

$^{110}\text{Cd}(^{28}\text{Si},\alpha\text{p}3\text{n}\gamma)$ 1988Ma20

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

1988Ma20: E=160 MeV. Measured E_γ , I_γ , $\gamma\gamma$ using an array of four Compton-suppressed Ge detectors.

 ^{130}Pr Levels

The ordering of the 184.8-89.5-110.1 cascade is reversed in Adopted Levels, thus altering the level energies concerned.

E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]
0.0+x ^{#&}	(7 ⁻)	384.3+x ^a 3	(10 ⁺)	1114.7+x ^{&} 3	(13 ⁻)	2136.7+x [@] 4	(16 ⁻)
81.10+x [@] 20	(8 ⁻)	515.7+x ^b 3	(11 ⁺)	1277.1+x ^a 4	(14 ⁺)	2316.5+x ^b 4	(17 ⁺)
110.10+x ^a 20	(8 ⁺)	584.3+x ^{&} 3	(11 ⁻)	1432.8+x [@] 3	(14 ⁻)	2509.0+x ^{&} 4	(17 ⁻)
199.7+x ^b 3	(9 ⁺)	742.1+x ^a 3	(12 ⁺)	1567.9+x ^b 4	(15 ⁺)	2908.7+x [@] 11	(18 ⁻)
204.68+x ^{&} 25	(9 ⁻)	836.1+x [@] 3	(12 ⁻)	1768.0+x ^{&} 4	(15 ⁻)		
376.82+x [@] 25	(10 ⁻)	955.7+x ^b 3	(13 ⁺)	1955.2+x ^a 4	(16 ⁺)		

[†] Add ≈ 58 keV to each level energy to match these levels with those in Adopted Levels, except when a different placement for a γ ray is indicated.

[‡] From 1988Ma20, based on $\gamma\gamma(\theta)$ (DCO) and band structures. Each spin should be decreased by one unit to match with the one given in Adopted Levels.

[#] x should be replaced by 58+x to match with Adopted Levels.

[@] Band(A): $\pi h_{11/2} \nu g_{7/2}$ band, $\alpha=0$.

[&] Band(a): $\pi h_{11/2} \nu g_{7/2}$ band, $\alpha=1$.

^a Band(B): $\pi h_{11/2} \nu h_{11/2}$ band, $\alpha=0$.

^b Band(b): $\pi h_{11/2} \nu h_{11/2}$ band, $\alpha=1$.

 $\gamma(^{130}\text{Pr})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	$I_{(\gamma+ce)}$	Comments
81.1 2	81.10+x	(8 ⁻)	0.0+x	(7 ⁻)		>108 [‡]	DCO=0.76 21.
89.5 2	199.7+x	(9 ⁺)	110.10+x	(8 ⁺)	(M1) [†]	>116 [‡]	Placed from 336+x, (8 ⁺) level in Adopted Levels.
110.1 2	110.10+x	(8 ⁺)	0.0+x	(7 ⁻)	(E1) [†]	>132 [‡]	Placed from 446+x, (9 ⁺) level in Adopted Levels. DCO=0.85 17.
123.6 2	204.68+x	(9 ⁻)	81.10+x	(8 ⁻)		90 9	DCO=0.86 24.
131.5 2	515.7+x	(11 ⁺)	384.3+x	(10 ⁺)		88 9	Placed from 578+x, (10 ⁺) level in Adopted Levels.
172.3 2	376.82+x	(10 ⁻)	204.68+x	(9 ⁻)		68 7	DCO=0.63 10.
184.8 2	384.3+x	(10 ⁺)	199.7+x	(9 ⁺)		100	DCO=0.68 8. Placed from 247+x, (7 ⁺) level in Adopted Levels.
204.7 [#]	204.68+x	(9 ⁻)	0.0+x	(7 ⁻)		<10 [‡]	
207.6 2	584.3+x	(11 ⁻)	376.82+x	(10 ⁻)		32 3	DCO=0.40 12.
213.7 2	955.7+x	(13 ⁺)	742.1+x	(12 ⁺)		49 5	
226.3 2	742.1+x	(12 ⁺)	515.7+x	(11 ⁺)		58 6	DCO=0.64 14.
252.0 2	836.1+x	(12 ⁻)	584.3+x	(11 ⁻)		29 3	DCO=0.67 10.
274.3 2	384.3+x	(10 ⁺)	110.10+x	(8 ⁺)		17.0 17	Placed from 336+x, (8 ⁺) level in Adopted Levels.
278.6 2	1114.7+x	(13 ⁻)	836.1+x	(12 ⁻)		19.1 19	DCO=0.60 13.
290.9 2	1567.9+x	(15 ⁺)	1277.1+x	(14 ⁺)		15.8 16	DCO=0.60 20.
295.7 2	376.82+x	(10 ⁻)	81.10+x	(8 ⁻)		18 3	DCO=0.98 10.
315.6 2	515.7+x	(11 ⁺)	199.7+x	(9 ⁺)		16 3	γ not reported in any other in-beam study. It is not

Continued on next page (footnotes at end of table)

$^{110}\text{Cd}(^{28}\text{Si},\alpha p3n\gamma)$ 1988Ma20 (continued) $\gamma(^{130}\text{Pr})$ (continued)

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$I_{(\gamma+ce)}$	Comments
included in adopted gammas.						
318.1 2	1432.8+x	(14 ⁻)	1114.7+x	(13 ⁻)	13.0 13	DCO=1.2 5.
321.2 2	1277.1+x	(14 ⁺)	955.7+x	(13 ⁺)	26 3	DCO=0.87 23.
335.7 2	1768.0+x	(15 ⁻)	1432.8+x	(14 ⁻)	5.6 14	
358.1 2	742.1+x	(12 ⁺)	384.3+x	(10 ⁺)	13.8 14	DCO=1.1 3.
369.0 2	2136.7+x	(16 ⁻)	1768.0+x	(15 ⁻)	<5	
379.5 2	584.3+x	(11 ⁻)	204.68+x	(9 ⁻)	20.3 20	DCO=1.4 4.
387.5 2	1955.2+x	(16 ⁺)	1567.9+x	(15 ⁺)	12.2 19	
440.0 2	955.7+x	(13 ⁺)	515.7+x	(11 ⁺)	28 3	DCO=1.1 3.
459.3 2	836.1+x	(12 ⁻)	376.82+x	(10 ⁻)	23.7 24	DCO=1.08 18.
530.1 2	1114.7+x	(13 ⁻)	584.3+x	(11 ⁻)	25.2 25	DCO=1.4 3.
534.9 2	1277.1+x	(14 ⁺)	742.1+x	(12 ⁺)	12.6 19	
596.9 2	1432.8+x	(14 ⁻)	836.1+x	(12 ⁻)	23.2 23	
612.3 2	1567.9+x	(15 ⁺)	955.7+x	(13 ⁺)	21.0 21	
653.2 2	1768.0+x	(15 ⁻)	1114.7+x	(13 ⁻)	12.1 18	DCO=1.0 3.
678.0 2	1955.2+x	(16 ⁺)	1277.1+x	(14 ⁺)	13.2 13	
703.6 2	2136.7+x	(16 ⁻)	1432.8+x	(14 ⁻)	10.7 18	
741.0 2	2509.0+x	(17 ⁻)	1768.0+x	(15 ⁻)	6.6 17	
748.6 2	2316.5+x	(17 ⁺)	1567.9+x	(15 ⁺)	16.8 24	
772 @	2908.7+x?	(18 ⁻)	2136.7+x	(16 ⁻)	<5	

[†] $I_\gamma(89.5)/I_\gamma(110.1)\approx 0.5$ observed in the spectrum gated by 184.8 γ is consistent with (M1) for 89.5 γ and E1 for 110.1.

[‡] Lower limit from summing the intensity of feeding transitions.

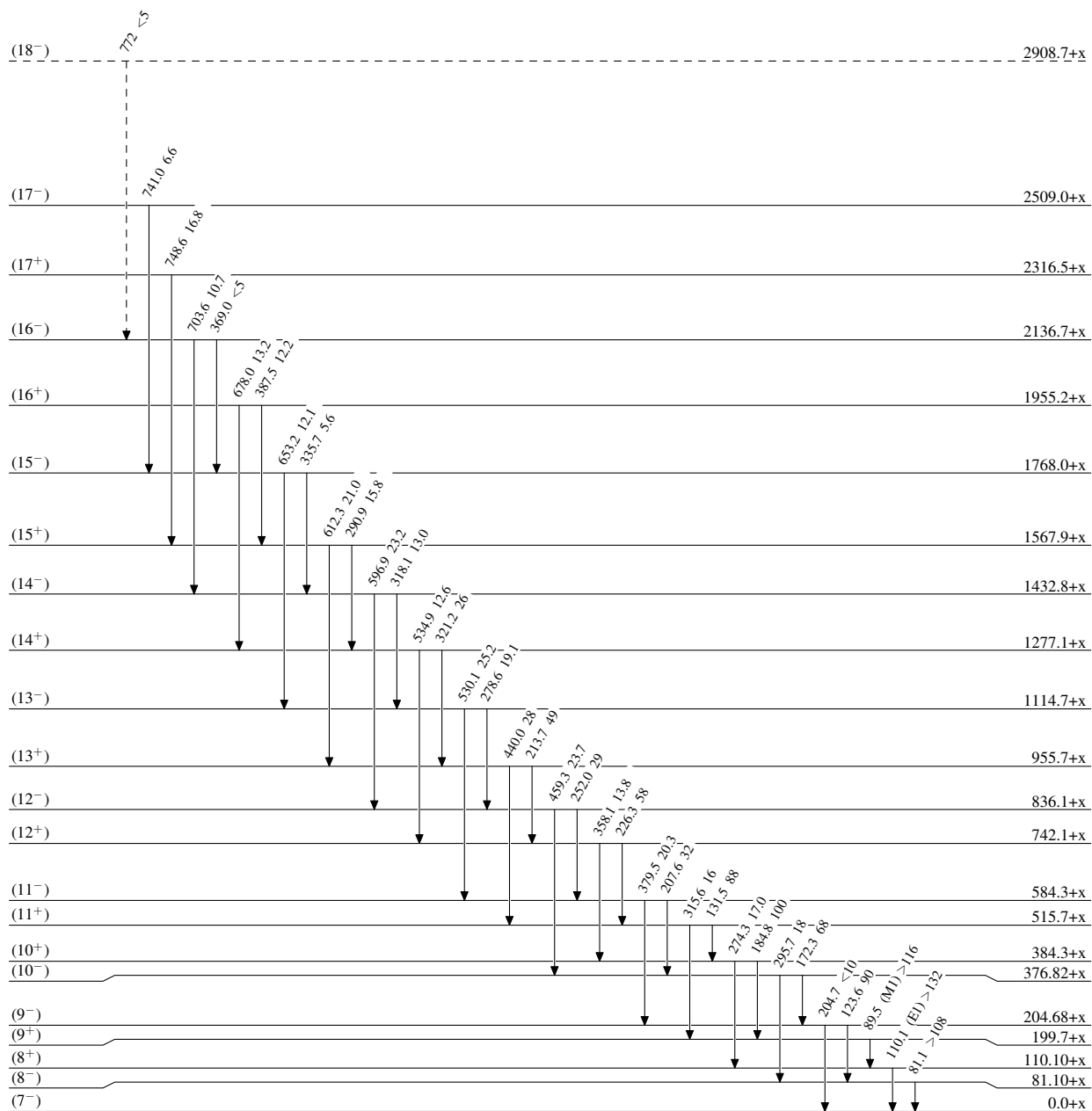
From level-energy difference. γ shown only in the level scheme by 1988Ma20.

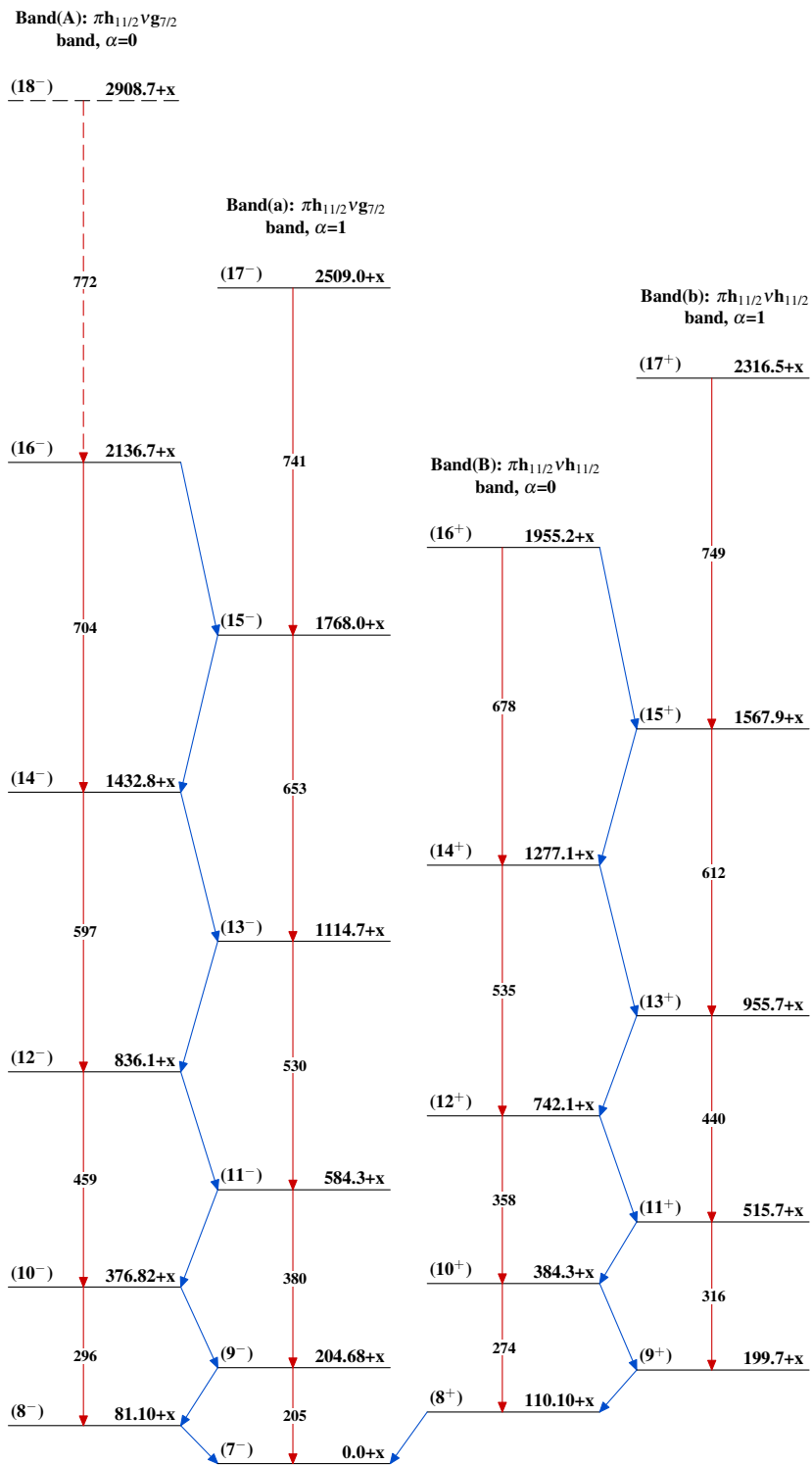
@ Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

-----► γ Decay (Uncertain) $^{130}_{59}\text{Pr}_{71}$

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