¹¹⁶Cd(⁹Be,3nγ) **1996Pa11**

		History	
Туре	Author	Citation	Literature Cutoff Date
Full Evaluation	T. Tamura	NDS 108, 455 (2007)	30-Sep-2006

The level scheme is that proposed by 1996Pa11 on the basis of $\gamma\gamma$ -coin, excitation functions and transition intensity balance. 1996Pa11: ¹¹⁶Cd(⁹Be,3n γ), E(⁹Be)=37.8 MeV; 14 Compton-suppressed HP Ge; measured $\gamma\gamma$ -coincident γ 's, DCO ratios In 100 ns prompt timing system; deduced γ multipole orders, levels, decay scheme.

¹²²Te Levels

E(level) [†]	$J^{\pi \ddagger}$	T _{1/2}	Comments
0.0#	0^{+}		
563.94 [#] 17	2+		
$1181 44^{\#} 23$	- 4 ⁺		
1257.07 17	2^{+}		
1357.5 [@] 3	0^{+}		
1751.6 [#] 3	6+		
$1752.62^{@}3$	2+	0.38 ps + 5 - 4	level from Adopted Levels As expected 2^+ member of hand 2
1910.24° 23	2 4+	0.00 ps 10 7	is of montracipied Levels 118 expected 2 memoer of build 2.
$2284.8^{@}$ 3	6+		
$2204.0 \ 5$	5-		
$2408.7 \ 3$	9 8+		
2070.7 5	$(6)^{-}$		
2739.9 4 2801.9 ^C 3	(0) 7-		
2891.6 ^{<i>a</i>} 3	(7^{-})		
2914.6 ^{&} 4	(8+)		
2973.0 ^b 3	(7^{-})		
3075.3 ^{<i>a</i>} 3	(8 ⁻)		
3212.2 ^{&} 4	(9 ⁺)		
3292.9 [@] 4	(10^{+})		
3335.1 ^a 3	(9 ⁻)		
3356.7 <mark>b</mark> 4	(8-)		
3462.3 [°] 3	(9 ⁻)		
3575.3 ^{&} 5	(10^{+})		
3746.9 ^{<i>a</i>} 3	(10^{-})		
3807.24	(4 4 L)		
3976.2°C 5	(11 ⁺)		
3996.3 ⁰ 4	(10 ⁻)		
3998.5 ^w 4	(12^{+})		
3999.94	(11^{-})		
4174.4 [°] 4	(11^{-})		
4389 3 % 6	(12^+)		
4442.8 ^{<i>a</i>} 4	(12^{-}) (12 ⁻)		
4477.7 4	(12)		
4519.6 4			
4547.2 5	(14^{+})		
4783.4 ^{<i>a</i>} 4	(14^{-}) (13^{-})		
4805.6 ^{<i>c</i>} 4	(13^{-})		
4909.1 [@] 5	(14^{+})		
	` '		

¹¹⁶ Cd(⁹ Be,3n γ)	1996Pa11 (continued)
Cu(De, Siry)	19901 all (continueu

					IE LO	evers (continu	eu)	
E(level) [†]	J ^{π‡}	E(level) [†]	Jπ‡	E(level) [†]	J ^{π‡}	E(level) [†]	J <i>π</i> ‡	
4944.3 <i>5</i> 5241.0 ^{<i>a</i>} <i>4</i> 5249.4 <i>5</i>	(14^{-}) (15^{+})	5706.6 5 5718.0 ^a 4 5753 2 [@] 5	(15^{-}) (16^{+})	6026.1 <i>5</i> 6041.4 <i>5</i> 6287 1 6	(15)	6635.5 5 6648.8 6 6710 7 6		
5268.8 <i>4</i> 5409.7 <i>5</i> 5645.1 <i>5</i>	(15 ⁺)	5870.1 5 5970.2 ^{<i>a</i>} 4 5973.7 5	(10^{-}) (15) (15)	$6379.8^{@} 6$ 6393.3 5 $6614.2^{a} 5$	(17 ⁻)	6915.2 ^{<i>a</i>} 5	(18 ⁻)	

122 Te Levels (continued)

[†] E(levels) are based on a least-squares fit to the E(γ 's) of 1996Pa11 (evaluator).

[‡] From Adopted Levels.

Band(A): band 1, g.s. band.

^(a) Band(B): band 2, positive parity band built on the two-proton hole 0⁺ state at 1357 keV. & Band(C): Band 3, positive parity band built on the possible configuration $(\pi g_{9/2}^{-1})(\pi g_{7/2})_{8+} \otimes (\pi d_{5/2}^2)_{0+}$.

^{*a*} Band(D): band 4, negative parity band based on possible non-collective state (7^{-}) at 2890 keV. Possible configuration=($vh_{11/2}g_{7/2}$).

^b Band(E): band 5, negative parity Band based on 5⁻ at 2408 keV.

^c Band(F): band 6, negative parity Band based on 7⁻ at 2802 keV.

$\gamma(^{122}\text{Te})$

DCO=I($35^{\circ}-90^{\circ}$)/I($90^{\circ}-35^{\circ}$) from sum spectra gated by 564.1 γ , 570.0 γ , 919.0 γ and 622.1 γ (Q) transitions. For this measurement conditions, DCO ratio≈1.0 suggests stretched E2 transition, while DCO ratio≈0.55 stretched dipole transition (1996Pa11).

E_{γ}^{\dagger}	I_{γ}^{\ddagger}	E_i (level)	\mathbf{J}_i^{π}	\mathbf{E}_{f}	\mathbf{J}_{f}^{π}	Mult.#	Comments
102.5 2	1.26 13	3075.3	(8 ⁻)	2973.0	(7^{-})	D+Q	Mult.: DCO ratio=0.43 1.
160.5 2	2.34 23	5409.7	(16 ⁺)	5249.4	(15^{+})	D+Q	Mult.: DCO ratio=0.42 1.
183.8 2	0.32 3	3075.3	(8 ⁻)	2891.6	(7 ⁻)		
225.8 2	0.65 7	4909.1	(14^{+})	4683.4	(14^{+})	D+Q	Mult.: DCO ratio=0.62 2.
260.1 2	0.63 6	3335.1	(9 ⁻)	3075.3	(8 ⁻)	(D+Q)	Mult.: DCO ratio=0.95 3.
268.3 2	0.34 3	4442.8	(12^{-})	4174.4	(11^{-})		
273.4 2	3.3 3	3075.3	(8 ⁻)	2801.9	7^{-}		DCO ratio=1.00 2; decay scheme requires $d(+Q)$.
292.8 2	0.47 5	4039.6	(11^{-})	3746.9	(10^{-})		
297.6 2	0.73 7	3212.2	(9+)	2914.6	(8^{+})	(D+Q)	Mult.: DCO ratio=0.66 2.
303.3 2	0.66 7	4477.7	(12)	4174.4	(11^{-})	D	Mult.: DCO ratio=0.47 2.
340.5 2	0.76 8	5249.4	(15^{+})	4909.1	(14^{+})	D+Q	Mult.: DCO ratio=0.38 1.
340.6 2	1.90 19	4783.4	(13 ⁻)	4442.8	(12^{-})		
351.5 2	1.26 13	2759.9	(6)-	2408.7	5-	D+Q	Mult.: DCO ratio=0.55 2.
361.7 2	0.58	6648.8		6287.1			
362.5 2	2.19 22	4805.6	(13 ⁻)	4442.8	(12^{-})		
363.1 2	0.52 5	3575.3	(10^{+})	3212.2	(9 ⁺)		
383.4 2	0.40 4	3356.7	(8 ⁻)	2973.0	(7^{-})		
386.0 2	1.3 1	2670.7	8+	2284.8	6+		
393.2 2	0.80 8	2801.9	7-	2408.7	5-		
395.16 8	7.3 5	1752.62	2+	1357.5	0^{+}	E2	from Adopted Gammas.
397.1 2	0.76	4944.3		4547.2			
400.9 2	0.26 3	3976.2	(11^{+})	3575.3	(10^{+})		
403.1 2	1.89 20	4442.8	(12^{-})	4039.6	(11^{-})		
411.7 2	1.95 20	3746.9	(10^{-})	3335.1	(9 ⁻)		
413.1 2	0.12 2	4389.3	(12^{+})	3976.2	(11^{+})		
417.0 2	1.01 10	6287.1		5870.1	(15)		

Continued on next page (footnotes at end of table)

¹¹⁶Cd(⁹Be,3nγ) **1996Pa11** (continued)

$\gamma(^{122}\text{Te})$ (continued)

437.8 20.60 65706.65268.8Mult: DCO ratio=0.25 2.457.2 21.58 165241.0 (14^-) 4783.4 (13^-) D+QMult: DCO ratio=0.25 2.476.6 20.60 65718.0 (15^-) 5241.0 (14^-) Mult: DCO ratio=0.78 2 (value for 532.9 γ +533.0 γ).533.0 25.5 62284.86 ⁺ 1751.66 ⁺ (D+Q)Mult: DCO ratio=0.78 2 (value for 532.9 γ +533.0 γ).548.7 22.16 224547.23998.5 (12^+) Mult: DCO ratio=0.78 2 (value for 532.9 γ +533.0 γ).564.1 2115 12563.942 ⁺ 0.00 ⁺ E2Mult: DCO ratio=0.77 1; RUL.564.2 3.6 45249.4 (15^+) 4683.4 (14^+) S570.0 295 101751.66 ⁺ 1181.444 ⁺ Q597.0 21.39 143356.7(8^-)2759.9(6)^-617.3 2109 111181.444 ⁺ 563.942 ⁺ Q626.6 22.16 226379.85753.2(16 ⁺)631.6 22.83 284805.6(13 ⁻)4174.4(11 ⁻)631.7 21.15 116041.45409.7(16 ⁺)639.6 20.69 73996.3(10 ⁻)3356.7(8 ⁻)660.5 24.4 43462.3(9 ⁻)2801.97 ⁻ Q663.1 25.3 53335.1(9 ⁻)2670.78 ⁺ D664.1 25.3 53335.1(9 ⁻)2670.78 ⁺ D665.24.4 43462.	E_{γ}^{\dagger}	I_{γ}^{\ddagger}	E_i (level)	\mathbf{J}_i^{π}	$\mathbf{E}_f \mathbf{J}_f^{\pi}$	Mult.#	Comments
$457.2.2$ $1.58\ 16$ 5241.0 (14^-) 4783.4 (13^-) $D+Q$ Mult:: DCO ratio= $0.25\ 2.$ $476.6.2$ $0.60\ 6$ 5718.0 (15^-) 5241.0 (14^-) Mult:: DCO ratio= $0.78\ 2$ (value for $532.9\gamma+533.0\gamma$). $532.9\ 2$ $62\ 6$ 3335.1 9^-) $2801.9\ 7^-$ (Q)Mult:: DCO ratio= $0.78\ 2$ (value for $532.9\gamma+533.0\gamma$). $533.0\ 2$ $5.5\ 6$ 2284.8 6^+ $1751.6\ 6^+$ (D+Q)Mult:: DCO ratio= $0.78\ 2$ (value for $532.9\gamma+533.0\gamma$). $548.7\ 2$ $2.16\ 22$ 4547.2 $3998.5\ (12^+)$ Nult:: DCO ratio= $0.78\ 2$ (value for $532.9\gamma+533.0\gamma$). $564.1\ 2$ $15\ 12$ $563.94\ 2^+$ $0.0\ 0^+$ E2Mult:: DCO ratio= $0.97\ 1$; RUL. $564.2\ 2$ $3.4\ 3$ 2973.0 $(7^-)\ 2408.7\ 5^-$ Nult:: DCO ratio= $1.03\ 1$. $570.0\ 2$ $95\ 10$ $1751.6\ 6^+$ $1181.44\ 4^+$ QMult:: DCO ratio= $1.03\ 1$. $577.0\ 2$ $1.39\ 14$ $3356.7\ (8^-)$ $2759.9\ (6)^-$ Mult:: DCO ratio= $1.05\ 1$. $622.1\ 2$ $6379.8\ 5753.2\ (16^+)$ $639.6\ 2$ $2.16\ 22\ 6379.8\ 5753.2\ (16^+)$ $631.6\ 2$ $2.83\ 28\ 4805.6\ (13^-)\ 4174.4\ (11^-)\ 631.7\ 2\ 1.15\ 11\ 6041.4\ 5409.7\ (16^+)\ 633.6\ 2\ 0.69\ 7\ 3996.3\ (10^-)\ 3356.7\ (8^-)\ 2801.9\ 7^ Q$ Mult:: DCO ratio= $0.92\ 2$. $664.1\ 2\ 5.3\ 5\ 3335.1\ (9^-)\ 2801.9\ 7^-\ Q$ Mult:: DCO ratio= $0.92\ 2$. $664.1\ 2\ 5.3\ 5\ 3335.1\ (9^-)\ 2801.9\ 7^-\ Q$ Mult:: DCO ratio= $0.92\ 2$. $664.1\ 2\ 5.2\ 5\ 3746.9\ (10^-)\ 3075.3\ (8^-)\ Q\ Mult:: DCO\ ratio=1.03\ 2.88.1\ 2\ 2.7\ 23\$	437.8 2	0.60 6	5706.6		5268.8		
476.62 $0.60.6$ 5718.0 (15^-) 5241.0 (14^-) 532.92 $6.2.6$ 3335.1 (9^-) 2801.9 $7^ (Q)$ Mult.: DCO ratio= $0.78.2$ (value for $532.9\gamma+533.0\gamma$). 533.02 $5.5.6$ 2284.8 6^+ 1751.6 6^+ $(D+Q)$ Mult.: DCO ratio= $0.78.2$ (value for $532.9\gamma+533.0\gamma$). 548.72 $2.16.22$ 4547.2 3998.5 (12^+) Mult.: DCO ratio= $0.78.2$ (value for $532.9\gamma+533.0\gamma$). 564.12 115.12 563.94 2^+ 0.0 0^+ E2Mult.: DCO ratio= $0.77.1$; RUL. 566.12 $3.6.4$ 5249.4 (15^+) 4683.4 (14^+) 570.02 95.10 1751.6 6^+ 1181.44 4^+ Q 5770.2 $1.39.14$ 3356.7 (8^-) 2759.9 $(6)^-$ Mult.: DCO ratio= $1.03.1$. $597.0.2$ $1.39.14$ 3356.7 (8^-) 2759.9 $(6)^ 617.3.2$ 109.11 1181.44 4^+ Q Mult.: DCO ratio= $1.03.1$. $597.0.2$ $2.35.4$ 3292.9 (10^+) 2670.7 8^+ Q 622.12 3579.8 5753.2 (16^+) 631.6 $2.83.28$ 4805.6 (13^-) 4174.4 (11^-) 631.6 $2.5.5$ 3335.1 (9^-) 2670.7 8^+ $Mult.:$ $669.3.2$ $1.04.12$ 6710.7 6041.4 5409.7 $6^ 669.3.2$ $1.04.12$ 6710.7 6041.4 3998.5 (12^+)	457.2 2	1.58 16	5241.0	(14^{-})	4783.4 (13 ⁻)	D+Q	Mult.: DCO ratio=0.25 2.
532.9 26.2 63335.1 (9^-) 2801.9 $7^ (Q)$ Mult:: DCO ratio=0.78 2 (value for 532.9 γ +533.0 γ).533.0 25.5 62284.86 ⁺ 1751.66 ⁺ $(D+Q)$ Mult:: DCO ratio=0.78 2 (value for 532.9 γ +533.0 γ).548.7 22.16 224547.23998.5 (12^+) Mult:: DCO ratio=0.78 2 (value for 532.9 γ +533.0 γ).564.1 2115 12563.942 ⁺ 0.00 ⁺ E2Mult:: DCO ratio=0.97 1; RUL.564.2 23.4 32973.0 (7^-) 2408.75 ⁻ Mult:: DCO ratio=1.03 1.570.0 295 101751.66 ⁺ 1181.444 ⁺ QMult:: DCO ratio=1.03 1.597.0 21.39 143356.7(8 ⁻)2759.9(6) ⁻ 617.3 2109 111181.444 ⁺ 563.94 2 ⁺ QMult:: DCO ratio=1.05 1.622.1 235 43292.9(10 ⁺)2670.78 ⁺ QMult:: DCO ratio=1.08 1.626.6 2631.6 22.83 284805.6(13 ⁻)4174.4(11 ⁻)641.45409.7(16 ⁺)633.6 20.69 73996.3(10 ⁻)3356.7(8 ⁻)QMult:: DCO ratio=0.92 2.664.1 25.3 53335.1(9 ⁻)2670.7 8 ⁺ DMult:: DCO ratio=0.48 1.693.21.04 126710.76041.45409.7QMult:: DCO ratio=0.92 2.664.1 25.2 53746.9(10 ⁻)375.3(8 ⁻)QMult:: DCO ratio=1.10 3. <tr< tbody=""></tr<>	476.6 2	0.60 6	5718.0	(15 ⁻)	5241.0 (14 ⁻)		
533.0 2 5.5 6 2284.8 6^+ 1751.6 6^+ (D+Q) Mult.: DCO ratio=0.78 2 (value for 532.9 γ +533.0 γ). 548.7 2 2.16 22 4547.2 3998.5 (12 ⁺) Mult.: DCO ratio=0.97 1; RUL. 564.1 2 115 12 563.94 2 ⁺ 0.0 0 ⁺ E2 Mult.: DCO ratio=0.97 1; RUL. 564.2 3.4 3 2973.0 (7 ⁻) 2408.7 5 ⁻ 566.1 3.6 4 5249.4 (15 ⁺) 4683.4 (14 ⁺) 570.0 2 95 10 1751.6 6 ⁺ 1181.44 4 ⁺ Q Mult.: DCO ratio=1.03 1. 597.0 2 1.39 14 3356.7 (8 ⁻) 2759.9 (6) ⁻ 6 6 617.3 2 109 11 1181.44 4 ⁺ Q Mult.: DCO ratio=1.05 1. 6 626.6 2 2.16 22 6379.8 5753.2 (16 ⁺) 6 6 631.6 2 2.83 28 4805.6 (13 ⁻) 4174.4 (11 ⁻) 6 6 639.6 2 0.697 3996.3 (10 ⁻) 3356.7 (8 ⁻) Mult.: DCO ratio=0.92 2. 6 <tr< td=""><td>532.9 2</td><td>6.2 6</td><td>3335.1</td><td>(9⁻)</td><td>2801.9 7-</td><td>(Q)</td><td>Mult.: DCO ratio=0.78 2 (value for $532.9\gamma+533.0\gamma$).</td></tr<>	532.9 2	6.2 6	3335.1	(9 ⁻)	2801.9 7-	(Q)	Mult.: DCO ratio=0.78 2 (value for $532.9\gamma+533.0\gamma$).
548.7 2 2.16 22 4547.2 3998.5 (12^+) 564.1 2 115 12 563.94 2 ⁺ 0.0 0 ⁺ E2 Mult: DCO ratio=0.97 1; RUL. 564.2 3 3.4 3 2973.0 (7^-) 2408.7 5 ⁻ 566.1 2 3.6 4 5249.4 (15^+) 4683.4 (14^+) 570.0 2 95 10 1751.6 6 ⁺ 1181.44 4 ⁺ Q Mult: DCO ratio=1.03 1. 597.0 2 1.39 14 3356.7 (8 ⁻) 2759.9 (6) ⁻ Mult: DCO ratio=1.05 1. 617.3 2 109 11 1181.44 4 ⁺ 563.94 2 ⁺ Q Mult: DCO ratio=1.08 1. 626.6 2 2.16 22 6379.8 5753.2 (16 ⁺) 631.6 2.83 28 4805.6 (13 ⁻) 4174.4 (11 ⁻) 631.6 2.83 28 4805.6 (13 ⁻) 3356.7 (8 ⁻) Mult: DCO ratio=0.92 2. 664.1 2 5.3 5 3335.1 (9 ⁻) 2801.9 7 ⁻ Q Mult: DCO ratio=0.92 2. 664.1 2 5.3 5 3335.1 (9 ⁻) 2670.7 8 ⁺ D Mult: DCO ratio=0.92 2. 664.1 2 </td <td>533.0 2</td> <td>5.5 6</td> <td>2284.8</td> <td>6+</td> <td>1751.6 6+</td> <td>(D+Q)</td> <td>Mult.: DCO ratio=0.78 2 (value for $532.9\gamma+533.0\gamma$).</td>	533.0 2	5.5 6	2284.8	6+	1751.6 6+	(D+Q)	Mult.: DCO ratio=0.78 2 (value for $532.9\gamma+533.0\gamma$).
564.1 2115 $I2$ 563.94 2^{+} 0.0 0^{-} E2Mult:: DCO ratio=0.97 I ; RUL.564.2 23.4 32973.0 (7^{-}) 2408.7 5^{-} 566.1 23.6 45249.4 (15^{+}) 4683.4 (14^{+}) 570.0 295 $I0$ 1751.6 6^{+} 1181.44 4^{+} Q597.0 21.39 $I4$ 3356.7 (8^{-}) 2759.9 $(6)^{-}$ 617.3 2109 II 1181.44 4^{+} 563.94 2^{+} Q626.6 22.16 226379.85753.2 (16^{+}) 631.6 22.83 284805.6 (13^{-}) 4174.4 (11^{-}) 631.6 22.83 284805.6 (13^{-}) 4174.4 (11^{-}) 631.6 20.69 73996.3 (10^{-}) 3356.7 (8^{-}) 660.5 24.4 43462.3 (9^{-}) 2801.9 7^{-} Q664.1 25.3 53335.1 (9^{-}) 2670.7 8^{+} D669.3 21.04 12 6710.76041.46041.4671.6 25.2 53746.9 (10^{-}) 3075.3 (8^{-}) Q685.0 217.7 18 4683.4 (14^{+}) 3998.5 (12^{+}) Q685.1 22.27 23 297.00 7^{-} 2284.8 6^{+} 693.3 21.73 17 1257.07 2^{+} 563.94 2^{+} 695.8 23.5 44442.8 (12^{-}) 3746.9 (10^{-}) Q704.4 26.7 74039.	548.7 2	2.16 22	4547.2	- 1	3998.5 (12+)		
$564.2.2$ $3.4.3$ 2973.0 (7^-) 2408.7 $5^ 566.12$ $3.6.4$ 5249.4 (15^+) 4683.4 (14^+) 570.02 95.10 1751.6 6^+ 1181.44 4^+ Q 617.32 109.11 1181.44 4^+ 563.94 2^+ Q Mult.: DCO ratio= $1.03.1$. 622.12 35.4 3292.9 (10^+) 2670.7 8^+ Q Mult.: DCO ratio= $1.08.1$. 626.62 $2.16.22$ 6379.8 5753.2 (16^+) Mult.: DCO ratio= $1.08.1$. 631.62 $2.83.28$ 4805.6 (13^-) 4174.4 (11^-) 631.62 $2.83.28$ 4805.6 (13^-) 4174.4 (11^-) 631.62 $0.69.7$ 3996.3 (10^-) 3356.7 8^- Mult.: DCO ratio= $0.92.2$. 664.12 $5.3.5$ 3335.1 (9^-) 2670.7 8^+ D Mult.: DCO ratio= $0.48.1$. 669.32 $1.04.12$ 6710.7 6041.4 6071.7 8041.4 863.4 <td>564.1 2</td> <td>115 12</td> <td>563.94</td> <td>2+</td> <td>$0.0 0^+$</td> <td>E2</td> <td>Mult.: DCO ratio=0.97 1; RUL.</td>	564.1 2	115 12	563.94	2+	$0.0 0^+$	E2	Mult.: DCO ratio=0.97 1; RUL.
566.123.64 5249.4 (15^+) 4683.4 (14^+) 570.0295101751.66+1181.444+QMult.: DCO ratio=1.03I.597.021.39143356.7 (8^-) 2759.9 $(6)^-$ Mult.: DCO ratio=1.05I.617.32109111181.444+563.942+QMult.: DCO ratio=1.05I.626.622.16226379.85753.2 (16^+) Mult.: DCO ratio=1.08I.631.622.83284805.6 (13^-) 4174.4 (11^-) Mult.: DCO ratio=0.922.661.20.6973996.3 (10^-) 3356.7 (8^-) Mult.: DCO ratio=0.922.664.125.35335.1 (9^-) 2670.7 8^+ DMult.: DCO ratio=0.922.664.125.253746.9 (10^-) 3075.3 (8^-) QMult.: DCO ratio=1.103.685.021.7.7184683.4 (14^+) 3998.5 (12^+) QMult.: DCO ratio=1.082.688.122.27232973.0 (7^-) 2284.8 6^+ Mult.: DCO ratio=0.972.695.83.54442.8 (12^-) 3746.9 (10^-) QMult.: DCO ratio=0.972.704.426.774039.6 (11^-) 3335.1 (9^-) (Q) Mult.: DCO ratio=0.97 </td <td>564.2 2</td> <td>3.4 3</td> <td>29/3.0</td> <td>(7^{-})</td> <td>2408.7 5-</td> <td></td> <td></td>	564.2 2	3.4 3	29/3.0	(7^{-})	2408.7 5-		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	566.1 2	3.6 4	5249.4	(15 ⁺)	4683.4 (14 ⁺)	0	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	570.0 2	95 10	1751.6	6 ⁺	1181.44 4*	Q	Mult.: DCO ratio= 1.03 <i>I</i> .
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	597.0 2	1.39 14	3356.7	(8)	2/59.9 (6)	0	
622.12 35.4 3292.9 (10^{-1}) 2670.7 8^{+} Q Mult.: DCO ratio=1.08 <i>T</i> . 626.62 $2.16.22$ 6379.8 5753.2 (16^{+}) 631.62 $2.83.28$ 4805.6 (13^{-}) 4174.4 (11^{-}) 631.72 $1.15.11$ 6041.4 5409.7 (16^{+}) 639.62 $0.69.7$ 3996.3 (10^{-}) 3356.7 (8^{-}) 660.52 $4.4.4$ 3462.3 (9^{-}) 2801.9 7^{-} Q Mult.: DCO ratio= $0.92.2$. $664.1.2$ $5.3.5$ 3335.1 (9^{-}) 2670.7 8^{+} D Mult.: DCO ratio= $0.92.2$. $664.1.2$ $5.3.5$ 3746.9 (10^{-}) 3075.3 (8^{-}) Q Mult.: DCO ratio= $0.48.1$. $671.6.2$ $5.2.5$ 3746.9 (10^{-}) 3075.3 (8^{-}) Q Mult.: DCO ratio= $1.10.3$. $688.1.2$ $2.27.23$ 2973.0 (7^{-}) 2284.8 6^{+} $693.3.2$ $1.73.17$ 1257.07 2^{+} $563.94.2^{+}$ 67.7 <	617.3 2	109 11	1181.44	4'	563.94 2	Q	Mult.: DCO ratio=1.05 <i>I</i> .
$626.6\ 2$ $2.16\ 22$ 6379.8 573.2 (16^{-}) $631.6\ 2$ $2.83\ 28$ 4805.6 (13^{-}) 4174.4 (11^{-}) $631.7\ 2$ $1.15\ 11$ 6041.4 5409.7 (16^{+}) $639.6\ 2$ $0.69\ 7$ 3996.3 (10^{-}) 3356.7 (8^{-}) $660.5\ 2$ $4.4\ 4$ 3462.3 (9^{-}) $2801.9\ 7^{-}$ Q Mult.: DCO ratio= $0.92\ 2.$ $664.1\ 2$ $5.3\ 5$ $3335.1\ (9^{-})$ $2670.7\ 8^{+}$ D Mult.: DCO ratio= $0.48\ 1.$ $669.3\ 2$ $1.04\ 12\ 6710.7\ 6041.4$ 6041.4 Mult.: DCO ratio= $1.10\ 3.$ $671.6\ 2$ $5.2\ 5\ 3746.9\ (10^{-})\ 3075.3\ (8^{-})\ Q$ Mult.: DCO ratio= $1.10\ 3.$ $688.1\ 2\ 2.27\ 23\ 2973.0\ (7^{-})\ 2284.8\ 6^{+}$ 6^{+} $693.3\ 2\ 1.73\ 17\ 1257.07\ 2^{+}\ 563.94\ 2^{+}$ $633.94\ 2^{+}$ $695.8\ 2\ 3.5\ 4\ 4442.8\ (12^{-})\ 3746.9\ (10^{-})\ Q$ Mult.: DCO ratio= $0.97\ 2.$ $704.4\ 2\ 6.7\ 7\ 4039.6\ (11^{-})\ 3335.1\ (9^{-})\ (Q)$ Mult.: DCO ratio= $1.04\ 2$ (value for $704.4\gamma + 705.6\gamma$).	622.12	35 4	3292.9	(10^{-1})	$26/0.7 8^{-1}$	Q	Mult.: DCO ratio= 1.08 <i>I</i> .
$631.6\ 2$ $2.85\ 26$ 4805.6 (13°) 4174.4 (11°) $631.7\ 2$ $1.15\ 11$ 6041.4 5409.7 (16^{+}) $639.6\ 2$ $0.69\ 7$ 3996.3 (10^{-}) 3356.7 (8^{-}) $660.5\ 2$ $4.4\ 4$ 3462.3 (9^{-}) $2801.9\ 7^{-}$ Q Mult.: DCO ratio= $0.92\ 2.$ $664.1\ 2$ $5.3\ 5$ 3335.1 (9^{-}) $2670.7\ 8^{+}$ D Mult.: DCO ratio= $0.48\ 1.$ $669.3\ 2$ $1.04\ 12$ 6710.7 6041.4 Mult.: DCO ratio= $1.10\ 3.$ $671.6\ 2$ $5.2\ 5$ 3746.9 (10^{-}) 3075.3 (8^{-}) Q Mult.: DCO ratio= $1.10\ 3.$ $688.1\ 2$ $2.27\ 23$ 2973.0 (7^{-}) $2284.8\ 6^{+}$ 6^{+} $693.3\ 2$ $1.73\ 17$ $1257.07\ 2^{+}$ $563.94\ 2^{+}$ 673.4422 $67.7\ 7\ 4039.6\ (11^{-})$ $3335.1\ (9^{-})$ (Q) Mult.: DCO ratio= $0.97\ 2.$ $704.4\ 2$ $6.7\ 7\ 4039.6\ (11^{-})$ $3335.1\ (9^{-})$ (Q) Mult.: DCO ratio= $1.04\ 2$ (value for $704.4\gamma + 705.6\gamma$).	626.6 2	2.16 22	63/9.8	(12-)	5/55.2 (16 ⁺)		
631.72 1.1517 6041.4 5409.7 (16°) 639.62 0.697 3996.3 (10^{-}) 3356.7 (8^{-}) 660.52 4.44 3462.3 (9^{-}) 2801.9 7^{-} Q Mult.: DCO ratio= $0.922.$ 664.12 5.35 3335.1 (9^{-}) 2670.7 8^{+} D Mult.: DCO ratio= $0.481.$ 669.32 1.0412 6710.7 6041.4 6041.4 6041.4 671.62 5.25 3746.9 (10^{-}) 3075.3 (8^{-}) Q Mult.: DCO ratio= $1.103.$ 685.02 17.7 18 4683.4 (14^{+}) 3998.5 (12^{+}) Q Mult.: DCO ratio= $1.082.$ 688.12 2.2723 2973.0 (7^{-}) 2284.8 6^{+} 693.32 1.7317 1257.07 2^{+} 563.942^{+} 653.942^{+} 677.7 4039.6 (11^{-}) 3335.1 (9^{-}) (Q) Mult.: DCO ratio= $0.972.$ 704.422 67.7 4039.6 (11^{-}) 3335.1 (9^{-}) (Q) <	031.02	2.85 28	4805.0	(15)	41/4.4 (11) 5400 7 (16 ⁺)		
$639.6\ 2$ $0.09\ 7$ 3996.3 (10°) 5356.7 (8°) $660.5\ 2$ $4.4\ 4$ 3462.3 (9°) 2801.9 7^{-} Q Mult.: DCO ratio= $0.92\ 2.$ $664.1\ 2$ $5.3\ 5$ 3335.1 (9°) $2670.7\ 8^{+}$ D Mult.: DCO ratio= $0.48\ 1.$ $669.3\ 2$ $1.04\ 12$ 6710.7 6041.4 6041.4 $671.6\ 2$ $5.2\ 5$ 3746.9 (10^{-}) 3075.3 (8^{-}) Q Mult.: DCO ratio= $1.10\ 3.$ $685.0\ 2$ $17.7\ 18$ 4683.4 (14^{+}) 3998.5 (12^{+}) Q Mult.: DCO ratio= $1.08\ 2.$ $688.1\ 2$ $2.27\ 23$ 2973.0 (7^{-}) $2284.8\ 6^{+}$ 6 $693.3\ 2$ $1.73\ 17$ $1257.07\ 2^{+}$ $563.94\ 2^{+}$ 6 $695.8\ 2$ $3.5\ 4$ 4442.8 (12^{-}) $3746.9\ (10^{-})$ Q Mult.: DCO ratio= $0.97\ 2.$ $704.4\ 2$ $6.7\ 7$ $4039.6\ (11^{-})$ $3335.1\ (9^{-})\ (Q)$ Mult.: DCO ratio= $1.04\ 2$ (value for $704.4\gamma + 705.6\gamma$).	631.72	1.15 11	6041.4	(10-)	5409.7 (16 ⁺)		
600.52 4.44 5462.5 (9^{-}) 2801.9 7 Q Mult.: DCO ratio= 0.922 . 664.12 5.35 3335.1 (9^{-}) 2670.7 8^{+} D Mult.: DCO ratio= 0.922 . 664.12 5.35 3335.1 (9^{-}) 2670.7 8^{+} D Mult.: DCO ratio= 0.922 . 669.32 1.0412 6710.7 6041.4 6041.4 6041.4 671.62 5.25 3746.9 (10^{-}) 3075.3 (8^{-}) Q Mult.: DCO ratio= 1.103 . 685.02 17.7 18 4683.4 (14^{+}) 3998.5 (12^{+}) Q Mult.: DCO ratio= 1.082 . 688.12 2.2723 2973.0 (7^{-}) 2284.8 6^{+} 693.32 1.7317 1257.07 2^{+} 563.942^{+} 695.82 3.54 4442.8 (12^{-}) 3746.9 (10^{-}) Q Mult.: DCO ratio= 0.972 . 704.42 67.7 4039.6 (11^{-}) 3335.1 (9^{-}) (Q) Mult.: DCO ratio= 1.042 (value for $704.4\gamma + 705.6\gamma)$. </td <td>039.0 2</td> <td>0.69 /</td> <td>3990.3</td> <td>(10)</td> <td>3330.7 (8) 2801.0 7⁻</td> <td>0</td> <td>Malta DCO ratia 0.02.2</td>	039.0 2	0.69 /	3990.3	(10)	3330.7 (8) 2801.0 7 ⁻	0	Malta DCO ratia 0.02.2
604.12 $5.5.5$ 5355.1 $(9')$ 2070.7 $8''$ D Mult.: DCO ratio= $0.487.$ 669.32 1.0412 6710.7 6041.4 Mult.: DCO ratio= $1.103.$ 671.62 5.25 3746.9 (10^-) 3075.3 (8^-) Q Mult.: DCO ratio= $1.103.$ 685.02 17.718 4683.4 (14^+) 3998.5 (12^+) Q Mult.: DCO ratio= $1.082.$ 688.12 2.2723 2973.0 (7^-) 2284.86^+ Mult.: DCO ratio= $1.082.$ 693.32 1.7317 1257.072^+ 563.942^+ Mult.: DCO ratio= $0.972.$ 695.82 3.54 4442.8 (12^-) $3746.9(10^-)$ Q Mult.: DCO ratio= $0.972.$ 704.42 6.77 $4039.6(11^-)$ $3335.1(9^-)$ (Q) Mult.: DCO ratio= 1.042 (value for $704.4\gamma + 705.6\gamma$).	000.5 2	4.4 4	3402.3	(9)	2801.9 /	Q D	Mult.: DCO ratio= $0.92.2$.
609.52 1.0472 0710.7 0041.4 671.62 5.25 3746.9 (10^-) 3075.3 (8^-) Q Mult.: DCO ratio= $1.103.$ 685.02 17.718 4683.4 (14^+) 3998.5 (12^+) Q Mult.: DCO ratio= $1.082.$ 688.12 2.2723 2973.0 (7^-) 2284.86^+ Mult.: DCO ratio= $1.082.$ 693.32 1.7317 1257.072^+ 563.942^+ Mult.: DCO ratio= $0.972.$ 695.82 3.54 4442.8 (12^-) $3746.9(10^-)$ Q Mult.: DCO ratio= $0.972.$ 704.42 6.77 $4039.6(11^-)$ $3335.1(9^-)$ (Q) Mult.: DCO ratio= 1.042 (value for $704.4\gamma + 705.6\gamma$).	660.2.2	3.5 J	5555.1	(9)	20/0.7 8	D	Mult.: DCO ratio=0.48 T .
071.62 5.25 5746.9 (10^{-}) 5073.5 (8^{-}) Q Mult.: DCO ratio=1.10 5. 685.02 17.7 18 4683.4 (14^+) 3998.5 (12^+) Q Mult.: DCO ratio=1.08 2. 688.12 2.27 23 2973.0 (7^-) 2284.8 6^+ 693.32 1.73 17 1257.07 2^+ 563.94 2^+ 695.82 3.54 4442.8 (12^-) 3746.9 (10^-) Q Mult.: DCO ratio=0.97 2. 704.42 6.7 4039.6 (11^-) 3335.1 (9^-) (Q) Mult.: DCO ratio=1.04 2 (value for $704.4\nu + 705.6\nu$).	67162	1.04 12	0/10.7	(10^{-})	0041.4 2075 2 (8 ⁻)	0	Mult , DCO rotio-1 10 2
683.02 17.776 4083.4 (14^{+}) 5990.5 (12^{-}) Q Mult.: DCO ratio=1.082. 688.12 2.2723 2973.0 (7^{-}) 2284.8 6^{+} 693.32 1.7317 1257.07 2^{+} 563.942^{+} 695.82 3.54 4442.8 (12^{-}) $3746.9(10^{-})$ Q Mult.: DCO ratio=0.972. 704.42 6.77 $4039.6(11^{-})$ $3335.1(9^{-})$ (Q) Mult.: DCO ratio=1.042 (value for $704.4\nu + 705.6\nu$).	685.0.2	3.2 J 177 18	3740.9 4683 4	(10^{-})	3073.3(6) $3008.5(12^+)$	Q	Mult. DCO ratio= $1.08.2$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	688.1.2	17.7 10	2073.0	(1+) (7^{-})	$2284.8 + 6^+$	Q	Muit DCO 1410–1.08 2.
695.52 1.7517 1257.07 2 505.94 2 695.82 3.54 4442.8 (12^-) 3746.9 (10^-) Q Mult.: DCO ratio=0.97 $2.$ 704.42 6.77 4039.6 (11^-) 3335.1 (9^-) (Q) Mult.: DCO ratio=1.042 (value for $704.4\nu + 705.6\nu$).	603 3 2	1 73 17	1257.07	2+	563 04 2 ⁺		
$704.4.2$ 6.7 7 4039.6 (11 ⁻) 3335.1 (9 ⁻) (Q) Mult.: DCO ratio=1.04.2 (value for 704.4 ν +705.6 ν).	695.8.2	1.75 17 35 4	4442.8	(12^{-})	$3746.9 (10^{-})$	0	Mult : DCO ratio=0.97.2
107.72 0.77 1007.0 (117) 00001 (07) 10001 10001 1010 10170 10170	704 4 2	677	4039.6	(12^{-})	$33351(0^{-})$		Mult: DCO ratio= $1.04.2$ (value for 704.4 γ +705.6 γ)
$705.6.2$ 29.7.30 3098.5 (12 ⁺) 3292.9 (10 ⁺) O Mult : DCO ratio=1.04.2 (value for 704.4 γ +705.6 γ)	705.6.2	29.7.30	3008 5	(11^{-}) (12^{+})	3333.1 (9) $3292.9 (10^+)$	(\mathbf{Q})	Mult: DCO ratio=1.04.2 (value for $704.4y \pm 705.6y$). Mult: DCO ratio=1.04.2 (value for $704.4y \pm 705.6y$)
71222455 41744 (11^{-}) 34623 (9^{-}) O Mult: DCO ratio=0.922 (value for $71229+7124y$)	712.2.2	455	4174.4	(12^{-}) (11^{-})	$3462.3 (9^{-})$	õ	Mult: DCO ratio=0.92.2 (value for $712.2y+712.4y$)
712.4.2 0.75.7 4519.6 3807.2	712.4 2	0.75 7	4519.6	(11)	3807.2	×	(value for <i>i</i> 12.2 <i>j</i> + <i>i</i> 12.1 <i>j</i>).
$726.0\ 2$ 3.2.3 5409.7 (16^+) 4683.4 (14^+)	726.0 2	3.2.3	5409.7	(16^{+})	$4683.4 (14^+)$		
$728.6\ 2$ 1.36 14 1910.24 4 ⁺ 1181.44 4 ⁺	728.6 2	1.36 14	1910.24	4+	1181.44 4+		
729.2 1.93 19 5970.2 (16 ⁻) 5241.0 (14 ⁻) O Mult.: DCO ratio=1.12 3.	729.2 2	1.93 19	5970.2	(16^{-})	5241.0 (14 ⁻)	0	Mult.: DCO ratio=1.12 3.
743.8 2 2.9 3 4783.4 (13^{-}) 4039.6 (11^{-}) Q Mult.: DCO ratio=1.07 3.	743.8 2	2.9 3	4783.4	(13-)	4039.6 (11-)	ò	Mult.: DCO ratio=1.07 3.
791.7 2 2.04 20 3462.3 (9 ⁻) 2670.7 8 ⁺ D Mult.: DCO ratio=0.52 2.	791.7 2	2.04 20	3462.3	(9-)	2670.7 8+	Ď	Mult.: DCO ratio=0.52 2.
$793.6\ 2 \qquad 0.88\ 9 \qquad 1357.5 \qquad 0^+ \qquad 563.94 2^+$	793.6 2	0.88 9	1357.5	0^{+}	563.94 2+		
798.1 2 1.08 11 5241.0 (14 ⁻) 4442.8 (12 ⁻) Q Mult.: DCO ratio=0.93 5.	798.1 2	1.08 11	5241.0	(14^{-})	4442.8 (12 ⁻)	Q	Mult.: DCO ratio=0.93 5.
844.1 2 2.21 22 5753.2 (16 ⁺) 4909.1 (14 ⁺) Q Mult.: DCO ratio=1.14 4.	844.1 2	2.21 22	5753.2	(16^{+})	4909.1 (14 ⁺)	Q	Mult.: DCO ratio=1.14 4.
896.2 2 1.00 10 6614.2 (17 ⁻) 5718.0 (15 ⁻)	896.2 2	1.00 10	6614.2	(17^{-})	5718.0 (15 ⁻)		
910.6 2 5.9 6 4909.1 (14 ⁺) 3998.5 (12 ⁺) Q Mult.: DCO ratio=0.98 2.	910.6 2	5.9 6	4909.1	(14^{+})	3998.5 (12 ⁺)	Q	Mult.: DCO ratio=0.98 2.
919.0 2 61 6 2670.7 8 ⁺ 1751.6 6 ⁺ Q Mult.: DCO ratio=1.06 <i>I</i> .	919.0 2	61 6	2670.7	8^{+}	1751.6 6+	Q	Mult.: DCO ratio=1.06 1.
935.1 2 1.34 <i>13</i> 5718.0 (15 ⁻) 4783.4 (13 ⁻) Q Mult.: DCO ratio=1.20 6.	935.1 2	1.34 <i>13</i>	5718.0	(15^{-})	4783.4 (13 ⁻)	Q	Mult.: DCO ratio=1.20 6.
945.0 2 0.75 8 6915.2 (18 ⁻) 5970.2 (16 ⁻)	945.0 2	0.75 8	6915.2	(18^{-})	5970.2 (16 ⁻)		
961.7 2 0.81 8 5645.1 4683.4 (14^+)	961.7 2	0.81 8	5645.1		4683.4 (14 ⁺)		
983.6 2 0.39 4 6393.3 5409.7 (16 ⁺)	983.6 2	0.39 4	6393.3	_	5409.7 (16 ⁺)	_	
1050.2 2 15.2 15 2801.9 7^- 1751.6 6 ⁺ D Mult.: DCO ratio=0.58 1.	1050.2 2	15.2 15	2801.9	7-	1751.6 6+	D	Mult.: DCO ratio=0.58 1.
$1103.4\ 2$ $3.5\ 4$ $2284.8\ 6^+$ $1181.44\ 4^+$ Q Mult.: DCO ratio=1.15 5.	1103.4 2	3.5 4	2284.8	6	1181.44 4+	Q	Mult.: DCO ratio=1.15 5.
1117.0 2 0.91 11 6026.1 (15) 4909.1 (14 ⁺) D Mult.: DCO ratio=0.71 2.	1117.0 2	0.91 11	6026.1	(15)	4909.1 (14+)	D	Mult.: DCO ratio=0.71 2.
$1136.4\ 2$ 0.73 3807.2 $2670.7\ 8^+$	1136.4 2	0.73	3807.2		26/0.7 8+	-	
1140.1 2 2.12 20 2891.6 (7) $\Gamma/51.6$ 6' (D) Mult.: DCO ratio=0.43 2.	1140.1 2	2.12 20	2891.6	(7^{-})	1751.6 6	(D)	Mult.: DCO ratio= 0.43 2.
1165.0 2 1.54 15 2914.6 (8') $\Gamma/51.6$ 6' Q Mult.: DCO ratio=1.02 3.	1163.0 2	1.54 15	2914.6	(8 ⁺)	1/51.6 6 ⁺	Q	Mult.: DCO ratio=1.02 3.
1186./2 1.16 12 58/0.1 (15) 4683.4 (14') D Mult: DCO ratio=0.5/2.	1186.7 2	1.16 12	5870.1	(15)	4683.4 (14 ⁺)	D (D)	Mult.: DCO ratio= $0.57/2$.
1221.0 2 4.4 4 29/3.0 (/) 1/51.0 0' (D) Mult.: DCO ratio=0.59 2.	1221.6 2	4.4 4	29/3.0	(/-)	1/51.0 0	(D)	Muit.: DCU ratio=0.59 2.
1225.8 2 U. /8 8 0635.5 5409.7 (10°)	1225.8 2	0.788	6635.5	5-	$5409./(16^{+})$	D	Multi DCO multi 0.65 2
1221.52 5.54 2408.7 5 1181.444 $^{\circ}$ D Mult.: DCU ratio=0.053.	1227.3 2	3.34	2408.7	3	1181.44 4'	D	Muit.: DCU ralio=0.05 5.
1227.2 2 0.00 3200.0 4000.0 (11) 1256 9 2 0.90 10 1257 07 2+ 0.0 0+	1229.22	0.33 0	5208.8 1257.07	2+	$-10.9.0$ (11) $0.9.00^+$		

Continued on next page (footnotes at end of table)

116 Cd(9 Be,3n γ) 1996Pa11 (continued)

$\gamma(^{122}\text{Te})$ (continued)

E_{γ}^{\dagger}	I_{γ}^{\ddagger}	E_i (level)	\mathbf{J}_i^{π}	E_f	\mathbf{J}_{f}^{π}	Mult.#	Comments
1290.3 2	0.56 6	5973.7	(15)	4683.4	(14^{+})	D	Mult.: DCO ratio=0.74 3.
1329.1 2	1.15 11	3999.9		2670.7	8+		
1346.5 2	1.52 15	1910.24	4+	563.94	2+		

[†] From 1996Pa11. [‡] From 1996Pa11; relative to I(564.1 γ)=100 At E(⁹Be)=37.8 MeV. Detailed conditions are given. Uncertainties are statistical from peak fitting only.# Multipolarities were deduced from DCO ratios listed in comments, except noted otherwise.

¹¹⁶Cd(⁹Be,3nγ) 1996Pa11





¹²²₅₂Te₇₀



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¹¹⁶Cd(⁹Be,3nγ) 1996Pa11



¹²²₅₂Te₇₀