Coulomb excitation 1971Ka03,1986Ko02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 108, 79 (2007)	15-Oct-2006

1971Ka03: E(^{16}O)=33,25 MeV, target≈85% enriched; measured Eγ, Iγ, (^{16}O)γ(θ).

1986Ko02: E(^{32}S)=100 MeV, 66% ^{199}Hg target on thin iron foil with copper backing; measured Iγ(θ,H). Transient field of Hg in iron normalized using g=+0.52 *10* for first 2$^+$ state in ^{198}Hg. The quoted g-factor uncertainties do not include this 20% calibration uncertainty. The negative sign of g-factor for 208.2 level confirmed by perturbed angular correlation.

1956Ba45 (E(p)=4.5 MeV), 1956Da40 (E(p)=3.2 MeV): measured B(E2)′s for 158 and 208 levels.

^{199}Hg Levels

E(level)	J$^\pi$ †	T$_{1/2}$ ‡	Comments
0.0	1/2⁻		
158.4	5/2⁻	2.45 ns *3*	g=+0.24 *6* (1986Ko02) g: value is probably too low because of difficulties in measuring a level of this half-life with a transient field. T$_{1/2}$: from ‘Adopted Levels’. B(E2)=0.375 *17* (given by 1971Ka03) renormalized to 0.363 *7*, using ‘adopted’ T$_{1/2}$(158 level)=2.45 ns *3*.
208.2# *3*	3/2⁻	70 ps *5*	B(E2)↑=0.220 *14* (1971Ka03) g=−0.19 *10* (1986Ko02) g: other: −0.31 *5* (1986Ko02,static field in iron). T$_{1/2}$: adopted value: 69 ps *3*.
403.4# *2*	3/2⁻	5.8 ps *12*	B(E2)↑=0.113 *13* (1971Ka03)
413.5# *3*	5/2⁻	115 ps *23*	B(E2)↑=0.097 *16* (1971Ka03) g=+0.28 *10* (1986Ko02)

† From ‘Adopted Levels’.
‡ Deduced from B(E2), unless otherwise noted.
\# B(E2) values from 1971Ka03 have been renormalized to B(E2)(158 level)=0.363 *7* and adjusted for adopted values of α and branching (evaluator).

γ(^{199}Hg)

E$_\gamma$ †	I$_\gamma$ †	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult. ‡	δ ‡	α #	Comments
(49.8)		208.2	3/2⁻	158.4	5/2⁻	M1+E2	−0.044 *4*	11.70	α(L)= 8.92 *4*; α(M)= 2.08 *1* E$_\gamma$: rounded energy from ‘adopted gammas′.
158.4	100.0	158.4	5/2⁻	0.0	1/2⁻	E2		0.914	α(K)= 0.296; α(L)= 0.461; α(M)= 0.119; α(N+..)= 0.0374 E$_\gamma$: rounded energy from ‘adopted gammas′. Mult.: A$_2$=+0.44, +0.51; A$_4$=−0.42, −0.44 consistent with 1/2(E2)5/2(E2)1/2 cascade.
195.0 *3*	3.47 *25*	403.4	3/2⁻	208.2	3/2⁻	M1		1.23	α(K)=1.007; α(L)=0.170; α(M)=0.0394; α(N+..)=0.0126
208.3 *3*	35.7 *25*	208.2	3/2⁻	0.0	1/2⁻	M1+E2	−0.388 *9*	0.937	α(K)= 0.751 *4*; α(L)=0.142; α(M)= 0.0334 *2*; α(N+..)=0.0106 δ: −0.65 *25* from A$_2$=−0.97, −1.06; A$_4$=0.00 which is consistent with 1/2(E2)3/2(M1+E2)1/2 cascade.
255.5 *5*	1.4 *7*	413.5	5/2⁻	158.4	5/2⁻	[M1,E2]		0.38 *20*	

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Coulomb excitation 1971Ka03,1986Ko02 (continued)

$\gamma(^{199}Hg)$ (continued)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	α#	Comments
403.4 *2*	12.5 *16*	403.4	3/2⁻	0.0	1/2⁻	M1+E2	+0.32 *2*	0.157	α(K)= 0.129 *1*; α(L)=0.0219 *2*; α(M)=0.00510 *3*; α(N+..)=0.00162 I_γ: Iγ(403γ)/Iγ(195γ)=3.6 *3* disagrees with 6.7 *10* In 'Adopted Gammas'. δ: from A_2=+0.097; A_4=+0.00 which is consistent with 1/2(E2)3/2(M1+E2)1/2 cascade.
413.5 *3*	12.5 *16*	413.5	5/2⁻	0.0	1/2⁻	E2		0.0437	α(K)= 0.0298; α(L)=0.0105; α(M)=0.00261; α(N+..)=0.00082 Mult.: A_2=+0.46; A_4=−0.50 consistent with 1/2(E2)5/2(E2)1/2 cascade.

† From 1971Ka03.
‡ From 'adopted gammas', unless otherwise noted.
# 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.

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