$^{133}\text{Cs}(p,2n\gamma)$ 1975Ku05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. A. Rodionov and S. Sakharov, Balraj Singh	NDS 104, 497 (2005)	10-Feb-2005

1975Ku05: E=17-28.5 MeV. Measured Eγ, Iγ, γγ, γ(θ) using two Ge(Li) detectors. Main measurements at 21 MeV.
1965Sa11 (also 1964Sa13,1974Sa23): E=14 MeV. Measured ce.

^{132}Ba Levels

A tentative 2648 level proposed by 1975Ku05 is omitted since it is not confirmed by 1995Ju09, who place 715.2γ from 2227, (5⁺) level; 715γ not reported by 1989Pa17.

E(level)[†]	J[π#]	E(level)[†]	J[π#]	E(level)[†]	J[π#]	E(level)[†]	J[π#]
0.0[@]	0⁺	1730.0[&] 10	4⁺	2240.1[‡] 7	6⁽⁺⁾	2800.9[@] 17	8⁺
464.7[@] 8	2⁺	1932.8[@] 14	6⁺	2357.6[‡] 16	(6⁻)	2868.4[‡] 9	(8⁺)
1032.1[&] 8	2⁺	1944.9[‡] 7	(4⁺)	2423.5[‡] 9	6⁽⁻⁾		
1128.0[@] 10	4⁺	2027.7[‡] 7	(4⁻)	2483.4[‡] 8	(7⁻)		
1511.3[&] 10	3⁺	2120.1 12	5⁻	2718.8[‡] 8	7⁽⁻⁾		

[†] From least-squares fit to Eγ's, assuming Δ(Eγ)=0.5 keV for each γ ray.
[‡] Level population proposed (by evaluators) based on results of 1995Ju09.
[#] From Adopted Levels.
[@] Band(A): Yrast band.
[&] Band(B): γ band.

$\gamma(^{132}\text{Ba})$

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[@]	Comments
237.5	5.9 2	2357.6	(6⁻)	2120.1	5⁻				
363.3[‡&]	3.8 2	2483.4	(7⁻)	2120.1	5⁻				A₂=+0.110 12, A₄=−0.083 18.
383.3	1.4 2	1511.3	3⁺	1128.0	4⁺				A₂=−0.03 4, A₄=+0.03 6.
390.0	11.5 4	2120.1	5⁻	1730.0	4⁺	D			A₂=−0.090 8, A₄=−0.021 12.
395.8[‡&]	1.7 1	2423.5	6⁽⁻⁾	2027.7	(4⁻)				
464.6	100	464.7	2⁺	0.0	0⁺	E2		0.0121	α(K)=0.0101 3; α(L)=0.00156 5; α(M)=0.00032 1. A₂=+0.095 3, A₄=−0.006 5. Mult.: from K/L=5.9 7 (1965Sa11) and γ(θ).
479.2	6.7 2	1511.3	3⁺	1032.1	2⁺	(M1+E2)		0.0129 19	α(K)=0.0110 17; α(L)=0.00153 11; α(M)=0.00031 2. δ: +4.0 +11−12 or +0.55 +12−8. A₂=+0.113 11, A₄=+0.045 17.
567.4	16.4 3	1032.1	2⁺	464.7	2⁺	M1+E2	+8.3 +49−22	0.00712 4	α=0.00712 4; α(K)=0.00596 3; α(L)=0.00087. A₂=+0.004 9, A₄=+0.007 14. Mult.: from K/L=4.0 13 (1965Sa11) and γ(θ).
598.7[‡&]	3.6 2	2718.8	7⁽⁻⁾	2120.1	5⁻				
602.0	7.1 2	1730.0	4⁺	1128.0	4⁺	(M1+E2)		0.0073 13	α=0.0073 13; α(K)=0.0062 11; α(L)=0.00083 10.

Continued on next page (footnotes at end of table)

^{133}Cs(p,2nγ)   **1975Ku05** (continued)

γ(^{132}Ba) (continued)

E$_γ$	I$_γ$[†]	E$_i$(level)	J$_i^π$	E$_f$	J$_f^π$	Mult.[#]	α[@]	Comments
663.4	58.7 *4*	1128.0	4$^+$	464.7	2$^+$	E2	0.00474	δ: −1.07 +*20−8* (or +6 +*9−4*). A$_2$=−0.039 *24*, A$_4$=−0.05 *4*. α=0.00474; α(K)=0.00399 *12*; α(L)=0.00056 *2*
697.8	10.2 *2*	1730.0	4$^+$	1032.1	2$^+$			A$_2$=+0.139 *5*, A$_4$=−0.001 *8*. Mult.: from K/L=3.4 *5* (1965Sa11) and γ(θ). A$_2$=+0.119 *13*, A$_4$=−0.018 *19*.
^{x}715.3	3.5 *2*							A$_2$=−0.073 *23*, A$_4$=+0.06 *4*. tentative placement from 2648, (7$^-$) level is not supported by 1995Ju09, who place a 715.2γ from 2227, (5$^+$) level to 1511, 3$^+$ level. But negative A$_2$ In γ(θ) is inconsistent with ΔJ=2 transition.
804.8	18.2 *3*	1932.8	6$^+$	1128.0	4$^+$			A$_2$=+0.158 *11*, A$_4$=−0.013 *17*.
816.9$^{‡\&}$	3.3 *2*	1944.9	(4$^+$)	1128.0	4$^+$			
868.1	5.0 *2*	2800.9	8$^+$	1932.8	6$^+$			A$_2$=+0.156 *22*, A$_4$=0.00 *3*.
899.7$^{‡\&}$	5.2 *2*	2027.7	(4$^-$)	1128.0	4$^+$			A$_2$=+0.108 *22*, A$_4$=+0.05 *3*.
935.6$^{‡\&}$	2.0 *2*	2868.4	(8$^+$)	1932.8	6$^+$			A$_2$=+0.20 *4*, A$_4$=+0.02 *5*.
992.1	8.7 *2*	2120.1	5$^-$	1128.0	4$^+$	D		A$_2$=−0.065 *19*, A$_4$=+0.09 *3*.
1032.2	8.0 *3*	1032.1	2$^+$	0.0	0$^+$			A$_2$=+0.092 *19*, A$_4$=+0.007 *28*.
1046.7	8.4 *3*	1511.3	3$^+$	464.7	2$^+$	(M1+E2)	0.0020 *4*	α=0.0020 *4*; α(K)=0.0017 *3*; α(L)=0.00021 *4* δ: +2.5 +*7−10* or +0.72 +*33−12*. A$_2$=+0.147 *18*, A$_4$=+0.018 *28*.
1112.1$^{‡\&}$	3.8 *2*	2240.1	6$^{(+)}$	1128.0	4$^+$			A$_2$=+0.14 *3*, A$_4$=+0.06 *4*.
1265.3	4.5 *4*	1730.0	4$^+$	464.7	2$^+$			A$_2$=+0.08 *3*, A$_4$=0.00 *5*.

[†] At 21 MeV.
[‡] γ unplaced In 1975Ku05; placement proposed (by evaluators) based on results of 1995Ju09 (also 1989Pa17 In some cases). The γ(θ) results, where available, are consistent with the proposed placement and J^π's of levels involved.
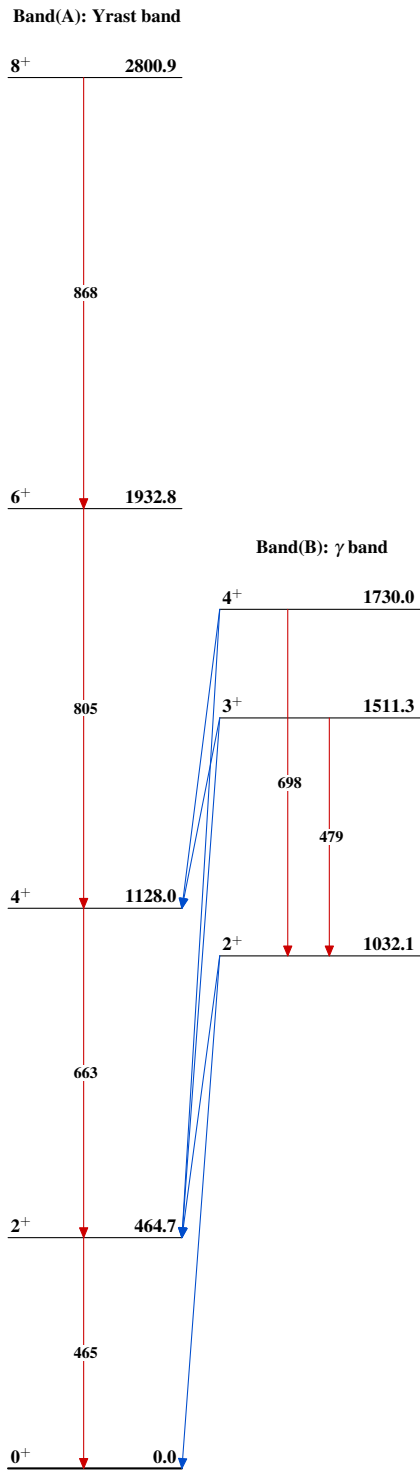[#] From γ(θ); for three transitions ce data are also available.
[@] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[&] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

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Legend

Level Scheme

Intensities: Relative I$_γ$

I$_γ$ < 2% × I$_γ^{max}$
I$_γ$ < 10% × I$_γ^{max}$
I$_γ$ > 10% × I$_γ^{max}$
γ Decay (Uncertain)

$^{132}_{56}$Ba$_{76}$

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Band(A): Yrast band

Band(B): γ band

$^{132}_{56}Ba_{76}$