Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	27-May-2014

Q(β^-)=10910 *SY*; S(n)=4760 *SY*; S(p)=19320 *SY*; Q(α)=−10860 *SY* 2012Wa38

Q(β^-),S(n),S(p),Q(α): systematic uncertainties given by 2012Wa38: 550, 643, 780, 780, respectively.

S(2n)=7360 *640*, S(2p)=34990 *860*, Q(β^-n)=7430 *530* (2012Wa38, values from systematics).

1997Be70: ^{62}V first identified in ^{9}Be(^{238}U,F), E=750 MeV/nucleon, U beam of 2x10^{7} ion/s at GSI facility, identification by energy loss and time-of-flight.

2003So02: produced in ^{76}Ge^{30+} on ^{58}Ni, E=61.8 MeV/nucleon. Identification via energy loss, tof. Observed strong 646γ in ^{60}Cr via a β^- decaying ^{60}V isomer. See also 2005Ga01, 2003So21, 2005GaZR (thesis), and 2002MaZN (thesis) from the GANIL experimental group.

2011Da08: ^{60}Ti produced in the fragmentation of 57.8 MeV/nucleon.

^{86}Kr beam impinged on 50 mg/cm^2 thick tantalum target using LISE-2000 spectrometer at GANIL facility. Detector system included a three-element Si-detector telescope containing a double-sided silicon-strip detector (DSSSD) backed by a Si(Li) detector and surrounded by four clover type EXOGAM Ge detectors. Product identified by mass, atomic number, charge, energy loss and time of flight. Measured half-life.

2014Ga07: E(^{61}V)=90.0 MeV/nucleon beam from Coupled Cyclotron Facility at NSCL-MSU. Secondary ^{61}V beam produced in ^{9}Be(^{82}Se,X),E=140 MeV/nucleon primary reaction followed by fragment separation by A1900 fragment separator. Secondary ^{9}Be target=376 mg/cm^2 thick located at target position of S800 magnetic spectrograph. Measured Eγ, Iγ, $\gamma\gamma$-coin, and (^{60}Ti)γ-coin using GRETINA array of 36-folded segmented HPGe detectors arranged in 58° and 90° geometry. Gamma-ray energies were deduced from Doppler- corrected spectra. Deduced levels, J, π. Comparison of level structure in ^{60}Ti with shell-model calculations.

Others:

Nuclear Structure. Theory: 2013Xu01, 2012Ch48, 2012Ca30, 2008Gu03, 2008Ob01, 2005Ch12, 2005Ho32.

Additional information 1.

^{60}Ti Levels

Cross Reference (XREF) Flags

A ^{9}Be(^{61}V,^{60}Tiγ)

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	0$^+$	22 ms *2*	A	%β^-=100; %β^-n=?; %β^-2n=? T$_{1/2}$: weighted average of 22.4 ms *25* (2011Da08, from time correlation between implantation and β-ray events), and 22 ms *2* (2005Ga01, 2003So21). Theoretical %β^-n=1.62, %β^-2n=0 (1997Mo25).
850 *5*	(2$^+$)‡		A	
1716 *7*	(4$^+$)‡		A	

† Levels are from 2014Ga07.

‡ From systematics of even-even nuclei, and comparison with shell-model calculations.

Adopted Levels, Gammas (continued)

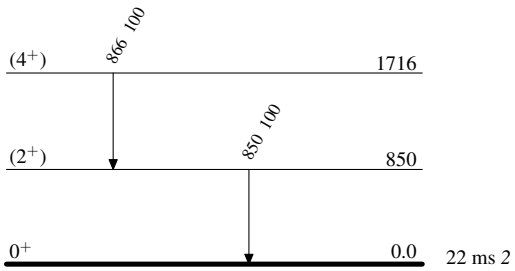
$\gamma(^{60}Ti)$

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π
850	(2^+)	850 *5*	100	0.0	0^+
1716	(4^+)	866 *5*	100	850	(2^+)

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{60}_{22}Ti_{38}$