Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	15-Jan-2014

Q(β^-)=7650 *SY*; S(n)=6210 *SY*; S(p)=16330 *SY*; Q(α)=−10970 *SY* 2012Wa38
Estimated uncertainties (2012Wa38): 390 for Q(β^-), 360 for S(n), 500 for S(p) and Q(α).
S(2n)=10080 *300*, S(2p)=30720 *590*, Q(β^-n)=2920 *300* (syst,2012Wa38).
1997Be70: ^{124}Pd produced and identified in ^{9}Be(^{238}U,F) reaction at E(^{238}U)=750 MeV/nucleon at GSI facility; identification by ΔE-Bρ-TOF and trajectory.
2006Mo07: ^{124}Pd produced by fragmentation of $^{136}Xe^{+50,51}$ (E=121.8 MeV/nucleon) on Be target using A1900 fragment separator at NSCL-MSU facility. Particle identification was performed by energy loss and TOF techniques. The secondary beam was implanted into β-decay arrangement consisting of Si(PIN) detectors and Si strip detectors (DSSD) and single-sided Si strip detectors (SSSD). Implantation and decay events were time stamped and correlated. Measured $T_{1/2}$.
Additional information 1.
Nuclear structure (levels, bands, B(E2)) calculations: 2013Fa08, 2010No01, 1996Ki08, 1985Sc07, 1980Va15.

^{124}Pd Levels

Cross Reference (XREF) Flags

A ^{124}Pd IT decay (>20 μs)
B ^{9}Be(^{133}Sn,Xγ)

E(level)	J$^\pi$[†]	$T_{1/2}$	XREF	Comments
0	0^+	38 ms *+38−19*	B	%β^-=100; %β^-n=? $T_{1/2}$: from β decay curve (2006Mo07). Theoretical %β^-n=0.03 (1997Mo25).
590 *11*	(2^+)		B	
1300 *22*	(4^+)		B	
0+x			A	
62.2+x *17*		>20 μs	A	%IT=100 %IT decay mode assumed to be 100% in view of only γ-decay observation. E(level): energy of 62.2 keV for the isomer stated in 2012Au07 seems too low in view of first 2^+ state in ^{124}Pd at 590 keV. Absolute energy of this isomer was not measured in 2012Ka36. $T_{1/2}$: from γ(t) method; estimated because γ-ray events were equally distributed in the 20−μs range of the time spectrum (2012Ka36).

[†] From systematics of even-even nuclei and IBM-model predictions.

$\gamma(^{124}Pd)$

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π
590	(2^+)	590 *11*	100	0	0^+
1300	(4^+)	710 *19*		590	(2^+)
62.2+x		62.2 *17*		0+x	

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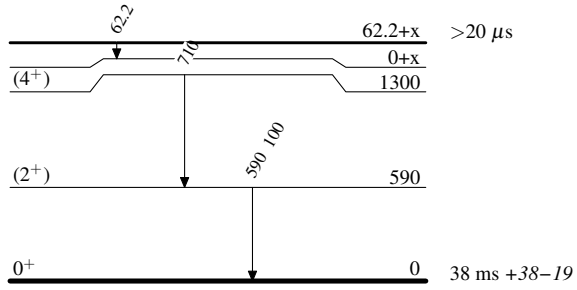
Level Scheme

Intensities: Relative photon branching from each level



$^{124}_{46}Pd_{78}$