Coulomb excitation

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 108,1583 (2007)	1-Jun-2007

1988Ba39, 1990Be03 and 1990Be08 studied the giant resonance region.

The structure between 7 and 25 MeV In excitation energy has been analyzed using peak energies and widths from previous work, As noted. With these data As input, the B(EL) and %EWSR data for levels above the 4086 level were extracted (1990Be03). The angular correlation for gammas to the g.s. is consistent with Coulomb excitation and E1 decay of the isovector giant dipole resonance, and yields a g.s. photon branching ratio of 0.019 *2*. By measuring the spectrum In coincidence with g.s. γ transitions, the angular and energy distribution of the isovector giant dipole resonance has been determined, and its contribution to the resonance region can Be subtracted out, allowing for an accurate analysis of the giant quadrupole and monople resonances. 1990Be03 obtain B(E2)=0.512 *80* for the integrated strength over the excitation region 8-13 MeV, and B(E2)=0.398 *44* for the giant quadrupole resonance. 1990Be08 compare data on the excitation and photon decay of the giant dipole resonances In ^{208}Pb and ^{209}Bi.

1969Ba51	(x,x′) X=α, E=17-19 MeV; X=^{16}O, E=69.1 MeV
1971Gr31	(x,x′γ) X=α, E=15,18 MeV
1972Ha59	(x,x′γ) X=α, E=15-18 MeV; X=^{16}O, E=69-80 MeV
1973BaUB	(x,x′γ) X=^{12}C, ^{20}Ne, ^{32}S, ^{40}Ar, E=4.15 MeV/A
1977FrZT	(x,x′) X=α, E=23.5
1977Jo04	(x,x′) X=^{16}O, E=59 MeV; X=α, E=15.1,15.3 MeV
1984Ve07	(x,x′) X=^{12}C, E=53-58 MeV; X=^{16}O, E=57-76 MeV
1988Ba39	(x,x′) X=^{17}O, E=84 MeV/A, FWHM ≈ 800 keV
1990Be03	(x,x′γ) X=^{17}O, E=84 MeV/A, FWHM ≈ 800 keV
1990Be08	(x,x′γ) X=^{17}O, E=84 MeV/A, FWHM ≈ 800 keV

^{208}Pb Levels

E(level)	J$^{\pi}$‡	$T_{1/2}$	L	Comments
0.0	0^+			
2614.7 *3*	3^-	16.7 ps *4*		B(E3)↑=0.611 *12*; Q=−0.34 *15* $T_{1/2}$: from B(E3). B(E3)↑: from 1984Ve07. Others: 0.06 *4* (1969Ba51), 0.60 *7* (1971Gr31), 0.54 *3* (1972Ha59). 0.66 *5* (1977FrZT), 0.665 *35* (1977Jo04), 0.52 (1988Ba39). The value quoted for 1969Ba51 is the authors′ original value (0.58 *4*) As reanalyzed by 1977FrZT to include the effect of the nuclear potential (see also 1976Fe01 and 1980Li11). Q: from 1984Ve07. Others: −0.3 *7* (1972Ha59), −1.1 *5* (1973BaUB,1969Ba51), (see also 1976Fe01), −0.26 *32* (1977Jo04 As corrected from −0.42 *32* by 1984Ve07).
4086	2^+			Q=−0.7 *3* E(level): rounded-off value from Adopted Levels. Q: from 1984Ve07 if B(E2)=0.318 *16* from (e,e′) is adopted. Authors′ B(E2), for Q=0, is 0.275 *7*.
7360†			2†	%EWSR=10 *2* for the 7360 *784*040 peaks.
7840†			2†	%EWSR=10 *2* for the 7360 *784*040 peaks.
8100†			4†	
8300†			3†	
8860†			2†	%EWSR=14 *3* for the 8860 *934*040 peaks.
9340			2	%EWSR=14 *3* for the 8860 *934*040 peaks.
10600†			2†	B(E2)=0.398 *44*, %EWSR=60 *9* (1990Be03). from the Coulomb-nuclear interference, the ratio of neutron to proton matrix elements is determined As 1.7 *4* (1990Be03).
13900			0	Γ=2.9 MeV.

Continued on next page (footnotes at end of table)

Coulomb excitation (continued)

^{208}Pb Levels (continued)

E(level)	J^{π}‡	$T_{1/2}$	L	Comments
				E and Γ are taken by the 1990Be03 from (α,α′). %EWSR=125 *44* (1990Be03).

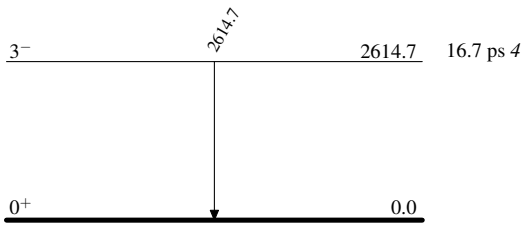
† E is from 1986Be14 In (p,p′) with Γ≈400 keV except for the E2 giant resonance for which the Γ is 2 MeV.
‡ From Adopted Levels.

γ(^{208}Pb)

E_γ	E_i(level)	J_i^{π}	E_f	J_f^{π}	Comments
2614.7 *3*	2614.7	3^-	0.0	0^+	E_γ: weighted average of 2614.8 *3* (1971Gr31) and 2614.5 *6* (1972Ha59).

Coulomb excitation

Level Scheme



$^{208}_{82}Pb_{126}$