Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	H. Iimura, J. Katakura, S. Ohya	NDS 180, 1 (2022)	1-Oct-2021

Q(β^-)=5554 *5*; S(n)=6979 *4*; S(p)=150×10^2 *5*; Q(α)=−10064 *20* 2021Wa16

1978Ga18: U(n,F) on-line mass separation; measured half-life, γ.

1981Ru07: U(n,F) chemical separation; measured half-life, γ.

1986Go10: U(n,F) on-line mass separation; measured half-life, γ, β.

2015Lo04: ^{126}Cd nuclide produced at RIBF-RIKEN facility in ^{9}Be(^{238}U,F) reaction at E=345 MeV/nucleon. Measured half-life by ion-β correlation and maximum likelihood fits to the decay curve.

^{126}Cd Levels

Cross Reference (XREF) Flags

- A ^{126}Ag β^- decay (52 ms)
- B ^{126}Ag β^- decay (92 ms)
- C ^{9}Be(^{136}Xe,Xγ):isomer
- D Coulomb excitation

E(level)‡	J$^\pi$†	T$_{1/2}$	XREF	Comments
0.0	0$^+$	0.514 s *8*	ABCD	%β^-=100 T$_{1/2}$: from weighted av of 0.506 s *15* (1978Ga18), 0.51 s *1* (1981Ru07), 0.60 s *3* (1986Go10) and 0.513 s *6* (2015Lo04). All data are from γ(t) except data of 2015Lo04 from ion-β decay curve. ⟨r^2⟩(^{126}Cd)-⟨r^2⟩(^{114}Cd)=0.585 fm^2 *8* (uncorrelated) *90* (correlated) from collinear laser spectroscopy (2018Ha30).
651.96 *10*	(2$^+$)	8.9 ps *+27−17*	ABCD	Q=+0.27 *+11−7* T$_{1/2}$: From Coulomb excitation (2014Il01). Q: Coulomb excitation (2014Il01).
1466.86 *23*	(4$^+$)		ABC	
1579.17 *17*	(2$^+$)		A	
1734.7 *4*			A	J$^\pi$: 2014Ba18 proposed spin-parity of (0$^+$,4$^+$).
1802.7 *4*			A	J$^\pi$: 2014Ba18 proposed spin-parity of (0$^+$,4$^+$).
1868.6 *3*	(5$^-$)		BC	
1943.56 *24*			A	J$^\pi$: 2014Ba18 proposed spin-parity of (3$^+$).
1951.0 *4*			BC	J$^\pi$: 2014Ba18 and 2007Ho22 proposed spin-parity of (7$^-$).
2120.5 *4*			B	J$^\pi$: 2014Ba18 proposed spin-parity of (7$^-$), while 2005Ka45 proposed 6$^-$,7$^-$.
2206.3 *3*			A	
2244.6 *4*			B	J$^\pi$: 2014Ba18 proposed spin-parity of (6$^+$).
2323.3 *5*			C	
2468.9 *4*			A	
2545.1 *5*			A	
2584.2 *5*			B	
2605.6 *5*			B	
2611.0 *5*			B	
2628.9 *6*			B	
2661.5 *3*			A	
2666.4 *5*			B	
2695.4 *5*			B	
2729.5 *5*			C	
2730.2 *6*			B	
2757.6 *5*			B	
2758.0 *4*			C	
2777.8 *5*			B	
2835.38 *23*			A	

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Adopted Levels, Gammas (continued)

^{126}Cd Levels (continued)

E(level)‡	XREF	Comments
2844.4 *6*	B	
2878.8 *5*	A	
2930.4 *6*	B	
2976.6 *6*	B	
2977.7 *5*	C	
2977.7+x	C	Additional information 1. Isomer in the microsecond range from observation of delayed γ rays.
3181.5 *7*	B	
3232.8 *5*	B	
3361.1 *6*	B	
3386.1 *5*	A	
3605.1 *6*	A	
3755.3 *6*	B	

† From systematics.
‡ Least-squares fit to γ-ray energies.

$\gamma(^{126}Cd)$

E_i(level)	J_i^π	E_γ†	I_γ‡	E_f	J_f^π	Mult.	Comments
651.96	(2^+)	651.9 *1*	100	0.0	0^+	[E2]	B(E2)(W.u.)=14 *3*
1466.86	(4^+)	814.9 *2*	100	651.96	(2^+)		
1579.17	(2^+)	927.1 *2*	100 *7*	651.96	(2^+)		
		1579.7 *3*	5.1 *6*	0.0	0^+		
1734.7		1082.7# *3*	100#	651.96	(2^+)		
1802.7		1150.7 *3*	100	651.96	(2^+)		
1868.6	(5^-)	401.7 *2*	100	1466.86	(4^+)		
1943.56		364.5 *4*	74 *15*	1579.17	(2^+)		
		1291.6 *3*	100 *10*	651.96	(2^+)		
1951.0		82.5 *2*	100	1868.6	(5^-)		
2120.5		169.5 *3*	100 *13*	1951.0			
		251.9 *3*	70 *5*	1868.6	(5^-)		
2206.3		262.8 *3*	100 *24*	1943.56			
		1554.2 *4*	82 *24*	651.96	(2^+)		
2244.6		777.7 *3*	100	1466.86	(4^+)		
2323.3		856.4 *4*	100	1466.86	(4^+)		
2468.9		1816.9 *3*	100	651.96	(2^+)		
2545.1		1893.1 *4*	100	651.96	(2^+)		
2584.2		715.6 *3*	100	1868.6	(5^-)		
2605.6		737.0 *3*	100	1868.6	(5^-)		
2611.0		490.5 *3*	100	2120.5			
2628.9		1162.0 *5*	100	1466.86	(4^+)		
2661.5		1082.7# *4*	100# *20*	1579.17	(2^+)		
		2009.1 *4*	30 *8*	651.96	(2^+)		
2666.4		545.9 *3*	100	2120.5			
2695.4		826.8 *3*	100	1868.6	(5^-)		
2729.5		405.1 *7*	100	2323.3			
2730.2		119.2 *3*	100	2611.0			
2757.6		889.0 *3*	100	1868.6	(5^-)		
2758.0		807.0 *2*		1951.0			
2777.8		657.1 *4*	100 *34*	2120.5			
		826.9 *3*	11.7 *17*	1951.0			

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Adopted Levels, Gammas (continued)

$\gamma(^{126}Cd)$ (continued)

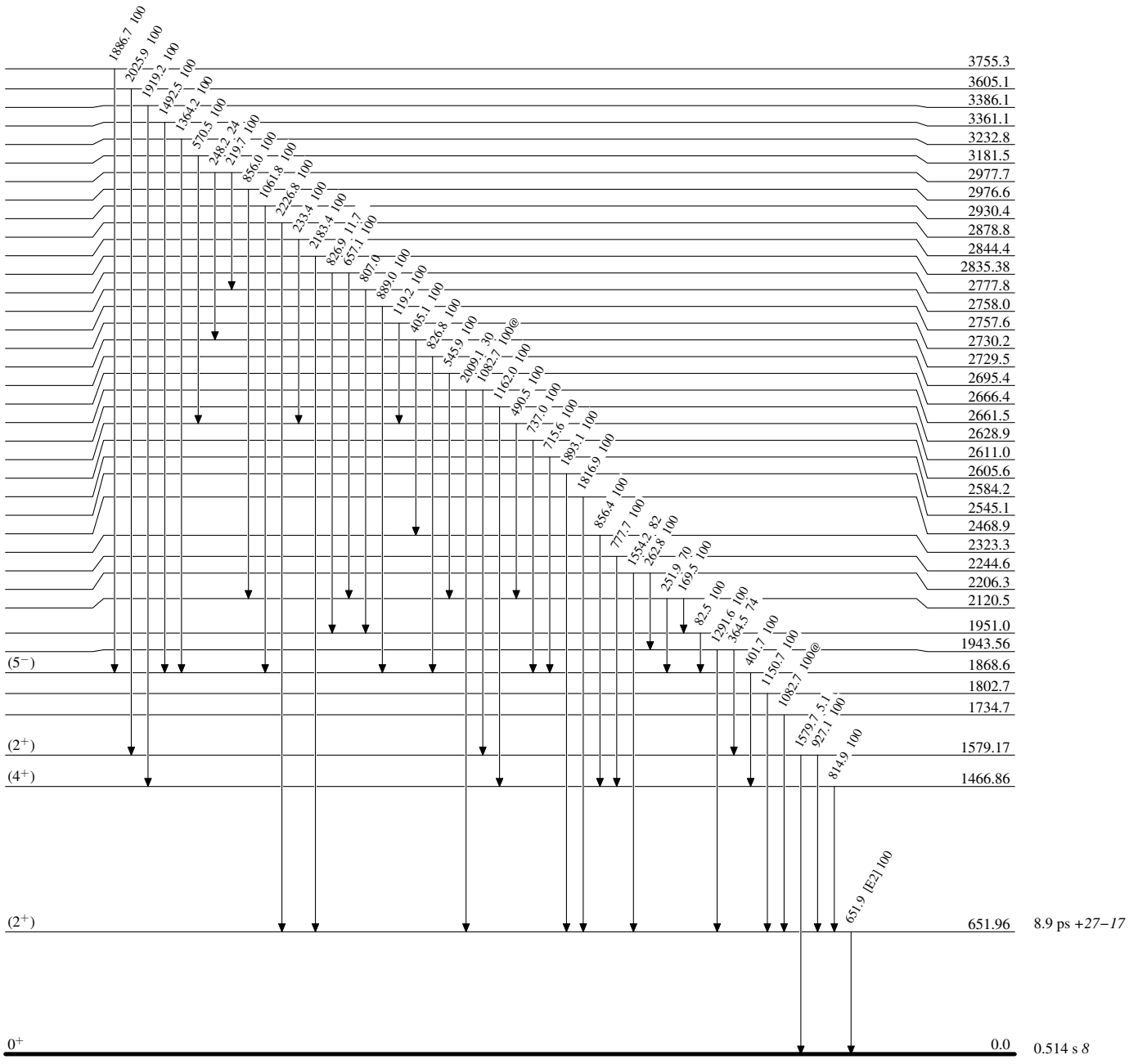
E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	E_i(level)	E_γ †	I_γ ‡	E_f	J_f^π
2835.38		2183.4 *2*	100	651.96	(2^+)	3181.5	570.5 *5*	100	2611.0	
2844.4		233.4 *3*	100	2611.0		3232.8	1364.2 *4*	100	1868.6	(5^-)
2878.8		2226.8 *5*	100	651.96	(2^+)	3361.1	1492.5 *5*	100	1868.6	(5^-)
2930.4		1061.8 *5*	100	1868.6	(5^-)	3386.1	1919.2 *4*	100	1466.86	(4^+)
2976.6		856.0 *4*	100	2120.5		3605.1	2025.9 *5*	100	1579.17	(2^+)
2977.7		219.7 *2*	100 *26*	2758.0		3755.3	1886.7 *5*	100	1868.6	(5^-)
		248.2 *2*	24 *11*	2729.5						

† From 126AG B- DECAY, except as noted.
‡ From 126AG B- DECAY,except as noted.
# Multiply placed with intensity suitably divided.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{126}_{48}Cd_{78}$