^{100}Mo(^{34}S,4nγ):SD 1998Se10,1997Wi02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 93, 33 (2001)	11-May-2001

See (HI,xnγ) (1984To10) for normal-deformed states.

1998Se10 (also 1997Pa42): E=155 MeV. Measured Eγ, $\gamma\gamma\gamma$ using EUROGAM ii array with 54 Ge detectors including 24 Clover type. Deduced four SD bands.

2000PaZZ: E=155 MeV. Measured Eγ, Iγ, $\gamma\gamma$ (triples and quadruples) $\gamma\gamma(\theta)$(DCO), γ(lin pol) using EUROGAM 2 array. Preliminary report; full details are not yet available.

Additional information 1.

1997Wi02: ^{100}Mo(^{34}S,4nγ) E=145 MeV. Measured Eγ, $\gamma\gamma\gamma$ with 8π array (20 Ge detectors and 71 BGO detectors). Deduced SD band.

^{130}Ce Levels

E(level)	J$^\pi$	Comments
x[@]	J≈(18)	J$^\pi$: 899 transition estimated as 22 to 20. Positive parity proposed by 1998Se10. This level may deexcite by an 866γ followed by a 956γ as indicated by the alignment plot in figure 3 of 1998Se10. 2000PaZZ show the ordering as 864γ-956γ-834γ, followed by 864γ feeding the 10$^+$ level of g.s. band.
865+x[@]	J+2	
1764+x[@]	J+4	
2720+x[@]	J+6	
3752+x[@]	J+8	
4859+x[@]	J+10	
6007+x[@]	J+12	
7124+x[@]	J+14	
8339+x[@]	J+16	
9627+x[@]	J+18	
10994+x[@]	J+20	
12442+x[@]	J+22	
13974+x[@]	J+24	
15595+x[@]	J+26	
17304+x[@]	J+28	
19109+x[@]	J+30	
21009+x[@]	J+32	
23001+x[@]	J+34	
25065+x?[@]	J+36	
y[†&]	J	
841+y[&]	J+2	
1755+y[&]	J+4	
2738+y[&]	J+6	
3790+y[&]	J+8	
4914+y[&]	J+10	
6110+y[&]	J+12	
7376+y[&]	J+14	
8714+y[&]	J+16	
10126+y[&]	J+18	
11615+y[&]	J+20	

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^{100}Mo(^{34}S,4nγ):SD 1998Se10,1997Wi02 (continued)

^{130}Ce Levels (continued)

E(level)	Jπ	E(level)	Jπ	E(level)	Jπ	E(level)	Jπ
13181+y[&]	J+22	1880+z[a]	J+4	12394+z[a]	J+20	3995+u[b]	J+6
14827+y[&]	J+24	2928+z[a]	J+6	14098+z[a]	J+22	5473+u[b]	J+8
16553+y[&]	J+26	4050+z[a]	J+8	15903+z[a]	J+24	7028+u[b]	J+10
18359+y[&]	J+28	5246+z[a]	J+10	17807+z[a]	J+26	8662+u[b]	J+12
20259+y[&]	J+30	6517+z[a]	J+12	19806+z[a]	J+28	10379+u[b]	J+14
22255+y[&]	J+32	7863+z[a]	J+14	u[#b]	J	12169+u[b]	J+16
z[‡a]	J	9288+z[a]	J+16	1261+u[b]	J+2	14031+u[b]	J+18
904+z[a]	J+2	10800+z[a]	J+18	2592+u[b]	J+4		

[†] Possible feeding of 14^-, 16^- and 17^- states of 2-quasiproton band (2000PaZZ).
[‡] 2000PaZZ show a cascade of 832γ-(757γ-675γ) deexciting this level, followed by possible feeding of 14^+ level of g.s. band.
[#] 2000PaZZ show an 1175γ deexciting this level, followed by possible feeding of 22^+ level of g.s. band.
[@] Band(A): SD-1 band (1998Se10). Percent population=0.6 (1998Se10). Configuration=($\nu 6^1$)($\nu 1/2[411]$), α=0. The band may continue downward with four more transitions of 866, 956, 866 and 834 keV, but the ordering of these γ rays in the lowest part of the band is not yet established. 2000PaZZ suggest the ordering as 864γ-956γ-834γ followed by 864γ feeding the 10^+ level of g.s. band.
[&] Band(B): SD-2 band (1998Se10,1997Wi02). Percent population=1.0 (1998Se10), 0.5 (1997Wi02). Configuration=($\nu 6^1$)($\nu 7/2[523]$), α=0.
[a] Band(C): SD-3 band (1998Se10). Percent population=0.5 (1998Se10). Configuration=($\nu 6^1$)($\nu 1/2[411]$), α=1, possibly signature partner of SD-1 band.
[b] Band(D): SD-4 band (1998Se10). Percent population=0.4 (1998Se10). Configuration=($\nu 6^1$)($\nu 7/2[523]$), α=1, possibly signature partner of SD-2 band.

γ(^{130}Ce)

Relative intensity plots are given by 1997Pa42.

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
[x]834[@]					
841	841+y	J+2	y	J	
865[‡]	865+x	J+2	x	J≈(18)	E_γ: 868 (2000PaZZ).
[x]865[‡@]					
[x]865[‡@]					
899	1764+x	J+4	865+x	J+2	
904	904+z	J+2	z	J	
914	1755+y	J+4	841+y	J+2	
956[#]	2720+x	J+6	1764+x	J+4	
[x]956[#@]					
976	1880+z	J+4	904+z	J+2	
983	2738+y	J+6	1755+y	J+4	
1032	3752+x	J+8	2720+x	J+6	
1048	2928+z	J+6	1880+z	J+4	
1052	3790+y	J+8	2738+y	J+6	E_γ: 1056 (2000PaZZ).
1107	4859+x	J+10	3752+x	J+8	
1117	7124+x	J+14	6007+x	J+12	
1122	4050+z	J+8	2928+z	J+6	

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^{100}Mo(^{34}S,4nγ):SD 1998Se10,1997Wi02 (continued)

$\gamma(^{130}Ce)$ (continued)

E_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
1124	4914+y	J+10	3790+y	J+8	E_γ: 1127 (2000PaZZ).
1148	6007+x	J+12	4859+x	J+10	
1196	6110+y	J+12	4914+y	J+10	E_γ: 1199 (2000PaZZ).
1196	5246+z	J+10	4050+z	J+8	
1215	8339+x	J+16	7124+x	J+14	
1261	1261+u	J+2	u	J	
1266	7376+y	J+14	6110+y	J+12	
1271	6517+z	J+12	5246+z	J+10	
1288	9627+x	J+18	8339+x	J+16	
1331	2592+u	J+4	1261+u	J+2	
1338	8714+y	J+16	7376+y	J+14	E_γ: 1341 (2000PaZZ).
1346	7863+z	J+14	6517+z	J+12	
1367	10994+x	J+20	9627+x	J+18	
1403	3995+u	J+6	2592+u	J+4	
1412	10126+y	J+18	8714+y	J+16	E_γ: 1416 (1997Wi02,2000PaZZ).
1425	9288+z	J+16	7863+z	J+14	
1448	12442+x	J+22	10994+x	J+20	
1478	5473+u	J+8	3995+u	J+6	
1489	11615+y	J+20	10126+y	J+18	
1512	10800+z	J+18	9288+z	J+16	
1532	13974+x	J+24	12442+x	J+22	
1555	7028+u	J+10	5473+u	J+8	
1566	13181+y	J+22	11615+y	J+20	
1594	12394+z	J+20	10800+z	J+18	
1621	15595+x	J+26	13974+x	J+24	
1634	8662+u	J+12	7028+u	J+10	
1646	14827+y	J+24	13181+y	J+22	
1704&	14098+z	J+22	12394+z	J+20	E_γ: 2000PaZZ show a cascade of 1664γ-1761γ above 1594γ.
1709	17304+x	J+28	15595+x	J+26	
1717	10379+u	J+14	8662+u	J+12	
1726	16553+y	J+26	14827+y	J+24	
1790	12169+u	J+16	10379+u	J+14	
1805	19109+x	J+30	17304+x	J+28	
1805&	15903+z	J+24	14098+z	J+22	E_γ: see comment for 1704γ.
1806	18359+y	J+28	16553+y	J+26	
1862&	14031+u	J+18	12169+u	J+16	
1900	21009+x	J+32	19109+x	J+30	
1900&	20259+y	J+30	18359+y	J+28	
1904&a	17807+z	J+26	15903+z	J+24	
1992&	23001+x	J+34	21009+x	J+32	
1996&	22255+y	J+32	20259+y	J+30	
1999&a	19806+z	J+28	17807+z	J+26	
2064&a	25065+x?	J+36	23001+x	J+34	

† From 1998Se10. 1997Wi02 give energies of nine γ rays in SD-2 band.
‡ Triplet.
# Doublet.
@ Associated with the lowest part of SD-1 band, but the ordering of the transitions is unknown. 2000PaZZ suggest the ordering as 864-956-834 followed by 864 feeding the 10^+ level of g.s. band.
& This γ not given by 2000PaZZ.
a Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

Legend

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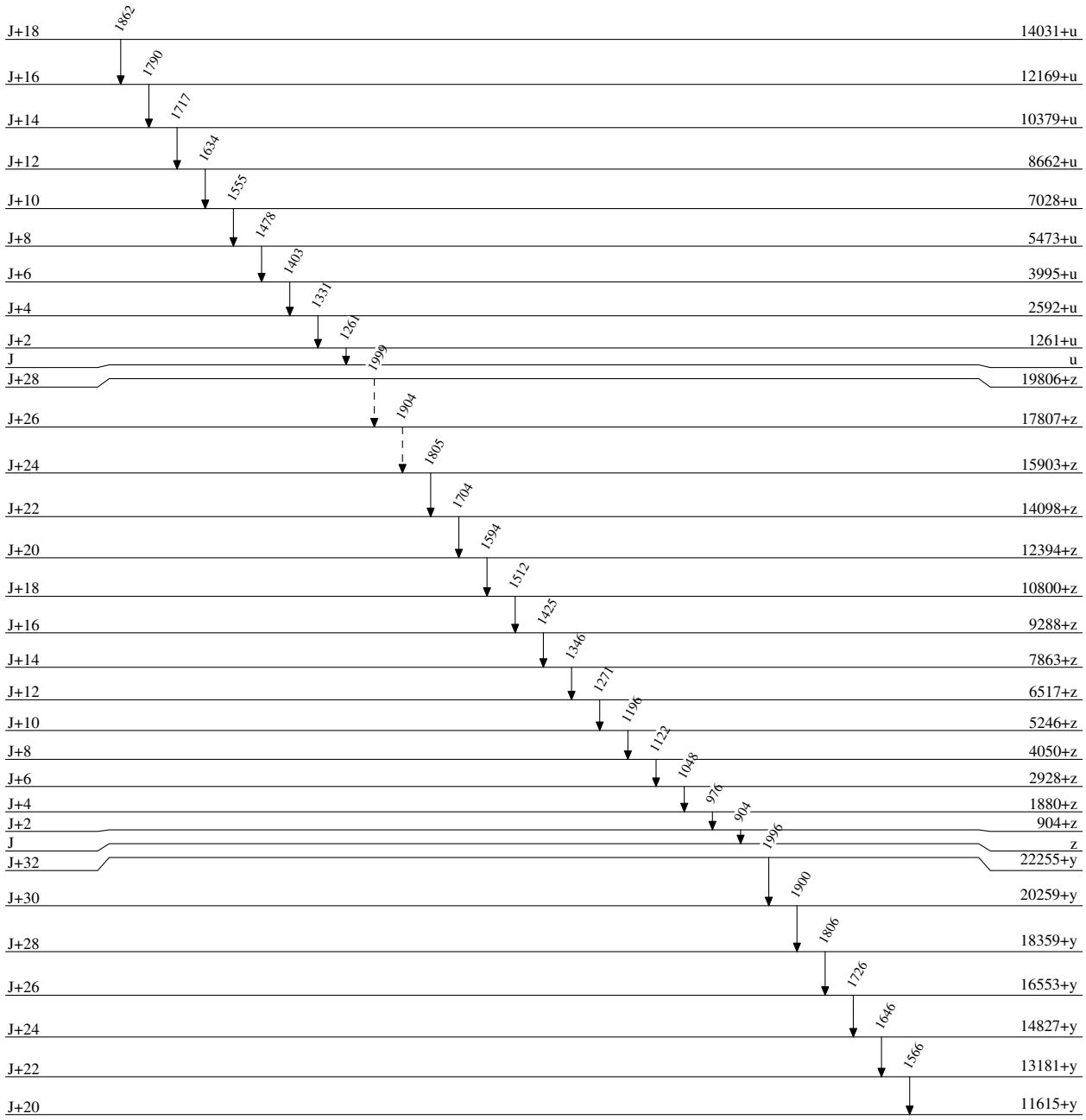
Level Scheme

- - - - - - ► γ Decay (Uncertain)



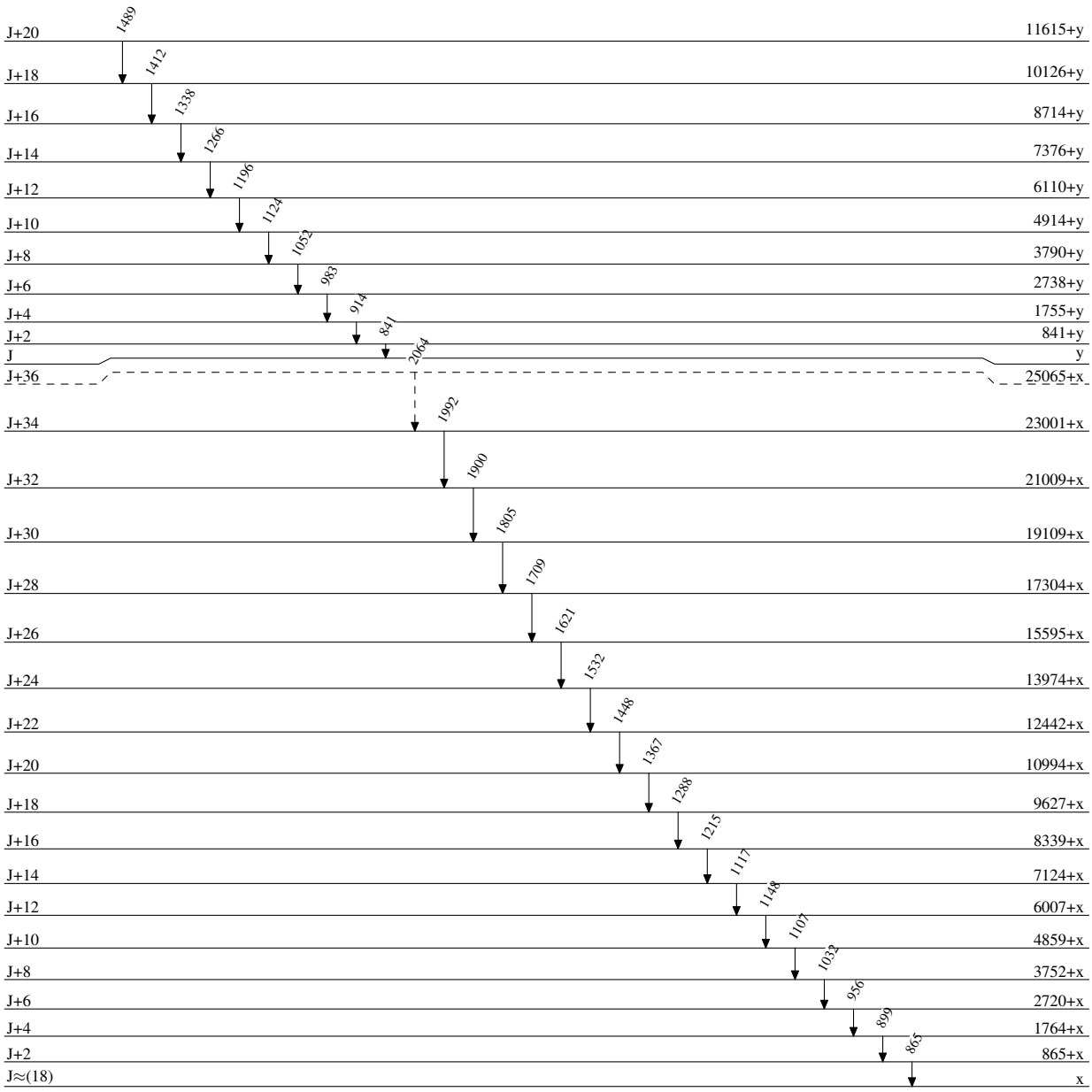
$^{130}_{58}Ce_{72}$

Legend

^{100}Mo(^{34}S,4nγ):SD 1998Se10,1997Wi02

Level Scheme (continued)

γ Decay (Uncertain)



$^{130}_{58}Ce_{72}$

^{100}Mo(^{34}S,4nγ):SD 1998Se10,1997Wi02

Band(A): SD-1 band (1998Se10)

J+36		25065+x
J+34	2064	23001+x
J+32		21009+x
J+30	1992	19109+x
J+28	1900	17304+x
J+26	1805	15595+x
J+24	1709	13974+x
J+22	1621	12442+x
J+20	1532	10994+x
J+18	1448	9627+x
J+16	1367	8339+x
J+14	1288	7124+x
J+12	1215	6007+x
J+10	1117	4859+x
J+8	1148	3752+x
J+6	1107	2720+x
J+4	1032	1764+x
J+2	956	865+x
J≈(18)	865	x

Band(B): SD-2 band (1998Se10,1997Wi02)

J+32		22255+y
J+30	1996	20259+y
J+28	1900	18359+y
J+26	1806	16553+y
J+24	1726	14827+y
J+22	1646	13181+y
J+20	1566	11615+y
J+18	1489	10126+y
J+16	1412	8714+y
J+14	1338	7376+y
J+12	1266	6110+y
J+10	1196	4914+y
J+8	1124	3790+y
J+6	1052	2738+y
J+4	983	1755+y
J+2	841	841+y
J		y

Band(C): SD-3 band (1998Se10)

J+28		19806+z
J+26	1999	17807+z
J+24	1904	15903+z
J+22	1805	14098+z
J+20	1704	12394+z
J+18	1594	10800+z
J+16	1512	9288+z
J+14	1425	7863+z
J+12	1346	6517+z
J+10	1271	5246+z
J+8	1196	4050+z
J+6	1122	2928+z
J+4	1048	1880+z
J+2	904	904+z
J		z

Band(D): SD-4 band (1998Se10)

J+18		14031+u
J+16	1862	12169+u
J+14	1790	10379+u
J+12	1717	8662+u
J+10	1634	7028+u
J+8	1555	5473+u
J+6	1478	3995+u
J+4	1403	2592+u
J+2	1331	1261+u
J	1261	u

$^{130}_{58}Ce_{72}$