

$^{58}\text{Ni}(^{30}\text{Si},\alpha 2p\gamma),(^{28}\text{Si},4p\gamma):\text{SD}$ 1995Sm08,1998Yu01,2003Le08

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. K. Tuli, E. Browne	NDS 157, 260 (2019)		1-Mar-2019

1995Sm08: $E(^{30}\text{Si})=134$ MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ using EUROGAM array consisting of 30 large Ge and 24 “clover” detectors.

1998Yu01: $^{58}\text{Ni}(^{28}\text{Si},4p\gamma)$ $E=130$ MeV. Measured lifetimes by centroid- shift method using GAMMASPHERE array (57 Ge detectors) and MICROBALL array of 95 CsI detectors.

2003Le08, 1999Le56: $^{58}\text{Ni}(^{28}\text{Si},4p\gamma)$ $E=130$ MeV. Measured $E\gamma$, $\gamma\gamma$, lifetimes by Doppler-shift attenuation method using Gammasphere array (100 HPGe detectors with BGO shields) and Microball array (95-element CsI(Tl) detectors), deduced SD band and transition quadrupole moment.

A superdeformed structure defined by 1537-1695-1856-2005-2162- 2311-2463-2603 cascade (1995Sm08) was not confirmed by 1998Yu01. As suggested by 1998Yu01, some of the γ rays in this cascade belong to ^{79}Rb .

 ^{82}Sr Levels

E(level)	J^π	Comments
$x^\dagger$	J	Additional information 1. J^π : ≈ 18 from 2003Le08. Others: $J\approx(19)$ from 1995Sm08.
1432.0+ $x^\dagger$ 10	J+2	
3027.0+ $x^\dagger$ 15	J+4	
4783.0+ $x^\dagger$ 18	J+6	
6703.1+ $x^\dagger$ 20	J+8	
8780.1+ $x^\dagger$ 23	J+10	
11010.1+ $x^\dagger$ 25	J+12	
13393+ $x^\dagger$ 3	J+14	
15938+ $x^\dagger$ 3	J+16	
18674+ $x^\dagger$ 3	J+18	

† Band(A): SD band (1995Sm08,1998Yu01,1999Le56,2003Le08). $Q(\text{intrinsic})=3.54+15-14$ (1999Le56,2003Le08), 4.5 9 (1998Yu01). $\beta_2=0.50$ from $Q(\text{intrinsic})=4.5$ (1999Le56), calculated $Q(\text{intrinsic})=3.3$ 2 (for $^{70}\text{Ge}+^{12}\text{C}$ cluster), 5.6 2 (for $^{54}\text{Cr}+^{28}\text{Si}$ cluster) (2001Bu02). Percent population=1.0-1.5 (1995Sm08), ≈ 2.5 (1998Yu01), 0.63 (2003Le08). Probable configuration= $\nu 5^2\pi 5^1(\pi 1/2[431] \alpha=-1/2)$ with $\pi=-$, $\alpha=1$ (1998Yu01), $\nu 5^1\pi 5^0$ (1999Le56,2003Le08).

 $\gamma(^{82}\text{Sr})$

$E_\gamma^\dagger$	$I_\gamma^\ddagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
1432 1	0.60 7	1432.0+ x	J+2	x	J	E_γ : 1429.8 (1998Yu01), 1432 (1995Sm08).
1595 1	0.65 7	3027.0+ x	J+4	1432.0+ x	J+2	E_γ : 1596.6 (1998Yu01).
1756 1	0.83 7	4783.0+ x	J+6	3027.0+ x	J+4	E_γ : 1757.7 (1998Yu01).
1920 1	1.00 7	6703.1+ x	J+8	4783.0+ x	J+6	E_γ : 1918.6 (1998Yu01).
2077 1	1.00 7	8780.1+ x	J+10	6703.1+ x	J+8	E_γ : 2076.6 (1998Yu01).
2230 1	1.00 7	11010.1+ x	J+12	8780.1+ x	J+10	E_γ : 2228.6 (1998Yu01), 2232 (1998Yu01).
2383 1	0.80 7	13393+ x	J+14	11010.1+ x	J+12	E_γ : 2380.7 (1998Yu01), 2386 (1995Sm08).
2545 1	0.50 7	15938+ x	J+16	13393+ x	J+14	E_γ : 2544.6 (1998Yu01), 2550 (1995Sm08).
2736 [#]	0.25 5	18674+ x ?	J+18	15938+ x	J+16	E_γ : from 1995Sm08 only; not reported by 2003Le08 or 1998Yu01.

† From 2003Le08 unless otherwise stated. Corresponding values are also available from 1995Sm08 and 1998Yu01.

‡ Relative intensities within the band read from a graph given by 1995Sm08. Values are also given in figure 2 in 1998Yu01 and figure 1 in 1996Da20.

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

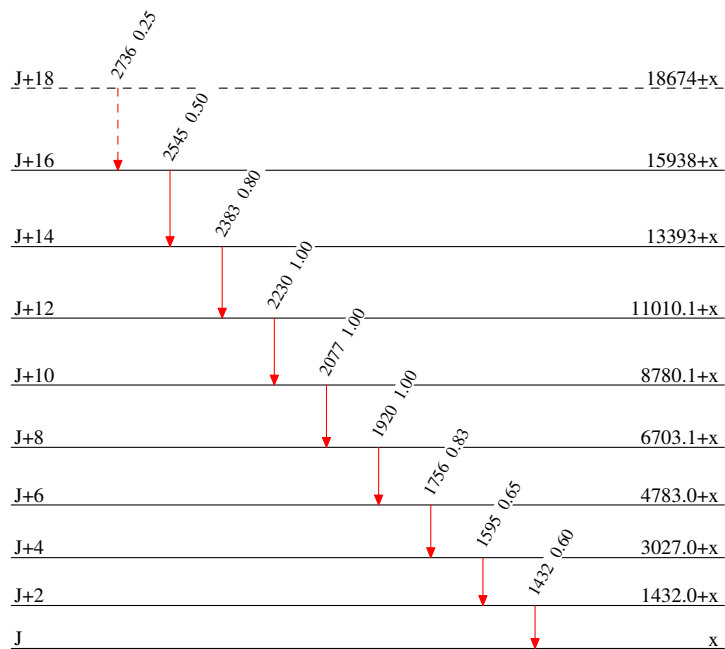
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Legend

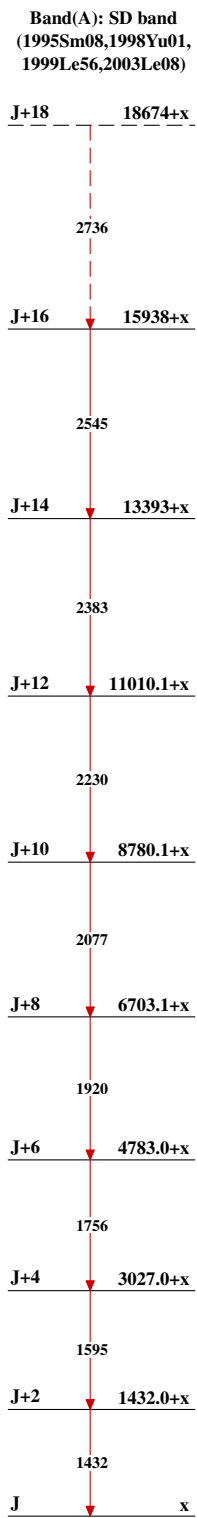
Level Scheme

 Intensities: Relative I_γ

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


 $^{82}_{38}\text{Sr}_{44}$

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$^{82}_{38}\text{Sr}_{44}$