

$^{58}\text{Ni}(^{31}\text{P},3\text{p}\gamma):\text{SD}$ 1998Sa01

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh		NDS 124, 1 (2015)	30-Nov-2014

1998Sa01: E=134 MeV. Measured E γ , I γ , $\gamma\gamma$, Doppler shifts using Gammasphere array (86 Ge detectors) and Microball of 95 CsI(Tl) detectors. Deduced SD bands.

 ^{86}Zr Levels

These four bands in ^{86}Zr are interpreted by 1998Sa01 in terms of triaxial superdeformed shapes. See 1998Sa01 for calculations and configuration assignments.

E(level)	J $^{\pi}$	Comments
x †	J1 \approx (23)	J $^{\pi}$: estimated spin from decay to normal states=21.7 I5 (1998Sa01).
1518+x †	J1+2	
3164+x †	J1+4	
4949+x †	J1+6	
6878+x †	J1+8	
8955+x †	J1+10	
11183+x †	J1+12	
13566+x †	J1+14	
16106+x †	J1+16	
18802+x †	J1+18	
y ‡	J2 \approx (22)	
1577+y ‡	J2+2	
3307+y ‡	J2+4	
5198+y ‡	J2+6	
7254+y ‡	J2+8	
9481+y ‡	J2+10	
11874+y ‡	J2+12	
14388+y ‡	J2+14	
16950+y ‡	J2+16	
19658+y? ‡	J2+18	
z $^{\#}$	J3 \approx (25)	
1866+z $^{\#}$	J3+2	
3825+z $^{\#}$	J3+4	
5887+z $^{\#}$	J3+6	
8042+z $^{\#}$	J3+8	
10286+z $^{\#}$	J3+10	
12629+z $^{\#}$	J3+12	
15058+z? $^{\#}$	J3+14	
u $^{\textcircled{a}}$	J4 \approx (23)	
1648+u $^{\textcircled{a}}$	J4+2	
3459+u $^{\textcircled{a}}$	J4+4	
5426+u $^{\textcircled{a}}$	J4+6	
7549+u $^{\textcircled{a}}$	J4+8	
9822+u $^{\textcircled{a}}$	J4+10	

Continued on next page (footnotes at end of table)

$^{58}\text{Ni}(^{31}\text{P},^{31}\text{P}\gamma):\text{SD}$ 1998Sa01 (continued) ^{86}Zr Levels (continued)

E(level)	J^π
12225+u [@]	J4+12
14716+u [@]	J4+14

[†] Band(A): (Triaxial) SD-1 band (1998Sa01). $Q(\text{intrinsic})=4.6 +7-6$ (1998Sa01). Percent population (relative to ^{86}Zr channel)=2.0 2.

[‡] Band(B): (Triaxial) SD-2 band (1998Sa01). $Q(\text{intrinsic})=4.0 \ 3$ (1998Sa01). Percent population (relative to ^{86}Zr channel)=0.6 1.

[#] Band(C): (Triaxial) SD-3 band (1998Sa01). $Q(\text{intrinsic})=5.4 +22-11$ (1998Sa01). Percent population (relative to ^{86}Zr channel)=0.5 1.

[@] Band(D): (Triaxial) SD-4 band (1998Sa01). $Q(\text{intrinsic})=3.8 +6-5$ (1998Sa01). Percent population (relative to ^{86}Zr channel)=0.24 8.

 $\gamma(^{86}\text{Zr})$

All γ rays except the weakest show DCO ratios typical of stretched quadrupoles.

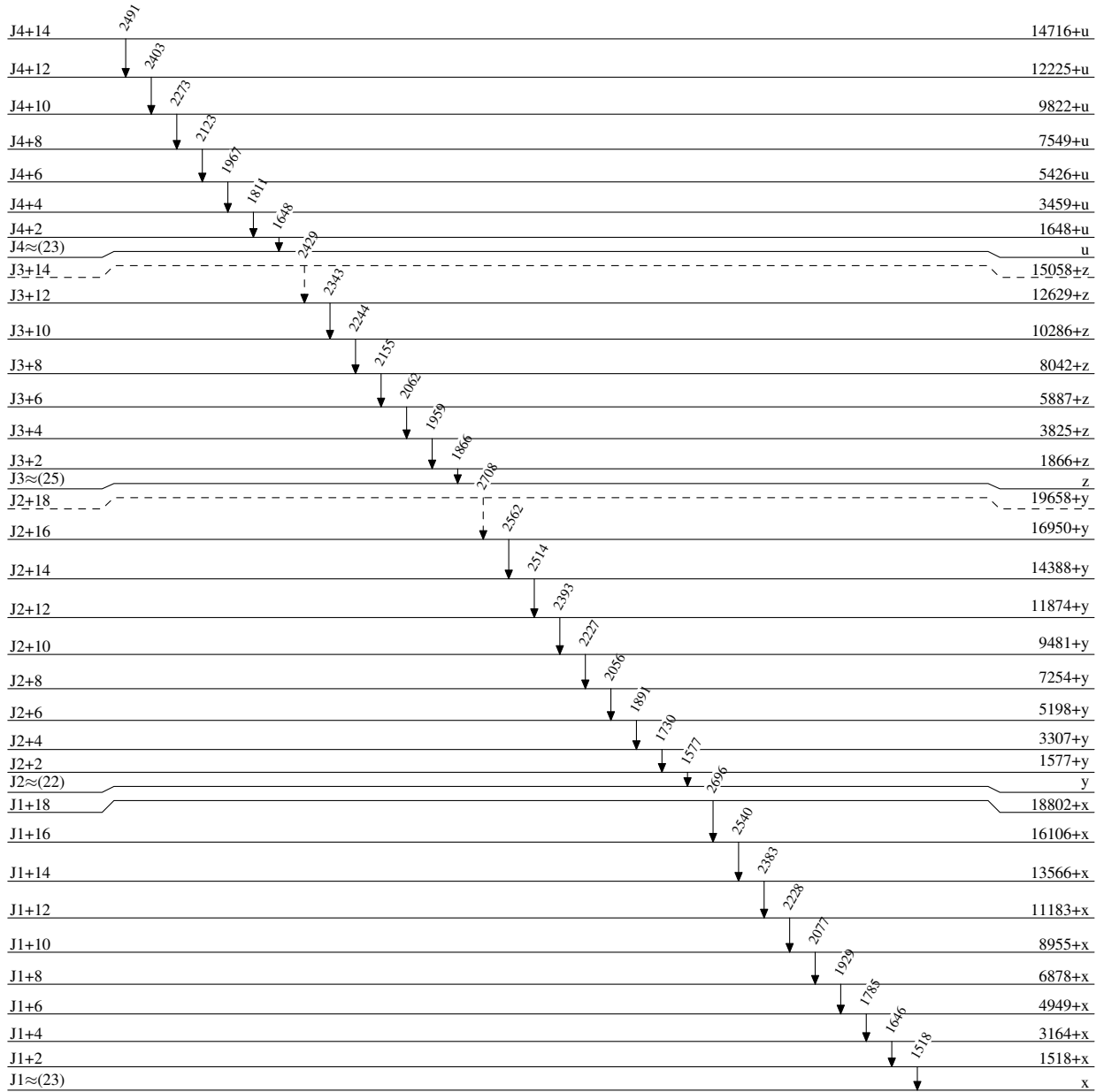
E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
1518	1518+x	J1+2	x	J1 \approx (23)	2155	8042+z	J3+8	5887+z	J3+6
1577	1577+y	J2+2	y	J2 \approx (22)	2227	9481+y	J2+10	7254+y	J2+8
1646	3164+x	J1+4	1518+x	J1+2	2228	11183+x	J1+12	8955+x	J1+10
1648	1648+u	J4+2	u	J4 \approx (23)	2244	10286+z	J3+10	8042+z	J3+8
1730	3307+y	J2+4	1577+y	J2+2	2273	9822+u	J4+10	7549+u	J4+8
1785	4949+x	J1+6	3164+x	J1+4	2343	12629+z	J3+12	10286+z	J3+10
1811	3459+u	J4+4	1648+u	J4+2	2383	13566+x	J1+14	11183+x	J1+12
1866 [†]	1866+z	J3+2	z	J3 \approx (25)	2393	11874+y	J2+12	9481+y	J2+10
1891	5198+y	J2+6	3307+y	J2+4	2403	12225+u	J4+12	9822+u	J4+10
1929	6878+x	J1+8	4949+x	J1+6	2429 [†]	15058+z?	J3+14	12629+z	J3+12
1959	3825+z	J3+4	1866+z	J3+2	2491	14716+u	J4+14	12225+u	J4+12
1967	5426+u	J4+6	3459+u	J4+4	2514	14388+y	J2+14	11874+y	J2+12
2056	7254+y	J2+8	5198+y	J2+6	2540	16106+x	J1+16	13566+x	J1+14
2062	5887+z	J3+6	3825+z	J3+4	2562	16950+y	J2+16	14388+y	J2+14
2077	8955+x	J1+10	6878+x	J1+8	2696	18802+x	J1+18	16106+x	J1+16
2123	7549+u	J4+8	5426+u	J4+6	2708 [†]	19658+y?	J2+18	16950+y	J2+16

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

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Legend

Level Scheme

-----► γ Decay (Uncertain) $^{86}_{40}\text{Zr}_{46}$

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Band(A): (Triaxial) SD-1 band (1998Sa01)			Band(B): (Triaxial) SD-2 band (1998Sa01)			Band(C): (Triaxial) SD-3 band (1998Sa01)			Band(D): (Triaxial) SD-4 band (1998Sa01)		
J1+18		18802+x	J2+18		19658+y	J3+14		15058+z	J4+14		14716+u
J1+16	2696	16106+x	J2+16	2708	16950+y	J3+12	2429	12629+z	J4+12	2491	12225+u
J1+14	2540	13566+x	J2+14	2562	14388+y	J3+10	2343	10286+z	J4+10	2403	9822+u
J1+12	2383	11183+x	J2+12	2514	11874+y	J3+8	2244	8042+z	J4+8	2273	7549+u
J1+10	2228	8955+x	J2+10	2393	9481+y	J3+6	2155	5887+z	J4+6	2123	5426+u
J1+8	2077	6878+x	J2+8	2227	7254+y	J3+4	2062	3825+z	J4+4	1967	3459+u
J1+6	1929	4949+x	J2+6	2056	5198+y	J3+2	1959	1866+z	J4+2	1811	1648+u
J1+4	1785	3164+x	J2+4	1891	3307+y	J3≈(25)	1866	z	J4≈(23)	1648	u
J1+2	1646	1518+x	J2+2	1730	1577+y						
J1≈(23)	1518	x	J2≈(22)	1577	y						