^{40}Ca(^{29}Si,4pγ) 2000Yu02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 111, 2425 (2010)	1-Aug-2009

Additional information 1.

E=130 MeV. Measured Eγ, $\gamma\gamma$, lifetimes by DSA using GAMMASPHERE array of 100 detectors. Evaporated charged particles were detected by the 95-element CsI detector array, MICROBALL.

Level scheme for the normal-deformed states has been taken (by 2000Yu02) from 1978En02. Others: 1999YuZY, 1998YuZY.

^{65}Zn Levels

E(level)	J$^{\pi}$[†]	Comments
0	5/2$^-$	
115	3/2$^-$	
864	7/2$^-$	
1066	9/2$^+$	
2053	13/2$^+$	
2139	11/2$^+$	
2924		
3226	17/2$^+$	
3784	(17/2$^+$)	
4079		
4934		
5065	(19/2)	
5411	(21/2)	
5769		
6842		
x[#]	J≥(25/2)[‡]	Additional information 2.
1341+x[#]	J+2	
2832+x[#]	J+4	
4500+x[#]	J+6	
6387+x[#]	J+8	
8508+x[#]	J+10	
10870+x[#]	J+12	
13533+x[#]	J+14	
16538+x[#]	J+16	
19887+x[#]	J+18	
y	J1	Additional information 3.
744+y[@]	J1+1	
1621+y[@]	J1+2	
2478+y[@]	J1+3	
3396+y[@]	J1+4	
4338+y[@]	J1+5	
5357+y[@]	J1+6	
6402+y[@]	J1+7	
7610+y[@]	J1+8	
8841+y[@]	J1+9	
10307+y[@]	J1+10	
11658+y[@]	J1+11	
13295+y[@]	J1+12	
z[&]	J2	Additional information 4.

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^{40}Ca(^{29}Si,4pγ) 2000Yu02 (continued)

^{65}Zn Levels (continued)

E(level)	J$^\pi$†	E(level)	J$^\pi$†	E(level)	J$^\pi$†
688+z&	J2+1	3250+z&	J2+4	6553+z&	J2+7
1454+z&	J2+2	4238+z&	J2+5	7906+z&	J2+8
2304+z&	J2+3	5353+z&	J2+6	9379+z&	J2+9
				11029+z?&	J2+10

† From Adopted Levels for normal deformed levels.
‡ J≥25/2, from coincidence observation of γ rays in the SD band with with γ rays from the 6842-keV, level from normal deformed band.
# Band(A): SD band (2000Yu02). Q(transition)=2.6 *3*. Configuration=(n,g9/2)^3(p,g9/2)^2, α=+1/2. Population intensity ≈2.5% of the 202γ from normal deformed state.
@ Band(B): Highly deformed band #1. Q(transition)=2.1 *3*. Configuration=(n,g9/2)^2(p,g9/2)^2. Population intensity ≈50% of SD band.
& Band(C): Highly deformed band #2. Configuration=(n,g9/2)^3(p,g9/2)(p,f7/2). Population intensity ≈0.7% of 202γ from normal deformed state.

γ(^{65}Zn)

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
115		115	3/2$^-$	0	5/2$^-$
202	100	1066	9/2$^+$	864	7/2$^-$
346		5411	(21/2)	5065	(19/2)
688		688+z	J2+1	z	J2
704		5769		5065	(19/2)
749		864	7/2$^-$	115	3/2$^-$
766		1454+z	J2+2	688+z	J2+1
785		2924		2139	11/2$^+$
835		5769		4934	
850		2304+z	J2+3	1454+z	J2+2
864		864	7/2$^-$	0	5/2$^-$
918		3396+y	J1+4	2478+y	J1+3
942		4338+y	J1+5	3396+y	J1+4
945		3250+z	J2+4	2304+z	J2+3
987		2053	13/2$^+$	1066	9/2$^+$
988		4238+z	J2+5	3250+z	J2+4
1020		5357+y	J1+6	4338+y	J1+5
1046		6402+y	J1+7	5357+y	J1+6
1073		2139	11/2$^+$	1066	9/2$^+$
1073		6842		5769	
1114		5353+z	J2+6	4238+z	J2+5
1155		4079		2924	
1173		3226	17/2$^+$	2053	13/2$^+$
1201#		6553+z	J2+7	5353+z	J2+6
1208		7610+y	J1+8	6402+y	J1+7
1231		8841+y	J1+9	7610+y	J1+8
1281		5065	(19/2)	3784	(17/2$^+$)
1341#	0.42 *18*	1341+x	J+2	x	J≥(25/2)
1353#		7906+z	J2+8	6553+z	J2+7
1431		6842		5411	(21/2)
1455		1454+z	J2+2	z	J2

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^{40}Ca(^{29}Si,4pγ) 2000Yu02 (continued)

$\gamma(^{65}Zn)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]
1491	1.90 *20*	2832+x	J+4	1341+x	J+2	
1615		2304+z	J2+3	688+z	J2+1	
1621		1621+y	J1+2	y	J1	
1668	2.9 *3*	4500+x	J+6	2832+x	J+4	E2
1708		4934		3226	$17/2^+$	
1731		3784	$(17/2^+)$	2053	$13/2^+$	
1734	0.10 *5*	2478+y	J1+3	744+y	J1+1	
1775	0.15 *5*	3396+y	J1+4	1621+y	J1+2	
1796		3250+z	J2+4	1454+z	J2+2	
1859	0.17 *3*	4338+y	J1+5	2478+y	J1+3	E2
1887	2.9 *3*	6387+x	J+8	4500+x	J+6	E2
1934		4238+z	J2+5	2304+z	J2+3	
1961	0.12 *3*	5357+y	J1+6	3396+y	J1+4	
2063	0.17 *3*	6402+y	J1+7	4338+y	J1+5	E2
2104		5353+z	J2+6	3250+z	J2+4	
2121	2.8 *3*	8508+x	J+10	6387+x	J+8	E2
2254	0.14 *3*	7610+y	J1+8	5357+y	J1+6	
2314		6553+z	J2+7	4238+z	J2+5	
2362	2.5 *3*	10870+x	J+12	8508+x	J+10	E2
2439	0.13 *3*	8841+y	J1+9	6402+y	J1+7	
2553		7906+z	J2+8	5353+z	J2+6	
2663	2.2 *3*	13533+x	J+14	10870+x	J+12	
2697	0.89 *20*	10307+y	J1+10	7610+y	J1+8	E2
2817	0.59 *20*	11658+y	J1+11	8841+y	J1+9	E2
2826		9379+z	J2+9	6553+z	J2+7	
2987	0.29 *15*	13295+y	J1+12	10307+y	J1+10	
3005	0.73 *18*	16538+x	J+16	13533+x	J+14	
3123[#]		11029+z?	J2+10	7906+z	J2+8	
3349	0.30 *20*	19887+x	J+18	16538+x	J+16	

[†] From the intensity plot shown by 2000Yu02.
[‡] ΔJ=2 from $\gamma\gamma(\theta)$(DCO); RUL forbids M2.
[#] Placement of transition in the level scheme is uncertain.

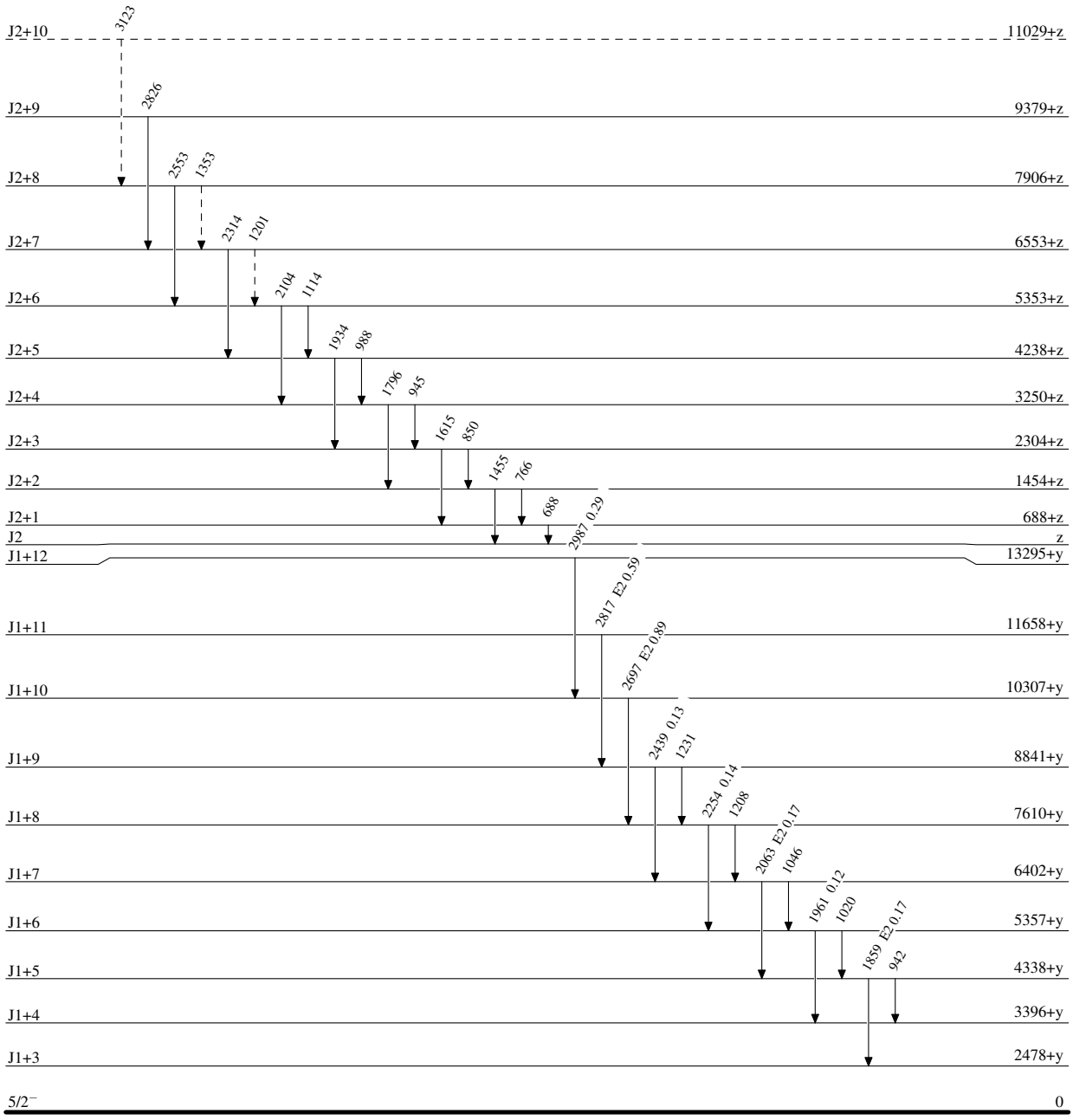
^{40}Ca(^{29}Si,4pγ) 2000Yu02

Level Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{65}_{30}Zn_{35}$

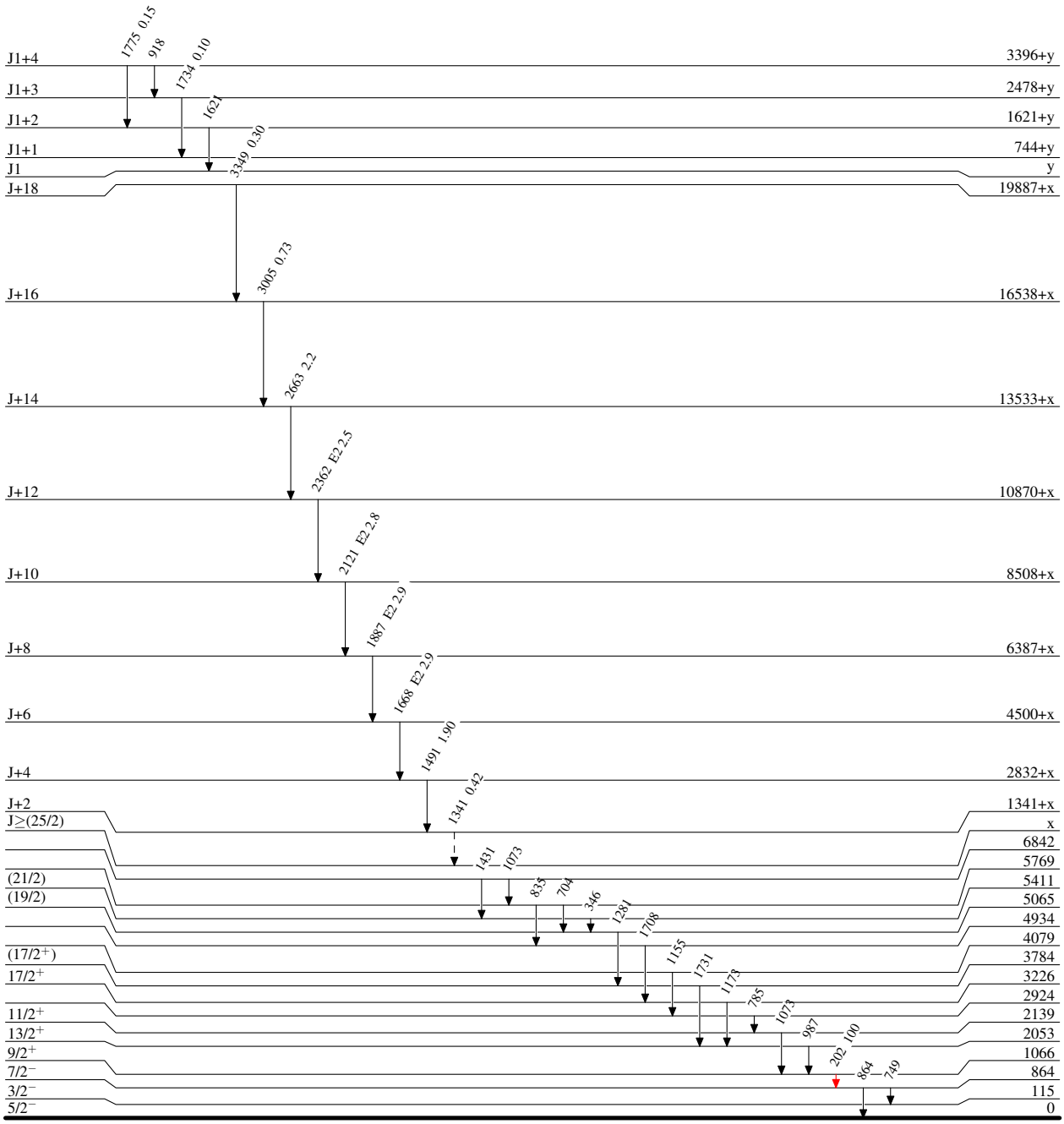
^{40}Ca(^{29}Si,4pγ) 2000Yu02

Level Scheme (continued)

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{65}_{30}Zn_{35}$

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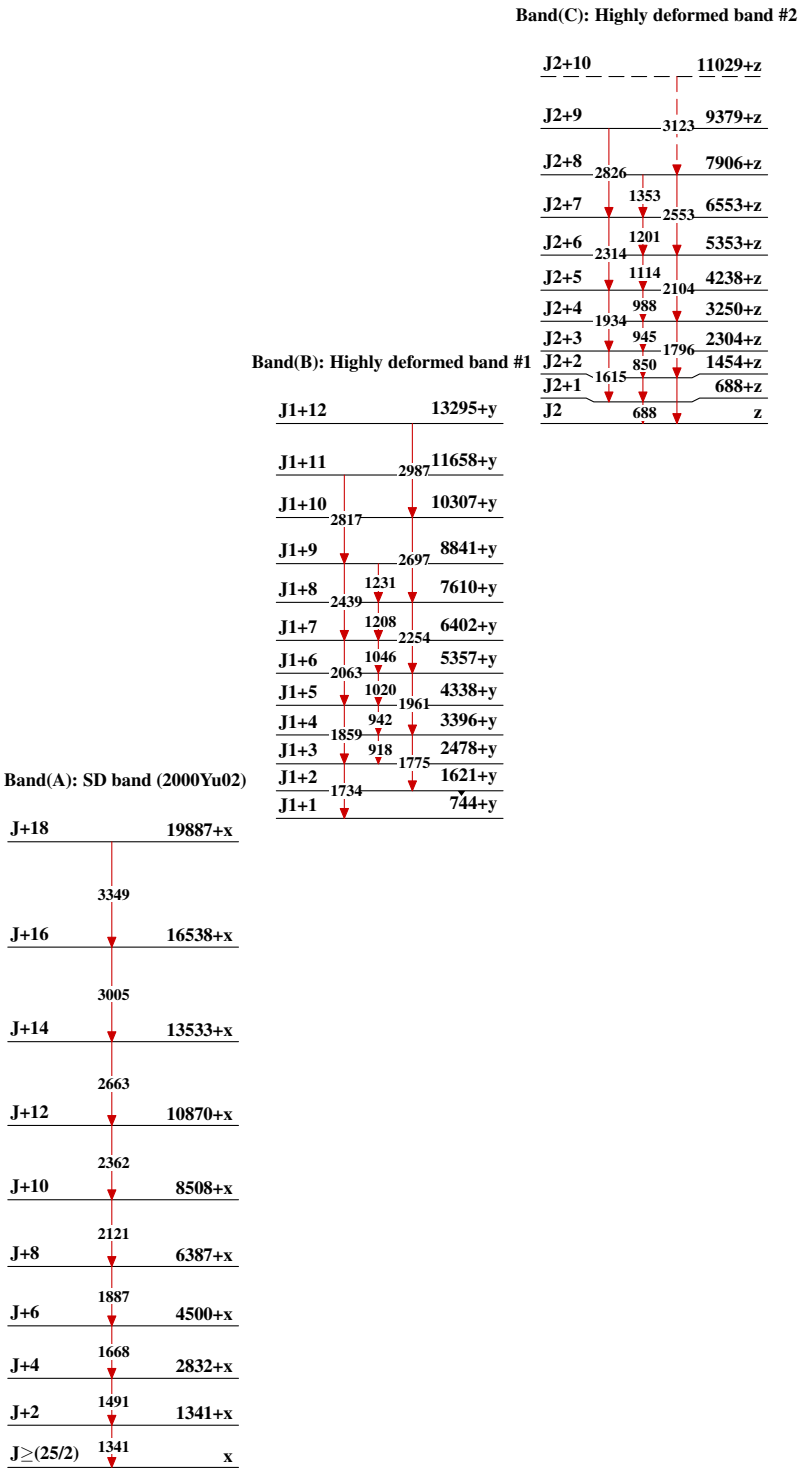

$^{65}_{30}Zn_{35}$