^{58}Ni(^{28}Si,3pγ):SD 2003Le08

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 125, 201 (2015)	31-Dec-2014

2003Le08: E(^{28}Si)=130 MeV. Measured Eγ, Iγ, $\gamma\gamma$ and particle-γ coincidences, lifetimes by DSAM using Gammasphere array with 100 Compton-suppressed HPGe detectors combined with Microball, a 95-element CsI(Tl) 4π charged-particle detector array; deduced superdeformed structures and associated transition quadrupole moments. Subset of results given in 2003ReZZ, 1999Le56, 1999LeZX.

^{83}Y Levels

E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡
x[#]	J≈(45/2)	y+3678.0[@] *15*	J1+4	z+10238.1[&] *23*	J2+10
x+1893.0[#] *10*	J+2	y+5750.1[@] *18*	J1+6	z+12773.2[&] *25*	J2+12
x+3915.0[#] *14*	J+4	y+7974.1[@] *20*	J1+8	z+15491[&] *3*	J2+14
x+6071.1[#] *18*	J+6	y+10358.1[@] *23*	J1+10	u[a]	J3≈(45/2)
x+8369.1[#] *20*	J+8	y+12909.2[@] *25*	J1+12	u+1920.0[a] *10*	J3+2
x+10813.1[#] *23*	J+10	y+15629[@] *3*	J1+14	u+3982.1[a] *15*	J3+4
x+13399.2[#] *25*	J+12	z[&]	J2≈(43/2)	u+6193.1[a] *18*	J3+6
x+16121[#] *3*	J+14	z+1738.0[&] *10*	J2+2	u+8567.1[a] *20*	J3+8
x+18960?[#] *3*	J+16	z+3609.0[&] *15*	J2+4	u+11098.2[a] *23*	J3+10
y[@]	J1≈(43/2)	z+5647.1[&] *18*	J2+6	u+13792.2[a] *25*	J3+12
y+1757.0[@] *10*	J1+2	z+7860.1[&] *20*	J2+8		

† From a least-squares fit to Eγ, by evaluator.

‡ Estimated from observed feeding into known spin levels in the normal-deformed region; and checked by a fitting of measured dynamic moments of inertia as a function of rotational frequencies (2003Le08).

[#] Band(A): SD-1 band. Observed in 2003Le08,1999Le56. Percent population=4.20. Q(transition)=4.4 *7* (2003Le08,1999Le56). Other: 4.7 *7* (quoted by 2003Le08 from C.-H. Yu, priv. comm.). Configuration=$\nu5^1\pi5^1$; non-intruder orbitals: $\nu(f_{5/2},p_{3/2}(3/2[301]))$.

[@] Band(B): SD-2 band. Observed in 2003Le08. Percent population=2.94. Q(transition)=3.6 *+8–5* (2003Le08). Configuration=$\nu5^1\pi5^0$; non-intruder orbitals: $\pi(f_{5/2},p_{3/2}(1/2[310]))$. This band is isospectral with SD band in ^{82}Sr.

[&] Band(C): SD-3 band. Observed in 2003Le08. Percent population=2.90. Q(transition)=3.6 *+4–3* (2003Le08). Tentative configuration=$\nu5^0\pi5^0$.

[a] Band(D): SD-4 band. Observed in 2003Le08. Percent population=2.73.

γ(^{83}Y)

Eγ	Iγ†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
1738 *1*		z+1738.0	J2+2	z	J2≈(43/2)
1757 *1*	1.5 *5*	y+1757.0	J1+2	y	J1≈(43/2)
1871 *1*		z+3609.0	J2+4	z+1738.0	J2+2
1893 *1*	2.6 *5*	x+1893.0	J+2	x	J≈(45/2)
1920 *1*		u+1920.0	J3+2	u	J3≈(45/2)
1921 *1*	2.1 *4*	y+3678.0	J1+4	y+1757.0	J1+2
2022 *1*	4.2 *6*	x+3915.0	J+4	x+1893.0	J+2
2038 *1*		z+5647.1	J2+6	z+3609.0	J2+4
2062 *1*		u+3982.1	J3+4	u+1920.0	J3+2
2072 *1*	3.0 *5*	y+5750.1	J1+6	y+3678.0	J1+4
2156 *1*	4.0 *6*	x+6071.1	J+6	x+3915.0	J+4

Continued on next page (footnotes at end of table)

^{58}Ni(^{28}Si,3pγ):SD 2003Le08 (continued)

$\gamma(^{83}Y)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
2211 *1*		u+6193.1	J3+6	u+3982.1	J3+4	2535 *1*		z+12773.2	J2+12	z+10238.1	J2+10
2213 *1*		z+7860.1	J2+8	z+5647.1	J2+6	2551 *1*	1.5 *5*	y+12909.2	J1+12	y+10358.1	J1+10
2224 *1*	2.4 *5*	y+7974.1	J1+8	y+5750.1	J1+6	2586 *1*	2.1 *6*	x+13399.2	J+12	x+10813.1	J+10
2298 *1*	3.8 *6*	x+8369.1	J+8	x+6071.1	J+6	2694 *1*		u+13792.2	J3+12	u+11098.2	J3+10
2374 *1*		u+8567.1	J3+8	u+6193.1	J3+6	2718 *1*		z+15491	J2+14	z+12773.2	J2+12
2378 *1*		z+10238.1	J2+10	z+7860.1	J2+8	2720 *1*	0.6 *4*	y+15629	J1+14	y+12909.2	J1+12
2384 *1*	2.8 *6*	y+10358.1	J1+10	y+7974.1	J1+8	2722 *1*	1.0 *4*	x+16121	J+14	x+13399.2	J+12
2444 *1*	2.8 *5*	x+10813.1	J+10	x+8369.1	J+8	2839[‡] *1*		x+18960?	J+16	x+16121	J+14
2531 *1*		u+11098.2	J3+10	u+8567.1	J3+8						

[†] Extracted from Figure 7 of 2003Le08 by the evaluator. Intensities are relative to the sum of the intensities of the ground-state band transitions.

[‡] Placement of transition in the level scheme is uncertain.

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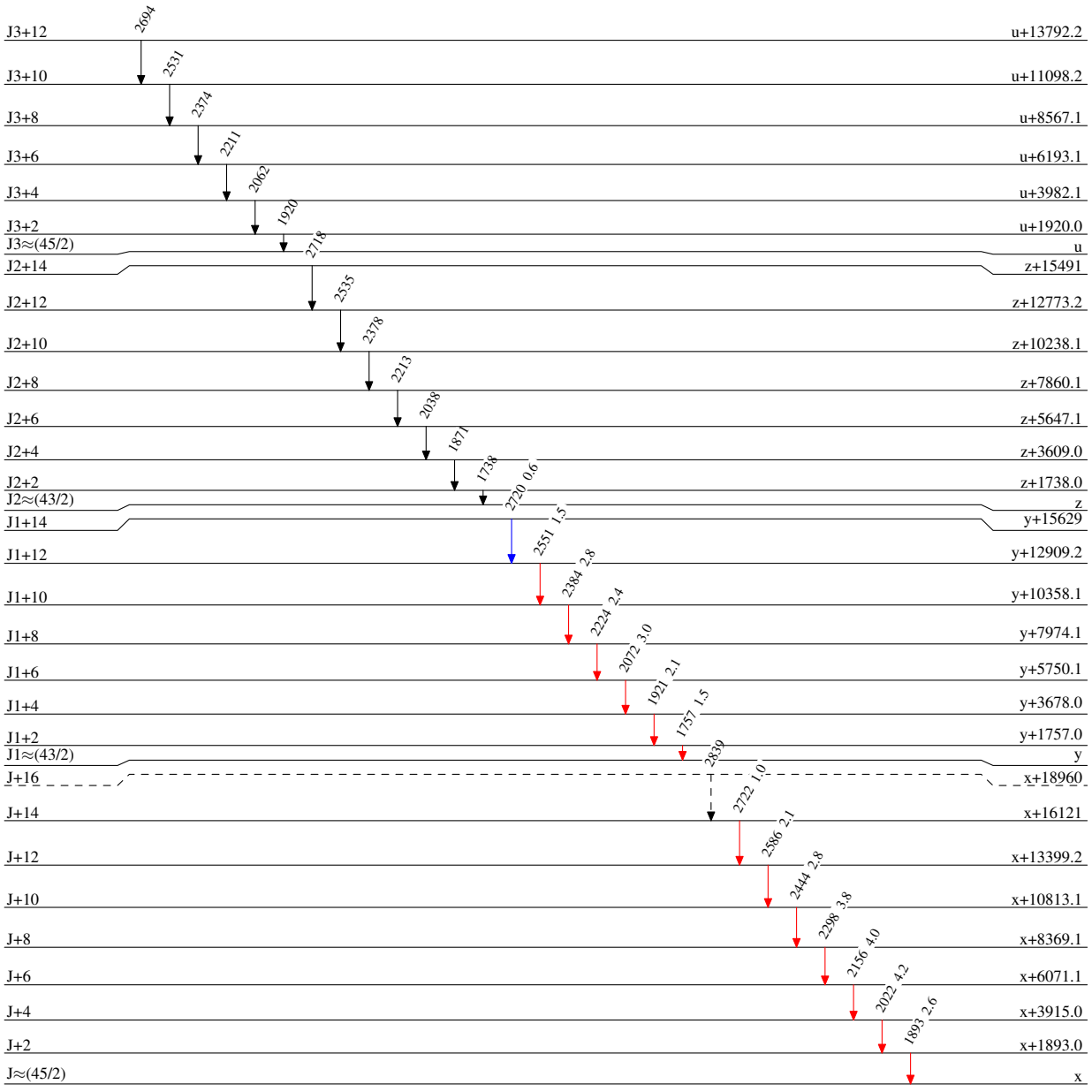
Level Scheme

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)



$^{83}_{39}Y_{44}$

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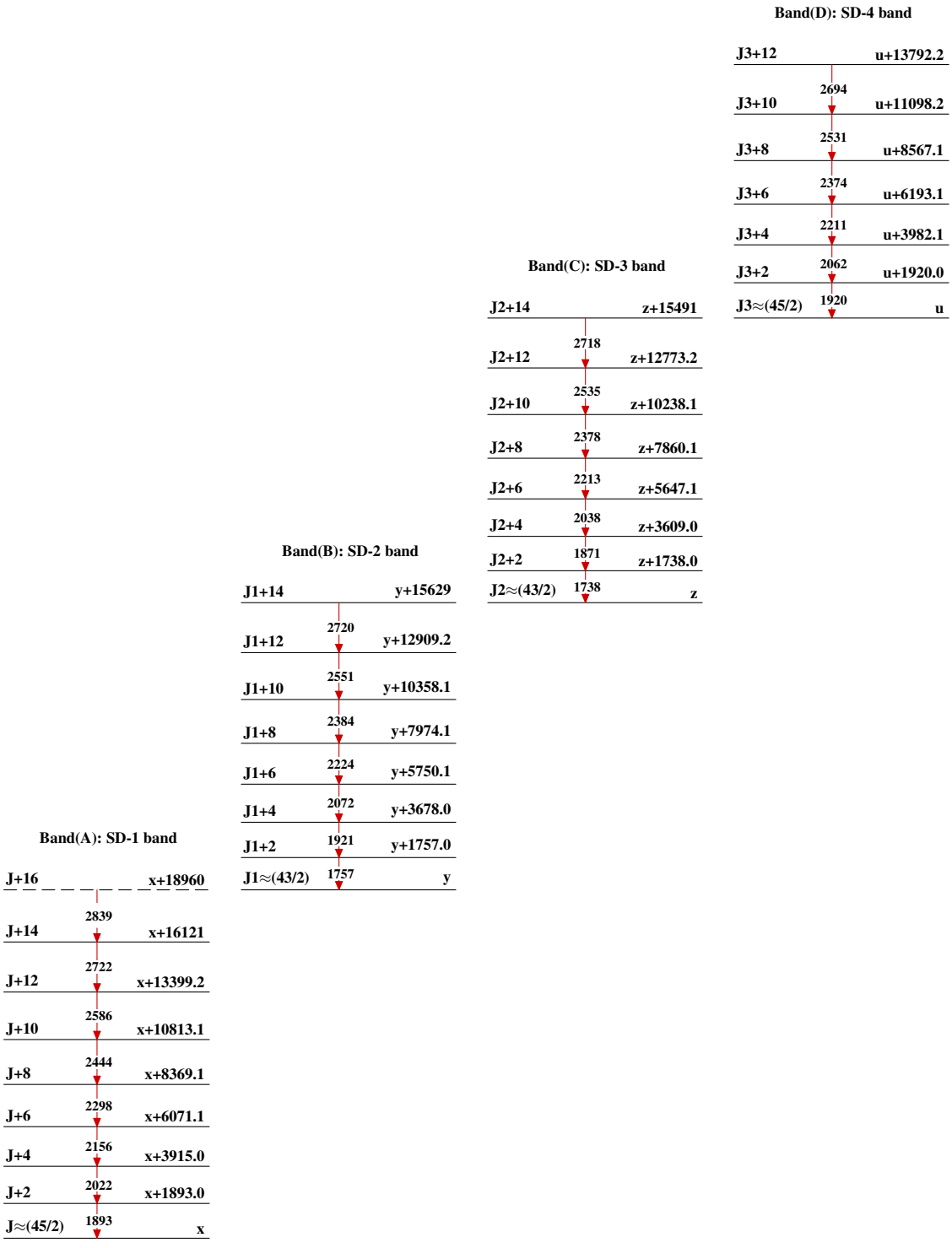

$^{83}_{39}Y_{44}$