^{40}Ca(^{58}Ni,αnγ) 2004So04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 112, 1163 (2011)	15-Dec-2010

E=205 MeV; 99.965% enriched ^{40}Ca target sandwiched between Bi layers; EUROBALL array (15 cluster-type and 26 clover-type composite Ge detectors); neutrons detected using the Neutron Wall array (50 organic liquid-scintillator elements); charged particles detected by EUCLIDES Si detector array (40 E-ΔE telescopes); measured Eγ, Iγ, $\gamma\gamma$ coin, $\gamma\gamma(\theta)$, (charged particle)-γ coin.

The level scheme proposed by 2004So04 differs from that In Adopted Levels, Gammas insofar As the order of the 1097γ-985γ and 167γ-350γ CASCADEs is reversed, placements for the 350γ and 276γ are interchanged and the components of the 515γ doublet, along with one component of 350γ and 276γ probable doublets, were not included In the level scheme proposed by 2004So04. also, their level scheme is much less detailed than the adopted one.

^{93}Pd Levels

E(level)[†]	J$^\pi$[‡]	Comments
0.0[#]	(9/2$^+$)	
1097.4[#] *3*	(13/2$^+$)	
2082.2[#] *5*	(17/2$^+$)	
2357.8[#] *6*	(19/2$^+$)	
2524.7[#] *6*	(21/2$^+$)	
2874.6[#] *8*	(25/2$^+$)	
3867.0[#] *9*	(29/2$^+$)	
5000.9[#] *10*	(33/2$^+$)	E(level): for adopted order of the 654γ-1134γ cascade (which is ambiguous in the present study).
5654.9[#] *10*	(37/2$^+$)	
7290.2[#] *12*	(41/2$^+$)	

[†] From Eγ.

[‡] Authors′ values, supported by measured γ asymmetry (under the assumption that spins increase with excitation energy), and by shell-model calculations performed In the restricted model space of $g_{9/2}$ and $p_{1/2}$ for proton and neutron holes.

[#] Band(A): π=(+) sequence built on g.s..

γ(^{93}Pd)

Eγ	Iγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[†]	Comments
166.9 *3*	62 *6*	2524.7	(21/2$^+$)	2357.8	(19/2$^+$)	D	Mult.: R=0.60 *8*.
275.6 *3*	66 *7*	2357.8	(19/2$^+$)	2082.2	(17/2$^+$)		Mult.: R=0.64 *9*, implying D multipolarity; however, in ^{94}Ag p decay (0.39 s), two placements are suggested for E$\gamma\approx$276, so this γ may be a doublet in the present work also.
349.9 *4*	47 *8*	2874.6	(25/2$^+$)	2524.7	(21/2$^+$)		Mult.: R=0.93 *10* (consistent with Q multipolarity) for doublet.
[x]350.6 *5*	21 *6*						forms a self-coincident doublet with 349.9γ. In Adopted Levels, Gammas, this is the upper member of a 350γ-514γ cascade feeding the (25/2$^+$) 2875 level.
[x]515.1 *3*	25 *5*					D	Mult.: R=0.59 *9* (consistent with D multipolarity) for doublet. doublet; In Adopted Levels, Gammas, the two components feed (17/2$^+$) 2079 and (25/2$^+$) 2875 levels, and the latter placement is favored by coincidence data In the present study (2004So04).
654.0[‡] *3*	25 *3*	5654.9	(37/2$^+$)	5000.9	(33/2$^+$)	Q	Mult.: R=1.14 *14*.
984.8 *3*	85 *6*	2082.2	(17/2$^+$)	1097.4	(13/2$^+$)	Q	Mult.: R=0.97 *11*.

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^{40}Ca(^{58}Ni,αnγ) 2004So04 (continued)

$\gamma(^{93}Pd)$ (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	Comments
992.4 *4*	35 *5*	3867.0	(29/2$^+$)	2874.6	(25/2$^+$)	Q	Mult.: R=0.99 *14*.
1097.4 *3*	100 *6*	1097.4	(13/2$^+$)	0.0	(9/2$^+$)	Q	Mult.: R=1.15 *12*.
1133.9[‡] *4*	27 *3*	5000.9	(33/2$^+$)	3867.0	(29/2$^+$)	Q	Mult.: R=1.04 *15*.
1635.3 *6*	18 *2*	7290.2	(41/2$^+$)	5654.9	(37/2$^+$)	Q	Mult.: R=1.05 *16*.

[†] From R=(Iγ(137°)+Iγ(156°))/(Iγ(77°)+Iγ(103°)). Typical values are 1.08 for known stretched Q transitions and 0.60 for known stretched D transitions.

[‡] Order of 654γ-1134γ cascade is ambiguous. the order shown here matches that In Adopted Levels, Gammas (taken from ^{94}Ag p decay).

[x] γ ray not placed in level scheme.

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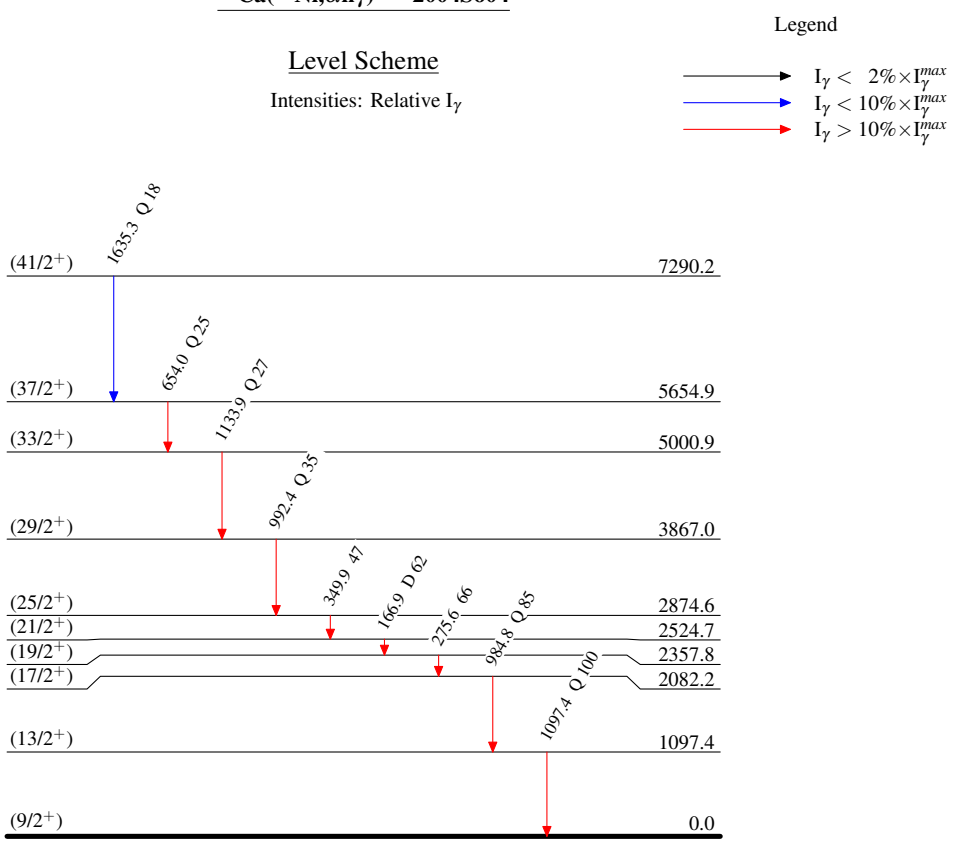
Level Scheme

Intensities: Relative I_γ



$^{93}_{46}Pd_{47}$

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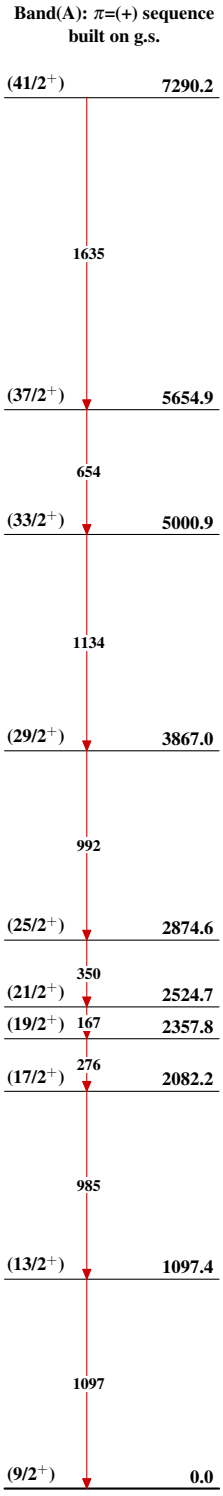

$^{93}_{46}Pd_{47}$