Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 172, 1 (2021)	31-Jan-2021

Q(β^-)=11200 *SY*; S(n)=4360 *SY*; S(p)=18730 *CA*; Q(α)=−11610 *CA* 2017Wa10,2019Mo01

Estimated uncertainties (2017Wa10): 400 for Q(β^-), 570 for S(n).

Q(β^-) and S(n) from 2017Wa10. S(p) and Q(α) are theoretical values from 2019Mo01.

S(2n)=6880 *500*, Q(β^-n)=8000 *400* (syst,2017Wa10). Q(β^-2n)=3170 *400* (deduced by evaluators from masses in 2017Wa10). S(2p)=34990 (2019Mo01, theory).

1997Be70: ^{100}Kr produced and identified in ^{9}Be(^{238}U,X) reaction at E=750 MeV/nucleon followed by mass separation. A total of three counts were assigned to ^{100}Kr with corresponding cross section of 0.5 nb, time-of-flight method for isotopic identification.

2011Ni01: ^{100}Kr nuclide produced in Be(^{238}U,F) reactions at E=345 MeV/nucleon produced by the cascade operation of the RIBF complex of accelerators at RIKEN. Target=550 mg/cm^2. Identification of ^{100}Kr made on the basis of magnetic rigidity, time-of-flight and energy loss. The separated nuclei were implanted in a nine-layer double-sided silicon-strip detector (DSSSD). Correlations were recorded between the heavy ions and β rays. The half-life of ^{100}Kr isotope was measured from the correlated ion-β decay curves and maximum likelihood analysis technique. In the analysis of the decay curve, β-detection efficiency, background rate, daughter and granddaughter (including those populated in delayed neutron decays) half-lives, and β-delayed neutron emission probabilities were considered. Comparison of measured half-lives with FRDM+QRPA and KTUY+GT2 calculations.

Additional information 1.

Theory references: consult the NSR database (www.nndc.bnl.gov/nsr/) for 20 primary references, 16 dealing with nuclear structure calculations and four with decay modes and half-lives.

Experimental data for the first (2$^+$) state are available only from ^{1}H(^{101}Rb,2pγ) (2017Fl03).

^{100}Kr Levels

Cross Reference (XREF) Flags

A ^{1}H(^{101}Rb,2pγ)

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0	0$^+$	7 ms *+11−3*	A	%β^-=100; %β^-n=?; %β^-2n=? %β^-: only the β^- decay mode is possible, and has been observed (2011Ni01). The β^- decay is expected to be followed by delayed-neutron emissions. T$_{1/2}$: measured by 2011Ni01 from the analysis of the (ion)β-correlated decay curve, and compared with FRDM+QRPA and KTUY+GT2 calculations. Theoretical T$_{1/2}$=37.9 ms, %β^-n=30, %β^-2n=0.0 (2019Mo01). Theoretical T$_{1/2}$=21.1 ms, %β^-n=1.9, %β^-2n=0.1 (2016Ma12).
309 *10*	(2$^+$)		A	J$^\pi$: γ to 0$^+$; first excited state expected to be 2$^+$ from systematics of even-even nuclei.

γ(^{100}Kr)

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$
309	(2$^+$)	309 *10*	100	0	0$^+$

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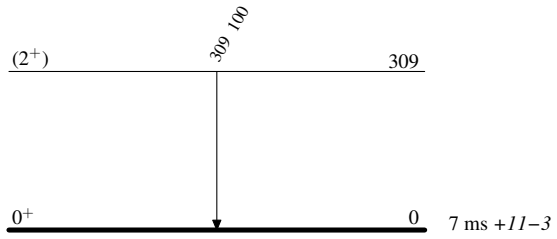
Level Scheme

Intensities: Relative photon branching from each level



$^{100}_{36}Kr_{64}$