96 **Zr**(11 **B,4**n γ) 2006Ti01

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

E=40 MeV. Measured: E γ , I γ , $\gamma\gamma$, $\gamma\gamma(\theta)$ (DCO) using GAMMASPHERE array. Deduced chiral doublet bands.

¹⁰³Rh Levels

E(level) [†]	$J^{\pi \ddagger}$	E(level) [†]	$J^{\pi \ddagger}$	E(level) [†]	$J^{\pi \ddagger}$	E(level) [†]	J ^{π‡}
0	1/2-	1851.0 ^a 13	15/2+	3939.9 ^c 17	27/2+	6102.1 ^e 18	35/2+
40.0 [@] 10	$7/2^{+}$	2418.4 ^{&} 14	$17/2^+$	4322.1 ^b 17	$29/2^+$	6206.5 ^b 19	$37/2^+$
93.0 [#] 12	9/2+	2524.2 [@] 15	$19/2^{+}$	4485.5 ^e 17	$27/2^+$	6569.0 ^d 19	$37/2^+$
657.0 [@] 13	$11/2^+$	2738.2 [#] 15	$21/2^+$	4706.1 [°] 17	$31/2^+$	6748.7 [°] 20	39/2+
821.0 [#] <i>13</i>	$13/2^{+}$	2882.5 ^a 14	$19/2^{+}$	4829.7 ^d 17	$29/2^+$	7114.1 ^e 19	39/2+
903.0 ^a 13	$11/2^{+}$	3397.3 ^c 16	$23/2^+$	5197.7 ^b 18	$33/2^+$	7359.6 ^b 20	$41/2^{+}$
1349.1 <mark>&</mark> <i>13</i>	$13/2^{+}$	3487.5 ^{&} 15	$21/2^+$	5206.5 ^e 17	$31/2^+$	7994.7 ^c 21	$43/2^{+}$
1523.8 [@] 13	$15/2^{+}$	3631.5 ^b 16	$25/2^+$	5656.9 ^d 17	$33/2^+$		
1716.3 [#] 14	$17/2^+$	3867.8 [#] 17	$25/2^+$	5664.0 [°] 19	$35/2^+$		

[†] From least-squares fit to $E\gamma$'s (by evaluator) assuming $\Delta(E\gamma)=1$ keV for each γ ray.

[‡] From $\gamma\gamma$, $\gamma\gamma(\theta)$ (DCO) and observed band structure.

[#] Band(A): $\pi g_{9/2}$, $\alpha = +1/2$.

[@] Band(a): $\pi g_{9/2}$, $\alpha = -1/2$.

[&] Band(B): $\pi g_{9/2} + \gamma$ vib, $\alpha = +1/2$.

^{*a*} Band(b): $\pi g_{9/2} + \gamma$ vib, $\alpha = -1/2$.

^b Band(C): $\pi g_{9/2} \nu h_{11/2}^2$, $\alpha = +1/2$.

^c Band(c): $\pi g_{9/2} \nu h_{11/2}^2$, $\alpha = -1/2$. ^d Band(D): Chiral partner of $\pi g_{9/2} \nu h_{11/2}^2$, $\alpha = +1/2$.

^e Band(d): Chiral partner of $\pi g_{9/2} \nu h_{11/2}^2$, $\alpha = -1/2$.

$\gamma(^{103}\text{Rh})$

Eγ	E _i (level)	\mathbf{J}_i^{π}	E_f	\mathbf{J}_{f}^{π}	Mult. [†]	Comments
40	40.0	7/2+	0	$1/2^{-}$		E_{γ} : rounded energy from Adopted gammas for ¹⁰³ Rh.
53	93.0	$9/2^{+}$	40.0	$7/2^{+}$,
164	821.0	$13/2^{+}$	657.0	$11/2^{+}$		
193	1716.3	$17/2^{+}$	1523.8	$15/2^{+}$		
214	2738.2	$21/2^{+}$	2524.2	$19/2^{+}$		
234	3631.5	$25/2^{+}$	3397.3	$23/2^{+}$		
308	3939.9	$27/2^{+}$	3631.5	$25/2^+$		
327	1851.0	$15/2^{+}$	1523.8	$15/2^{+}$		
344	4829.7	$29/2^{+}$	4485.5	$27/2^{+}$	D	DCO=0.65 11
						DCO is for quadrupole gate.
377	5206.5	$31/2^{+}$	4829.7	$29/2^{+}$	D	DCO=0.53 9
						DCO is for quadrupole gate.
382	4322.1	$29/2^{+}$	3939.9	$27/2^{+}$		
384	4706.1	$31/2^{+}$	4322.1	$29/2^{+}$		
445	6102.1	$35/2^{+}$	5656.9	$33/2^{+}$	D	DCO=0.97 11
446	1349.1	$13/2^{+}$	903.0	$11/2^{+}$	D	DCO=1.12 7
450	5656.9	$33/2^{+}$	5206.5	$31/2^{+}$	D	DCO=1.01 12
464	2882.5	$19/2^+$	2418.4	$17/2^{+}$		

Continued on next page (footnotes at end of table)

⁹⁶Zr(¹¹B,4nγ) **2006Ti01** (continued)

$\gamma(^{103}\text{Rh})$ (continued)

Eγ	E _i (level)	\mathbf{J}_i^{π}	$\mathbf{E}_f \mathbf{J}_f^{\pi}$	Mult. [†]	Comments
466	5664.0	$35/2^{+}$	5197.7 33/2+		
467	6569.0	$37/2^+$	6102.1 35/2+		
491	5197.7	$33/2^{+}$	4706.1 31/2+		
502	1851.0	$15/2^{+}$	1349.1 13/2+	D	DCO=0.91 5
528	1349.1	$13/2^{+}$	821.0 13/2+		
542	6206.5	$37/2^{+}$	5664.0 35/2+		
542	6748.7	$39/2^{+}$	6206.5 37/2+		
543	3939.9	$27/2^{+}$	3397.3 23/2+		
545	7114.1	$39/2^{+}$	6569.0 37/2+		
564	657.0	$11/2^{+}$	93.0 9/2+		
567	2418.4	$17/2^{+}$	$1851.0 \ 15/2^+$	D	DCO=1.11 18
605	3487.5	$21/2^{+}$	2882.5 19/2+		
611	7359.6	$41/2^{+}$	6748.7 39/2+		
617	657.0	$11/2^{+}$	40.0 7/2+		
618	4485.5	$27/2^+$	3867.8 25/2+		
635	7994.7	43/2+	7359.6 41/2+		
659	3397.3	$23/2^+$	2738.2 21/2+		
691	4322.1	29/2+	3631.5 25/2+		
692	1349.1	$13/2^+$	657.0 11/2+	D	DCO=1.11 6
702	2418.4	17/2+	1/16.3 1//2+		
703	1523.8	$15/2^+$	821.0 13/2+		
721	5206.5	31/2+	4485.5 27/2+		
728	821.0	13/2+	93.0 9/2+		
766	4706.1	$31/2^+$	3939.9 27/2+		
808	2524.2	19/2	1/16.3 1//2	P	
810	903.0	11/2	93.0 9/2	D	DCO=0.95 12
827	5656.9	33/2	4829.7 29/2		
854	4485.5	$\frac{21}{2}$	3031.5 25/2	0	$DCO_{-1}AC_{-1}A$
803	905.0	$\frac{11}{2}$	$40.0 \ 1/2^{-1}$	Q	DCU=1.40 14
80/	1525.8	$\frac{15}{2}$	057.0 11/2		
075 976	51077	23/2*	$2324.2 19/2^{+}$ $4322 1 20/2^{+}$		
070	5206.5	$\frac{33}{2}$	$4322.1 \ 29/2 \ 4322 \ 1 \ 20/2^+$		
800	3200.3 4820 7	$\frac{31/2}{20/2+}$	$4322.1 \ 29/2$ $3030 \ 0 \ 27/2^+$		
803	3631.5	25/2+	$2738 2 21/2^+$		
895	1716.3	$\frac{23/2}{17/2^+}$	821.0 13/2+		
895	2418.4	$17/2^+$	$1523.8 15/2^+$		
896	6102.1	$35/2^+$	5206 5 31/2+		
005	6560.0	27/2+	5664 0 25/2+		
903	6560.0	37/2*	$5656 0 \frac{33}{2}$		
912	1851.0	57/2 15/2+	$3030.9 \ 55/2$ 003 0 11/2+	0	DCO = 0.06.8
940	1651.0	13/2	905.0 11/2	Q	DCO-0.90 0 DCO is for guadrupole gate
951	5656 0	33/2+	4706 1 31/2+		Deo is for quadrupole gale.
951	5664.0	35/2+	$4706.1 \ 31/2$		
962	4829.7	$29/2^+$	3867.8 25/2+	0	DCO = 0.95 12
702	TU22.1		5001.0 25/2	Y	DCO is for quadrupole gate
1000	2524.2	$19/2^{+}$	1523.8 15/2+		200 is for quidrupole suit.
1009	6206.5	$37/2^+$	5197.7 33/2+		
1012	7114.1	$39/2^+$	$6102.1 35/2^+$		
1022	2738.2	$21/2^+$	1716.3 17/2+		
1030	1851.0	$15/2^+$	821.0 13/2+		
1032	2882.5	$19/2^{+}$	1851.0 15/2+		
1069	2418.4	$17/2^+$	1349.1 13/2+		
1069	3487.5	$21/2^{+}$	2418.4 17/2+		
1085	6748.7	$39/2^{+}$	5664.0 35/2+		

96 **Zr**(11 **B,4**n γ) 2006Ti01 (continued)

$\gamma(^{103}\text{Rh})$ (continued)

Eγ	E _i (level)	\mathbf{J}_i^{π}	\mathbf{E}_{f}	\mathbf{J}_{f}^{π}	Mult. [†]	Comments
1088	4485.5	27/2+	3397.3	23/2+	Q	DCO=1.49 26
1130	3867.8	$25/2^{+}$	2738.2	$21/2^{+}$		
1153	7359.6	$41/2^{+}$	6206.5	$37/2^{+}$		
1166	2882.5	$19/2^{+}$	1716.3	$17/2^{+}$		
1198	4829.7	$29/2^{+}$	3631.5	$25/2^+$		
1246	7994.7	$43/2^{+}$	6748.7	$39/2^{+}$		
1256	1349.1	$13/2^{+}$	93.0	9/2+		

[†] From DCO's. The DCO ratios are for dipole gates, unless otherwise stated. RDCO ≈1 for a stretched quadrupole and RDCO \approx 0.6 for a stretched dipole is expected. [‡] Placement of transition in the level scheme is uncertain.

 96 **Zr**(11 **B,4**n γ)

Legend

Level Scheme

2006Ti01

 $--- \rightarrow \gamma$ Decay (Uncertain)



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

⁹⁶Zr(¹¹B,4nγ) 2006Ti01

Level Scheme (continued)



 $^{103}_{45}\rm{Rh}_{58}$







⁹⁶Zr(¹¹B,4nγ) 2006Ti01 (continued)



