

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	28-Feb-2018

$Q(\beta^-)=12150$  SY;  $S(n)=3120$  SY;  $S(p)=17170$  SY;  $Q(\alpha)=-8200$  SY [2017Wa10](#)

Estimated uncertainties ([2017Wa10](#)):  $\Delta Q(\beta^-)=210$ ,  $\Delta S(n)=220$ ,  $\Delta S(p)=540$ ,  $\Delta Q(\alpha)=540$ .

$S(2n)=5290$  200,  $Q(\beta^-n)=9690$  200 (syst,[2017Wa10](#)).  $Q(\beta^-2n)=3480$  200 (syst, deduced by evaluator from masses in [2017Wa10](#)).

$S(2p)=32050$  (theory,[1997Mo25](#)).

[2000Ha55](#) (also [2001Ha39](#)):  $^{132}\text{Cd}$  produced and identified using  $^{238}\text{U}(p,F)$   $E=1$  GeV (target=uranium carbide/graphite) reaction followed by LASER ionization and mass separation at CERN/ISOLDE facility. Measured  $\beta$  and  $\beta$ -delayed neutron spectra. Deduced levels in  $^{132}\text{In}$ . No  $\gamma$  rays were reported.

[2015Lo04](#):  $^{132}\text{Cd}$  nuclide produced at RIBF-RIKEN facility in  $^9\text{Be}(^{238}\text{U},F)$  reaction at  $E=345$  MeV/nucleon with an average intensity of  $6\times 10^{10}$  ions/s. Identification of  $^{132}\text{Cd}$  was made by determining atomic  $Z$  and mass-to-charge ratio  $A/Q$ , where  $Q$ =charge state of the ions. The selectivity of ions was based on magnetic rigidity, time-of-flight and energy loss. The separated nuclei were implanted at a rate of 50 ions/s in a stack of eight double-sided silicon-strip detectors (WAS3ABi), surrounded by EURICA array of 84 HPGe detectors. Correlations were recorded between the implanted ions and  $\beta$  rays. The half-life of  $^{132}\text{Cd}$  isotope was measured from the correlated ion- $\beta$  decay curves and maximum likelihood analysis technique as described in [2014Xu07](#). Comparison of measured half-lives with FRDM+QRPA, KTUY+GT2 and DF3+CQRPA theoretical calculations.

Theoretical nuclear structure calculations for  $^{132}\text{Cd}$ : consult Nuclear Science References (NSR) database at [www.nndc.bnl.gov/nsr/](http://www.nndc.bnl.gov/nsr/) for eight articles.

[Additional information 1.](#)

 $^{132}\text{Cd}$  LevelsCross Reference (XREF) Flags

A  $^9\text{Be}(^{134}\text{Sn},X)$

E(level)	$J^\pi$	$T_{1/2}$	XREF	Comments
0	$0^+$	84 ms 5	A	$\% \beta^- = 100$ ; $\% \beta^-n = 60$ 15 ( <a href="#">2000Ha55</a> ); $\% \beta^-2n = ?$ $\% \beta^-n$ from <a href="#">2000Ha55</a> (also <a href="#">2001Ha39</a> ). Theoretical $T_{1/2}=244$ ms, $\% \beta^-n=64.3$ , $\% \beta^-2n=0.23$ ( <a href="#">2003Mo09</a> ). Theoretical $T_{1/2}=61$ ms, $\% \beta^-n=61.7$ , $\% \beta^-2n=0.5$ ( <a href="#">2016Ma12</a> ). $T_{1/2}$ : weighted average of 82 ms 4 ( <a href="#">2015Lo04</a> , analysis of the (implanted ions) $\beta$ correlated decay curve in time and position) and 97 ms 10 ( <a href="#">2000Ha55</a> , <a href="#">2001Ha39</a> , from delayed neutrons decay curve).
618 8	$(2^+)$		A	Probable configuration= $\nu f_{7/2}^2 \otimes \pi g_{9/2}^{-2}$ ( <a href="#">2000Ha55</a> ). $J^\pi$ : from systematic trend of neighboring nuclides ( <a href="#">2016Wa28</a> ). Proposed ( <a href="#">2016Wa28</a> ) configuration=mixture of $\pi^{-2} \otimes \nu^2$ excitations around the robust $^{132}\text{Sn}$ core.

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

$E_i(\text{level})$	$J_i^\pi$	$E_\gamma$	$I_\gamma$	$E_f$	$J_f^\pi$	Comments
618	$(2^+)$	618 8	100	0	$0^+$	$E_\gamma$ : uncertainty includes statistical and systematic.

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**Adopted Levels, Gammas****Level Scheme**

Intensities: Relative photon branching from each level

