^{106}Cd 2β+ decay

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne and A. Negret	NDS 109,943 (2008)	1-May-2007

Parent: ^{106}Cd: E=0.0; $J^\pi=0^+$; Q(2β+)=2770 *7*; %2β+ decay=?

1996Ba46: Radioactivity ^{106}Cd($2\beta^+$),($\beta^+\varepsilon$),(2ε); Measured: $T_{1/2}$ limits. Low-background Ge detectors. Quasiparticle RPA calc.

1999Be81: Radioactivity: ^{106}Cd($2\beta^+$),($\beta^+\varepsilon$),(2ε). Measured: $T_{1/2}$ lower limits.

2003Da24: Radioactivity ^{106}Cd(2ε),($\beta^+\varepsilon$),($2\beta^+$) Measured: 0ν − and 2ν-accompanied $2\beta^+$ decay, $T_{1/2}$ lower limits.

2006St11: Radioactivity ^{106}Cd(2ε); measured: $T_{1/2}$ lower limits for transitions to ground state and excited states.

Theory: 2006Ra13, 2006Su09, 2005Sh02, 2001Su01.

^{106}Pd Levels

E(level)†	J^π†	$T_{1/2}$†	Comments
0.0	0^+	stable	Several types of 2β g.s. decay of ^{106}Cd have been investigated to this level with the following corresponding $T_{1/2}$: $T_{1/2}(2\nu)>4.8\times10^{19}$ y (90% c.l.) (2006St11); Process: 2ε $T_{1/2}(2\nu)\geq5.0\times10^{18}$ y (90% c.l.) (2003Da24); Process: $\beta^+\beta^+$ $T_{1/2}(0\nu)\geq1.4\times10^{19}$ y (90% c.l.) (2003Da24); Process: $\beta^+\beta^+$ $T_{1/2}(2\nu)\geq5.8\times10^{17}$ y (90% c.l.) (2003Da24); Process: 2ε $T_{1/2}(2\nu)>5.8\times10^{17}$ y (90% c.l.) (1995Ge14); Process: 2ε $T_{1/2}(2\nu)\geq1.2\times10^{18}$ y (90% c.l.) (2003Da24); Process: ε β^+ $T_{1/2}(0\nu)\geq7.0\times10^{19}$ y (90% c.l.) (2003Da24); Process: ε β^+ $T_{1/2}(0\nu)\geq8.0\times10^{18}$ y (90% c.l.) (2003Da24); Process: 2ε $T_{1/2}(0\nu)>1.5\times10^{17}$ y (90% c.l.) (1984No09); Process: 2ε $T_{1/2}(0\nu+2\nu))>2.4\times10^{20}$ y (90% c.l.) (1999Be81); Process: $\beta^+\beta^+$ $T_{1/2}(2\nu)\geq4.1\times10^{20}$ y (90% c.l.) (1999Be81); Process: (ε β^+) $T_{1/2}(0\nu)\geq3.7\times10^{20}$ y (90% c.l.) (1999Be81); Process: ($\varepsilon\beta^+$) $T_{1/2}(0\nu+2\nu))>6.6\times10^{18}$ (1996Ba46) Process:$\beta^+\varepsilon$ $T_{1/2}(0\nu+2\nu))>10\times10^{18}$ (1996Ba46) Process:$\beta^+\beta^+$.
511.851 *23*	2^+	12.3 ps *4*	Several types of $2\beta^+$ ^{106}Cd g.s. decay of have been investigated to this level with the following corresponding $T_{1/2}$: $T_{1/2}(2\nu)>3.9\times10^{19}$ y (2006St11); Process: 2ε $T_{1/2}(0\nu)\geq6.0\times10^{18}$ y (90% c.l.); (2003Da24); Process: $\beta^+\beta^+$ $T_{1/2}(0\nu)\geq3.1\times10^{19}$ y (90% c.l.); (2003Da24); Process: ε β^+ $T_{1/2}(2\nu)>3.0\times10^{19}$ y (90% c.l.); (2006St11); Process: 2ε $T_{1/2}(0\nu+2\nu))>1.6\times10^{20}$ y (90% c.l.) (1999Be81); Process: $\beta^+\beta^+$ $T_{1/2}(0\nu+2\nu))>2.6\times10^{20}$ y (90% c.l.) (1999Be81); Process: ε β^+ $T_{1/2}(0\nu+2\nu))>3.5\times10^{18}$ y (90% c.l.) (1996Ba46); Process: 2ε $T_{1/2}(0\nu+2\nu))>7.3\times10^{18}$ y (90% c.l.) (1996Ba46); Process: $\beta^+\varepsilon$ $T_{1/2}(0\nu+2\nu))>10\times10^{18}$ y (90% c.l.) (1996Ba46); Process: $\beta^+\beta^+$.
1128.01 *3*	2^+	3.12 ps *25*	Several types of $2\beta^+$ ^{106}Cd g.s. decay have been investigated to this level with the following corresponding $T_{1/2}$: $T_{1/2}(0\nu)\geq1.4\times10^{19}$ y (90% c.l.); (2003Da24); Process: ε β^+ $T_{1/2}(2\nu)>4.9\times10^{19}$ y (90% c.l.); (1999Be81); Process: 2ε $T_{1/2}(0\nu+2\nu))>1.4\times10^{20}$ y (90% c.l.) (1999Be81); Process: $\varepsilon\beta^+$ $T_{1/2}(0\nu+2\nu))>5.1\times10^{18}$ y (90% c.l.) (1996Ba46); Process: 2ε $T_{1/2}(0\nu+2\nu))>7.8\times10^{18}$ y (90% c.l.) (1996Ba46); Process: $\beta^+\varepsilon$.
1133.77 *4*	0^+	6.8 ps *15*	$T_{1/2}(2\nu)>5.8\times10^{19}$ y (90% c.l.)(2006St11); Process: 2ε $T_{1/2}(0\nu)\geq1.4+19$ y (90% c.l.) (2003Da24); Process: ε β^+ $T_{1/2}(2\nu)>7.3\times10^{19}$ y (90% c.l.)(1999Be81); Process: 2ε $T_{1/2}(0\nu+2\nu))>1.1\times10^{20}$ y (90% c.l.) (1999Be81); Process: $\varepsilon\beta^+$ $T_{1/2}(0\nu+2\nu))>6.2\times10^{20}$ y (90% c.l.) (1996Ba46); Process: 2ε $T_{1/2}(0\nu+2\nu))$ 8.1×10^{18} y (90% c.l.) (1996Ba46); Process:$\beta^+\varepsilon$.

† From Adopted Levels.