Coulomb excitation

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huo Junde, Huang Xiaolong, J. K. Tuli	NDS 106, 159 (2005)	1-Apr-2005

1998Si25: Ep=2.0-4.5MeV,measured Iγ,B(E2),Ge(Li).
1975Th01: E(α)=3.20-4.86 MeV, measured Eγ, Iγ, $\gamma(\theta)$, γ-ray yields.
1977An27: E(α)=7.5 MeV, E(^{12}C)=30 MeV, E(^{14}N)=35 MeV, E(^{16}O)=39 MeV, γ-ray yields.
1961Ho05: E(α)=3.3 MeV, measured $T_{1/2}$ from pulsed beam technique.
Others: 1956Te26, 1962Ri09, 1964Al27, 1964Al28, 1976AnZK.
B(E2) values are taken from 1998Si25 or 1975Th01.

^{67}Zn Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0.0	$5/2^-$		
93.3 *6*	$1/2^-$		B(E2)↑=0.0018 *7*(1998Si25)
184.5 *3*	$3/2^-$	1.01 ns *10*	B(E2)↑=0.0192 *10*(1998Si25); B(E2)↑=0.0190 *14*(1975Th01) $T_{1/2}$: from 1961Ho05.
393.6 *3*	$3/2^-$		B(E2)↑=0.014 *4*(1998Si25); B(E2)↑=0.00049 *3*(1975Th01)
815.21 *19*	$7/2^-$		B(E2)↑=0.0285 *20*(1998Si25); B(E2)↑=0.029 *2*(1975Th01) J=5/2, 7/2 from $\gamma(\theta)$ (1975Th01).
870.9? *10*	3/2,5/2,7/2		B(E2)↑=0.04 *2* (1975Th01) E(level): only observed by 1975Th01. J=3/2, 5/2, 7/2 from $\gamma(\theta)$ (1975Th01).
888.0 *6*	$5/2^-$		B(E2)↑=0.0088 *6*(1998Si25); B(E2)↑=0.0086 *6*(1975Th01) J=5/2 strongly favored from $\gamma(\theta)$ (1975Th01) when combined with the $\gamma\gamma(\theta)$ data of 1973Ba54.

† From Adopted Levels.
‡ From Adopted Levels. Supporting arguments from this data set are indicated.

$\gamma(^{67}Zn)$

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.#	δ#	α@	Comments
93.3	$1/2^-$	93.3		0.0	$5/2^-$	E2		0.873	
184.5	$3/2^-$	91.3	13.1 *4*	93.3	$1/2^-$	M1+E2	+0.06 *5*	0.083 *8*	
		184.6	86.9 *25*	0.0	$5/2^-$	M1+E2	0.34 *4*	0.0180 *13*	
393.6	$3/2^-$	209.0	9.6 *3*	184.5	$3/2^-$	M1+E2	−0.034 *21*	0.00913 *6*	
		300.3	70.3 *21*	93.3	$1/2^-$	M1+E2	+0.20 *8*		
		393.6	20.1 *6*	0.0	$5/2^-$				δ: −0.17 *8* or −2.4 *3* for M1+E2.
815.21	$7/2^-$	421.6 *2*	0.70 *8*	393.6	$3/2^-$				
		630.7 *2*	5.1 *2*	184.5	$3/2^-$	E2			
		815.2 *2*	94.2 *28*	0.0	$5/2^-$	M1+E2	+5.5 *5*		
870.9?	3/2,5/2,7/2	870.9	100	0.0	$5/2^-$				
888.0	$5/2^-$	494.4	23.8 *11*	393.6	$3/2^-$	M1+E2	−0.14 *3*		
		703.4	4.8 *4*	184.5	$3/2^-$				δ: −0.09 *28* or +8.0 *18* FOR (M1+E2).
		794.7	18.4 *7*	93.3	$1/2^-$	E2(+M3)	−0.04 *4*		
		888.0	53.2 *16*	0.0	$5/2^-$	M1+E2	+0.96 *9*		

† From 1975Th01 where uncertainties are given; rest are from level energy differences.
‡ Percent photon branching from each level (1975Th01).
# From adopted gammas.

Continued on next page (footnotes at end of table)

Coulomb excitation (continued)

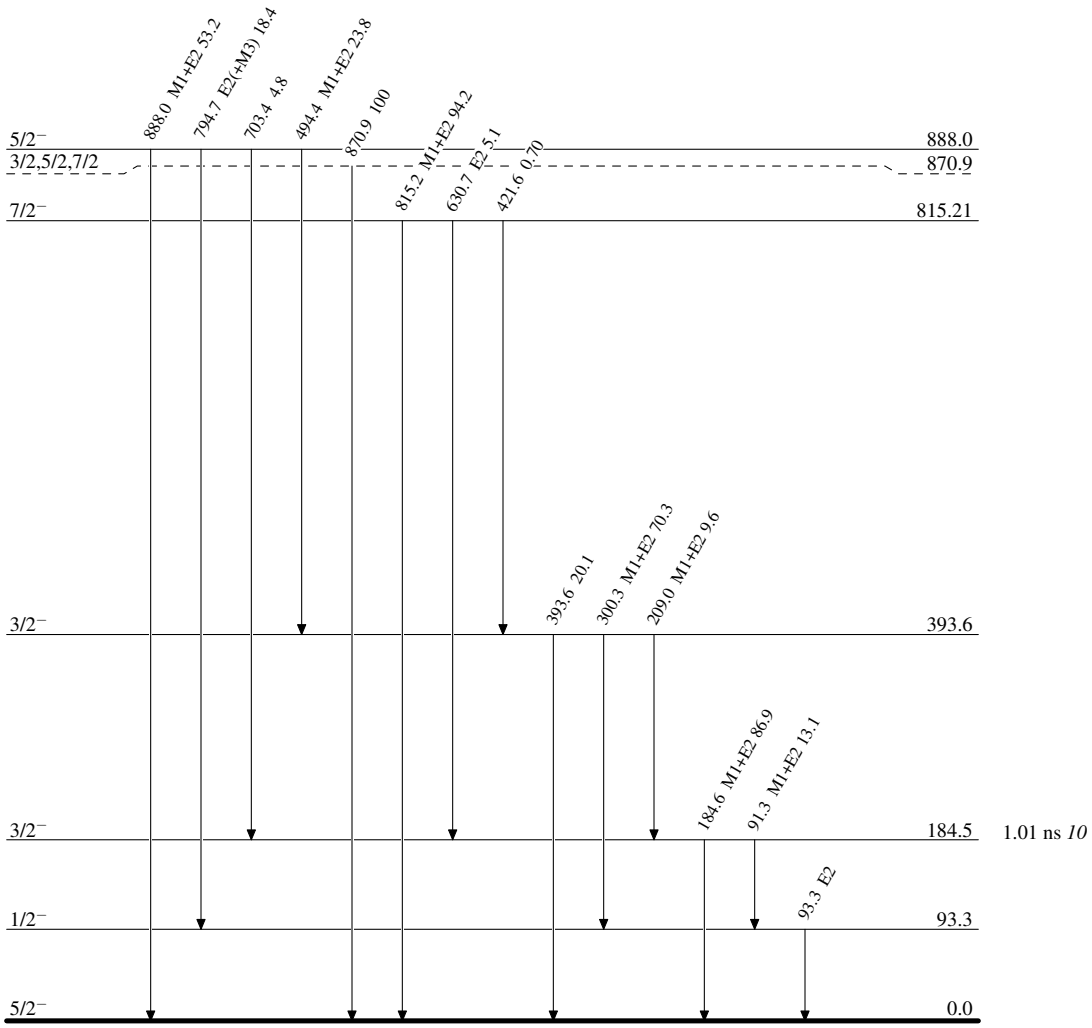
$\gamma(^{67}Zn)$ (continued)

[@] 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.

Coulomb excitation

Level Scheme

Intensities: % photon branching from each level



$^{67}_{30}Zn_{37}$