Coulomb excitation

History Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 2081 (2009)	1-Mar-2009

Authors compare B(E2) exp with predictions from weak coupling core excitation model for 2 quadrupole phonon core states.
$T_{1/2}$ measured using the recoil-distance method.
Others: 1955Mc51, 1956Te26, 1962Va20, 1964Al27, 1964Ko12.

^{103}Rh(p,p′γ) E=2.7,3.0 MeV (1958Mc02), E=2.5-4.5 MeV (1988Ta23)
^{103}Rh(α,α′γ) E=7-10 MeV (1972Sa03)
^{103}Rh(^{16}O,^{16}O′γ) E=36-45 MeV (1972Sa03).

E=40 MeV (1970GrYS,1970GrYR,1971GrXO)
E=34,40 MeV (1969Bl04)
^{103}Rh(^{35}Cl,^{35}Cl′γ) E=62-88 MeV (1969WaZU)
E=100 MeV (1972SiZP,1972SiZO)
^{103}Rh(^{32}S,^{32}S′γ) E=70-80 MeV (1988Be45)
^{103}Rh(^{40}Ar,^{40}Ar′γ) E=129 MeV (1989Lo08,1990Na17)

^{103}Rh Levels

E(level)	J^{π} †	$T_{1/2}$	Comments
0.0	$1/2^-$	stable	
294.94 *13*	$3/2^-$	6.61 ps *18*	B(E2)↑=0.216 *6* g=0.46 *8* (1988Be45) $T_{1/2}$: From B(E2)=216 6. B(E2)↑: weighted av: 0.228 *14* (1970GrYS), 0.245 *18* (1972Sa03). 0.22 *1* (1988Ta23), 0.209 *15* (1958Mc02,1969Bl04) 0.198 *11* (1970GrYR) and 0.213 16 (1972SiZO). g: others: g=0.68 *17* (1971SpZT), 0.70 *21* (1973MiZC) if $T_{1/2}$=6.7 ps. Others: 1971BhZV, 1972Sz03, 1974HeYO.
357.396 *17*	$5/2^-$	73 ps *2*	B(E2)↑=0.346 *9* g=0.37 *8* (1988Be45) $T_{1/2}$: From B(E2). B(E2)↑: Weighted average of 0.358 *14* (1970GrYS), 0.326 *29* (1974Mi02) 0.343 13 (1989Lo08), 0.334 35 (1970GrYR). g: others: g=0.42 *6* (1974HeYO), 0.4 1 *14* (1973MiZC), 0.44 *2* (1972Sz03), 0.39 *7* (1971BhZV), 0.47 *10* (1971SpZT); $T_{1/2}$=73 ps assumed.
803.1 *2*	$1/2^-$		J^{π}: J=1/2 from γ(θ) (1988Ta23).
847.74 *25*	$7/2^-$	1.9 ps *2*	$T_{1/2}$: from 1972SiZO (DSA method). Other: 1.7 ps (1972SiZO) via B(E2) ($3/2^-$ to $7/2^-$)=0.29, I(553γ)-branching=22%.
880.43 *19*	$5/2^-$	2.9 ps *3*	B(E2)↑=0.0131 *10* $T_{1/2}$: via B(E2) (1972Sa03). J^{π}: J=5/2 from γ(θ) (1972Sa03). B(E2)↑: others: 0.0117 *15* (1972SiZO), 0.0133 (1969Bl04), 0.0132 *16* (1988Ta23).
919.8 *4*	$9/2^-$	5.6 ps *3*	$T_{1/2}$: From B(E2)($9/2^-$ to $5/2^-$). BE2(From ($9/2^-$ to $5/2^-$)=0.178 9 BE2 is weighted average of 0.178 15 (1989Lo08);0.181 *15* (1972Sa03) 0.175 *2* (1972SiZO);Other: 0.144 16 (1972SiZO).
1106.64 *14*	$5/2^-$		B(E2)↑=0.0031 *4* J^{π}: J=5/2 from γ(θ) (1988Ta23). B(E2)↑: From 1972Sa03 for adopted branching %Iγ(749γ)=52 *5*. Others: B(E2)=0.0032 *4* (1988Ta23), 0.8 (1971GrXO).
1277.03 *9*	$3/2^-$	0.53 ps *36*	B(E2)↑=0.0132 *12* $T_{1/2}$: from B(E2)=0.0132 *12* (1972Sa03) and δ(1277γ)=−0.62 *30*. B(E2)↑: for adopted branching %Iγ (1277γ)=75.2 *23*. Other: B(E2)=0.040 *6* (1988Ta23).

† From Adopted Levels.

Coulomb excitation (continued)

$\gamma(^{103}Rh)$

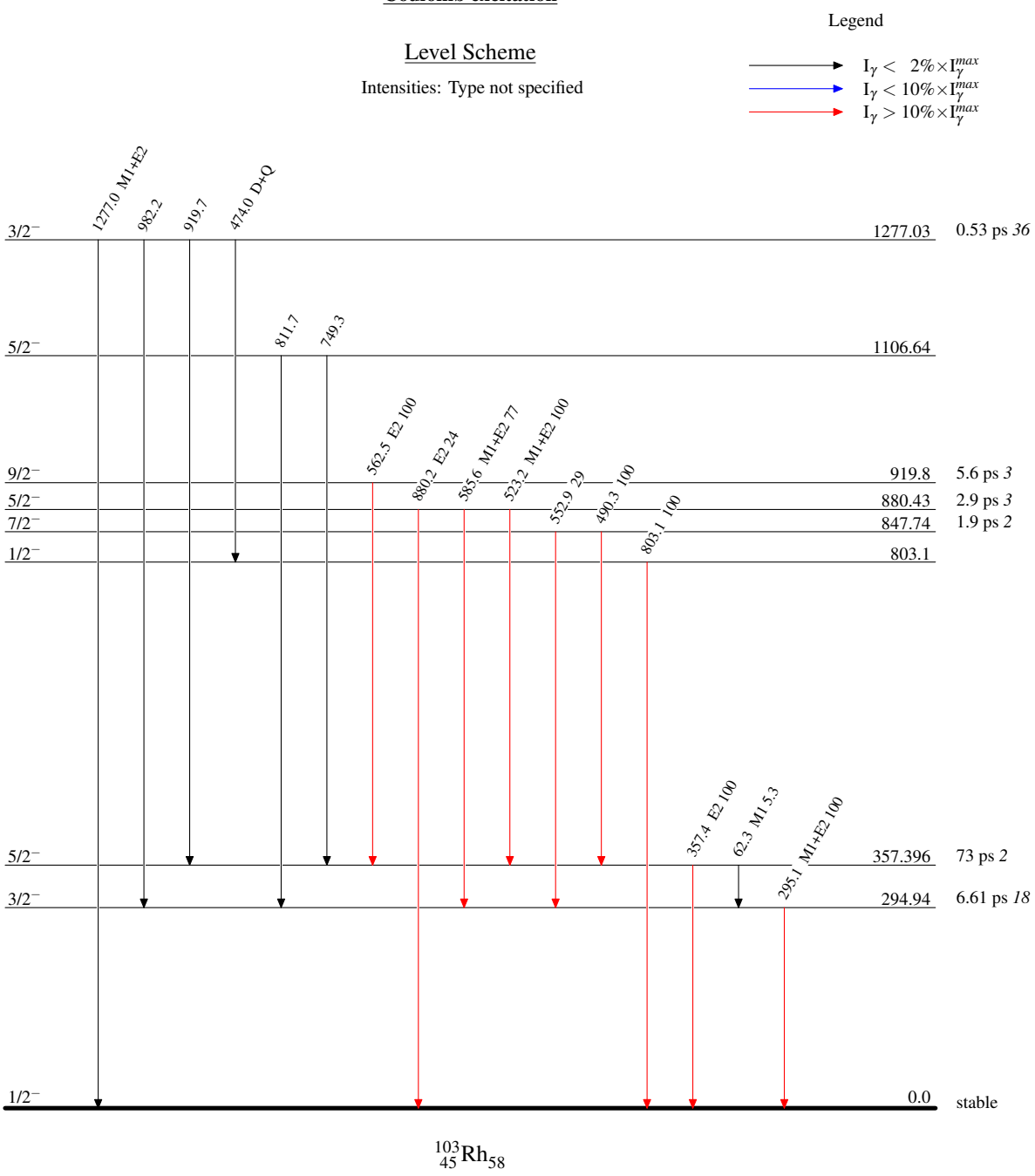
E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ [&]	Comments
62.3	5.3 *5*	357.396	5/2$^-$	294.94	3/2$^-$	M1		E_γ,I_γ: from 1970GrYS. δ: E2 admixture negligible from 62$\gamma(\theta)$ (1976Ge19).
295.1 *3*	100	294.94	3/2$^-$	0.0	1/2$^-$	M1+E2	−0.17 *1*	δ: weighted average of −0.18 *1* (1955Mc51), −0.17 *1* (1958Mc02), −0.189 *10* (1970RoZS), −0.15 *1* (1972Sa03). Others: −0.58 *+12−8* (1988Ta23); see also 1955Mc51, 1970RoZS, 1972Sa03, 1978Ba36.
357.4 *3*	100	357.396	5/2$^-$	0.0	1/2$^-$	E2		
474.0 *5*		1277.03	3/2$^-$	803.1	1/2$^-$	D+Q	0.53 *+37−21*	δ: from 1988Ta23.
490.3 *3*	100[@] *10*	847.74	7/2$^-$	357.396	5/2$^-$			
523.2 *3*	100[#] *6*	880.43	5/2$^-$	357.396	5/2$^-$	M1+E2	−0.25 *3*	δ: from 1977Kr13. δ=−0.25 *+33−10* or −0.96 *+33−24* (1988Ta23).
552.9 *3*	29[@] *3*	847.74	7/2$^-$	294.94	3/2$^-$			
562.5 *3*	100	919.8	9/2$^-$	357.396	5/2$^-$	E2		
585.6 *3*	77[#] *4*	880.43	5/2$^-$	294.94	3/2$^-$	M1+E2	−0.27 *2*	I_γ: others: 73 (1971GrXO), 103 *14* (1969WaZU). δ: from 1977Kr13. −0.14 *6* or +0.21 *8* (1988Ta23).
749.3 *1*		1106.64	5/2$^-$	357.396	5/2$^-$			
803.1 *2*	100	803.1	1/2$^-$	0.0	1/2$^-$			
811.7 *1*		1106.64	5/2$^-$	294.94	3/2$^-$			δ: −0.45 or +3.1 *4* (1988Ta23).
880.2 *3*	24[#]	880.43	5/2$^-$	0.0	1/2$^-$	E2		I_γ: others: 20 (1971GrXO), 22 *3* (1969WaZU). Mult.: from A_2 coef 880$\gamma(\theta)$ (1972Sa03).
919.7 *2*		1277.03	3/2$^-$	357.396	5/2$^-$			
982.2 *3*		1277.03	3/2$^-$	294.94	3/2$^-$			
1277.0 *1*		1277.03	3/2$^-$	0.0	1/2$^-$	M1+E2	−0.62 *30*	δ: −0.62 *30* (1972Sa03) 1277$\gamma(\theta)$; sign from 1977Kr13.

[†] From 1969WaZU, unless otherwise noted.
[‡] Relative photon branching from each level.
[#] From 1972Sa03.
[@] From 1969WaZU.
[&] Based on $\gamma(\theta)$. From 1972Sa03, unless noted otherwise.

Coulomb excitation

Level Scheme

Intensities: Type not specified



$^{103}_{45}Rh_{58}$