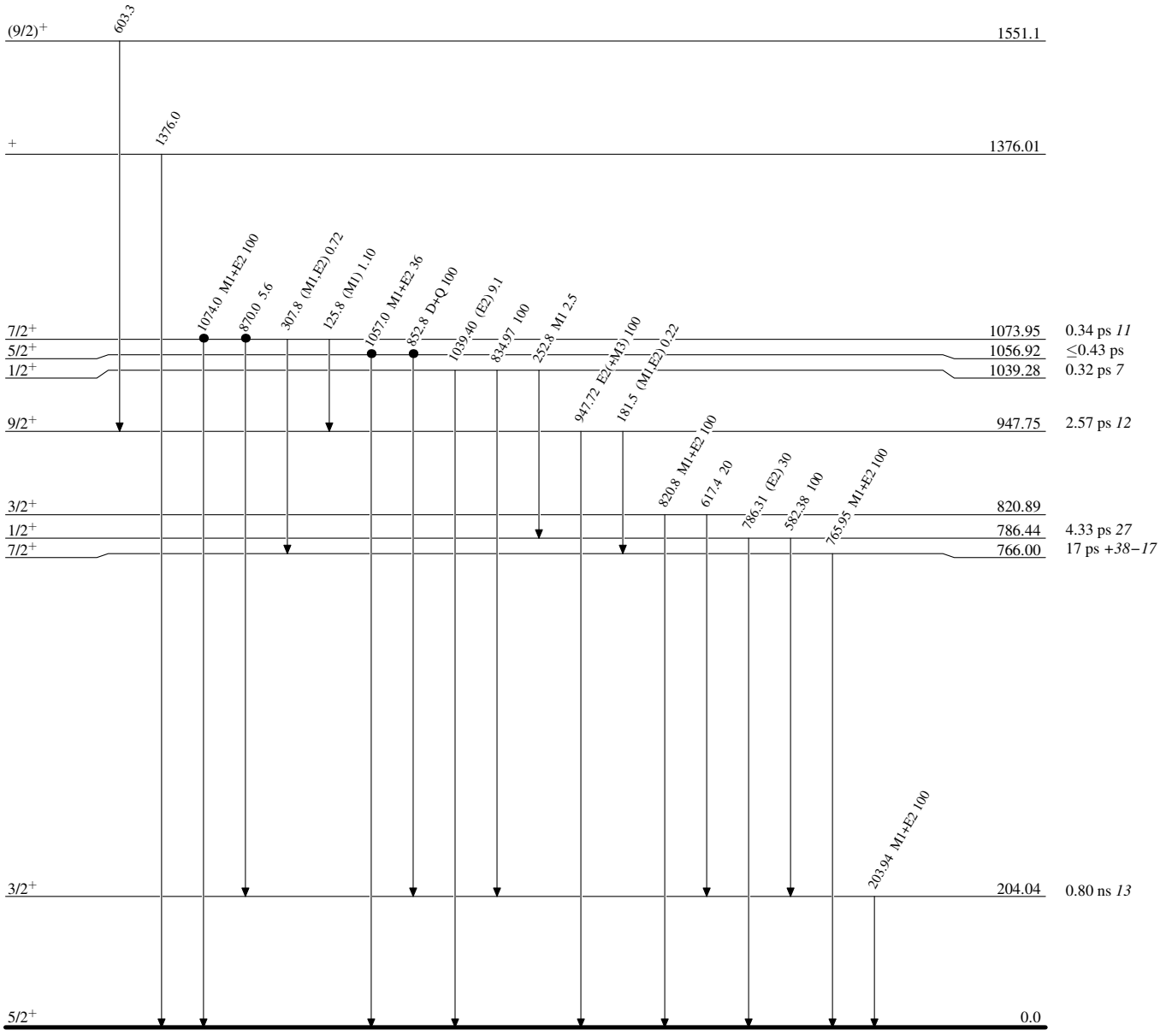
Coulomb excitation

Legend

Level Scheme

Intensities: Relative photon branching from each level

● Coincidence



$^{95}_{42}Mo_{53}$