^{96}Zr(^{48}Ca,4nγ):SD 2004Ne13

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 154, 1 (2018)	20-Nov-2018

2004Ne13: E=195 MeV. Measured Eγ, Iγ, $\gamma\gamma$, Doppler-shift analysis using EUROBALL γ-detector array with 30 tapered Ge detectors, 15 Clusters, and 26 Clover composite Ge detectors. Each detector system was surrounded by a BGO Compton-suppression shield. Multiplicity information was obtained from an inner ball of 210 BGO detectors. Deduced SD band.

^{140}Nd Levels

E(level)	J$^\pi$[†]	E(level)	J$^\pi$[†]	E(level)	J$^\pi$[†]	E(level)	J$^\pi$[†]
w?[#@]	J≈(34)	5930+w[@]	J+10	11767+w	J+18	18272+w[@]	J+26
1069+w[@]	J+2[‡]	7295+w[@]	J+12	13284+w[@]	J+20	20060+w[@]	J+28
2195+w[@]	J+4	8720+w[@]	J+14	13529+w	J+20	21914+w[@]	J+30
3379+w[@]	J+6	10203+w[@]	J+16	14887+w[@]	J+22	23833+w[@]	J+32
4625+w[@]	J+8	11731+w[@]	J+18	16548+w[@]	J+24	25818+w?[@]	J+34

[†] From stretched quadrupole in band γ's, probably E2, based on intensity ratios at forward/backward angles, to 90° (2004Ne13).
[‡] Proposed spin of this level is 36±2 (2004Ne13, by spin-fitting methods).
[#] The level is questionable because the unique γ associated to it (by population from above level) is considered as tentative by 2004Ne13.
[@] Band(A): SD band (2004Ne13). Population intensity=1% of the reaction channel. Q(transition)=9.0 *+37−20* (2004Ne13) from analysis of Doppler-shifts (the uncertainty does not include that from the stopping powers). Configuration=$\nu 6^4(\pi 5^6$ or $\pi 5^5 6^1)$; neutrons of $i_{13/2}$ origin and protons of $h_{11/2}/h_{9/2}$ and $i_{13/2}$ origin.

γ(^{140}Nd)

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
1069[†]	1069+w	J+2	w?	J≈(34)	1553	13284+w	J+20	11731+w	J+18
1126	2195+w	J+4	1069+w	J+2	1564	11767+w	J+18	10203+w	J+16
1184	3379+w	J+6	2195+w	J+4	1603	14887+w	J+22	13284+w	J+20
1246	4625+w	J+8	3379+w	J+6	1661	16548+w	J+24	14887+w	J+22
1305	5930+w	J+10	4625+w	J+8	1724	18272+w	J+26	16548+w	J+24
1365	7295+w	J+12	5930+w	J+10	1762	13529+w	J+20	11767+w	J+18
1425	8720+w	J+14	7295+w	J+12	1788	20060+w	J+28	18272+w	J+26
1483	10203+w	J+16	8720+w	J+14	1854	21914+w	J+30	20060+w	J+28
1517[†]	13284+w	J+20	11767+w	J+18	1919	23833+w	J+32	21914+w	J+30
1528	11731+w	J+18	10203+w	J+16	1985[†]	25818+w?	J+34	23833+w	J+32

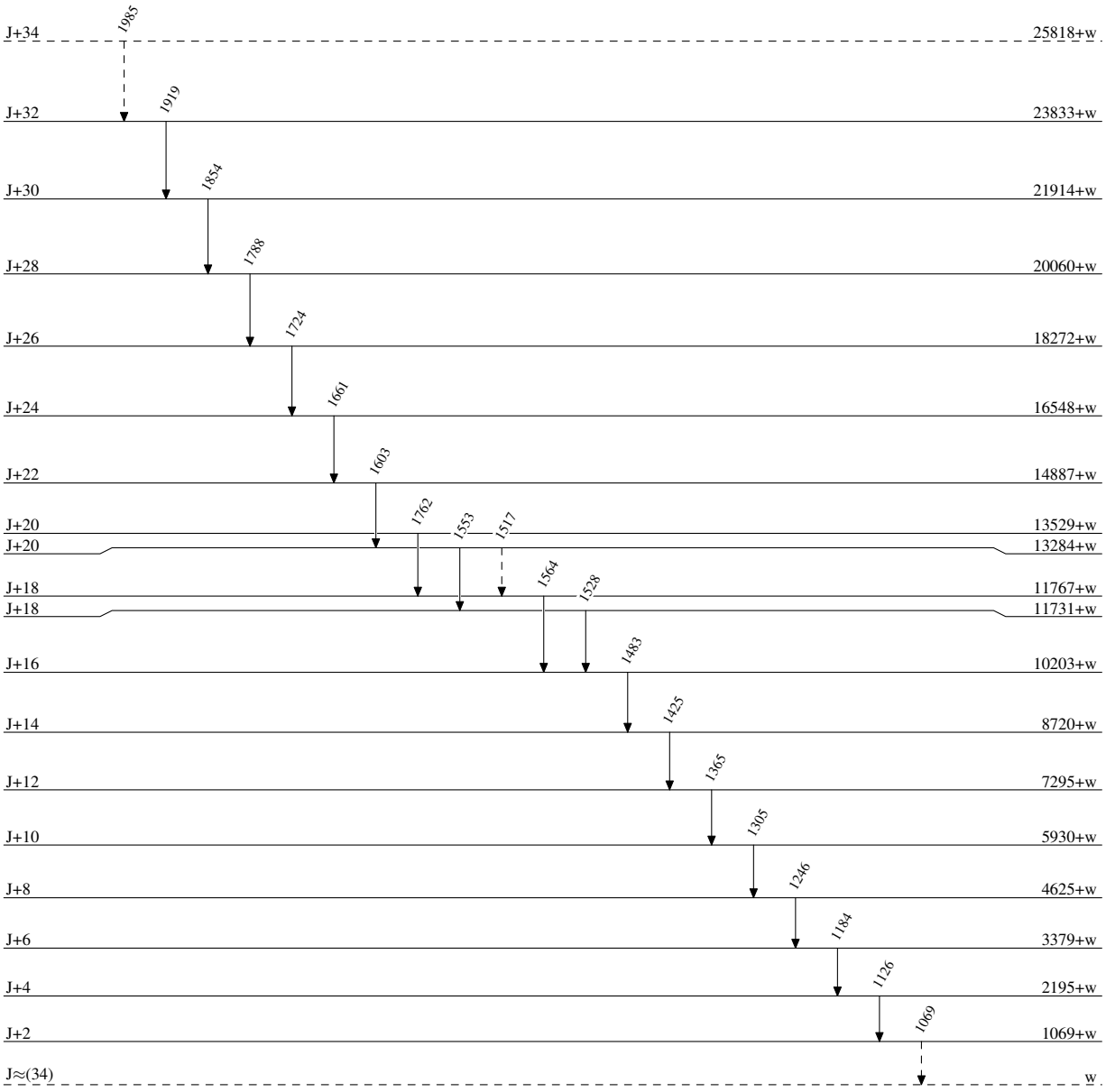
[†] Placement of transition in the level scheme is uncertain.

Legend

^{96}Zr(^{48}Ca,4nγ):SD 2004Ne13

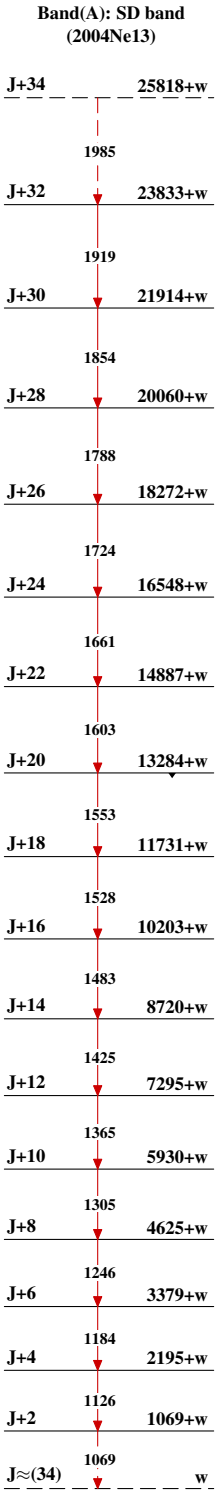
Level Scheme

γ Decay (Uncertain)



$^{140}_{60}Nd_{80}$

^{96}Zr(^{48}Ca,4nγ):SD 2004Ne13



$^{140}_{60}Nd_{80}$