Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 157, 1 (2019)	15-Apr-2019

Q(β^-)=−13449 *48*; S(n)=15820 *SY*; S(p)=170 *SY*; Q(α)=−7490 *SY* 2017Wa10

Q(β^-) from mass excess of −17585 *41* for ^{50}Co and −4136 *25* for ^{50}Ni (2007Do17, IMME analysis). Other: −13510 *640* (syst, 2017Wa10).

Estimated ΔS(n)=640, ΔS(p)=400, ΔQ(α)=570 (2017Wa10).

Q(εp)=12700 *400*, S(2n)=35270 *640*, S(2p)=2910 *400* (syst, 2017Wa10). Q(ε2p)=10614 *400* (syst, deduced by evaluator from mass excesses in 2017Wa10).

1987Po04: first identification of ^{50}Co isotope. Fragmentation reaction used to produce ^{50}Co isotope at GANIL facility. Primary beam: ^{58}Ni at 55 MeV/nucleon; target: natural Ni and Al. Fragment separator: LISE. Identification: magnetic rigidity, TOF, ΔE, E.

1996Fa09: experiment at FRS in GSI. Fragmentation reaction with ^{58}Ni primary beam of 650 MeV/nucleon and beryllium target. Identification by TOF, position information, magnetic field values and energy loss. Implantation into a Si telescope of 7 detectors. Coincidences between fragments and protons.

2007Do17: fragmentation reaction used to produce ^{50}Ni isotope at SISSE/LISE3 facility in GANIL. Primary beam: ^{58}Ni^{26+} at 74.5 MeV/nucleon; target=natural Ni. Fragment separator=α−LISE3. Identification by energy loss, residual energy and time-of-flight measurements using two micro-channel plate (MCP) detectors and Si detectors. Double-sided silicon-strip detectors (DSSSD) and a thick Si(Li) detector were used to detect implanted events, charged particles and β particles. γ rays were detected by Ge detectors. Coincidences measured between charged particles, β rays and γ rays.

2016Or03: ^{50}Co produced in Ni(^{58}Ni,X),E=74.5 MeV/nucleon reaction at GANIL.

Additional information 1.

^{50}Co Levels

Cross Reference (XREF) Flags

A ^{50}Ni ε decay (18.5 ms)

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0	(6$^+$)	38.8 ms *2*		%ε+%β^+=100; %εp=70.5 *7* (2007Do17); %ε2p=? T=(2) T$_{1/2}$: from 2007Do17, measured by time correlation of implantation events due to ^{50}Co and subsequent emission of protons. Other: 44 ms *4* (1996Fa09). Weighted average of two values of half-lives is 39.8 ms *21* with a χ^2=1.4, whereas unweighted average is 41.4 ms *26*. J$^\pi$,T: isobaric multiplet systematics. The isobaric analog state of this level is identified in ^{50}Fe at 8460 keV the J^π assignment of which is based on its mirror nucleus ^{50}Cr. %εp=70.5 *7* is most likely total delayed proton decay, including possible ε2p decay, deduced from time spectrum of events with energy >900 keV in the charged-particle spectrum. Possible small contributions from delayed-α and delayed-2p decays are ignored. Other: 54 *13* (1996Fa09). Only two proton peaks detected.
4835 *47*	(0)$^+$		A	%p=100 J$^\pi$: log *ft*=3.42 from 0$^+$; identified as an isobaric analog state of ^{50}Ni ground state based on strong β decay of ^{50}Ni to this state.