Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 158, 1 (2019)	16-May-2019

Q(β^-)=8879 *3*; S(n)=3953 *3*; S(p)=17200 *SY*; Q(α)=−13500 *SY* 2017Wa10
Estimated uncertainty=400 for S(p) and Q(α) (2017Wa10).
S(2n)=10845 *3*, S(2p)=33260 *400*(syst), Q(β^-n)=1603.5 *28* (2017Wa10).
1990Be13: ^{73}Ni produced and identified in ^{235}U(n,F) and ^{239}Pu(n,F) E=thermal followed by separation of fragments in a recoil spectrometer and identification with a ΔE-E ionization chamber, and β detection with planar Si detectors in which ^{73}Ni fragments were implanted.
1998Am04: ^{73}Ni produced in the fragmentation of ^{86}Kr beam, followed by fragment mass separation.
2001Fr21, 2000Mu10, 1998Fr15, 1997Wo06: ^{73}Ni produced in ^{238}U(p,F) E=30 MeV. Measured isotope yields by laser-ionization isotopic separation technique.
2007Ra27: precise mass measurement using JYFLTRAP double Penning trap.
Additional information 1.
2005Gr29: analyzed data; deduced levels, J^π, configurations.
2002Gr16: analyzed levels, J^π, B(E2).

^{73}Ni Levels

Cross Reference (XREF) Flags

A ^{73}Co β^- decay (40.7 ms)
B ^{74}Co β^-n decay (31.3 ms)

E(level)†	J^π‡	$T_{1/2}$	XREF	Comments
0.0	(9/2$^+$)	0.84 s *3*	AB	%β^-=100; %β^-n=? Theoretical $T_{1/2}$=1.099 s, %β^-n=1 (2019Mo01). Theoretical $T_{1/2}$=12 s, %β^-n=0.5 (2016Ma12). $T_{1/2}$: from decay curve for β gated γ spectra (2001Fr21). Others: 0.6 s *1* (1998Am04), 0.90 s *15* (1990Be13). J^π: tentative assignment (2001Fr21); possible $g_{9/2}$ orbital.
239.2 *2*	(7/2$^+$)		AB	
524.3 *4*	(5/2$^+$)		A	
1299.0 *6*	(5/2$^-$)		A	

† From Eγ data.
‡ From 2012Ra10, based on systematics of level structure in ^{69}Ni and ^{71}Ni, and shell-model predictions, except where noted.

$\gamma(^{73}Ni)$

E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
239.2	(7/2$^+$)	239.2 *2*	100	0.0	(9/2$^+$)
524.3	(5/2$^+$)	284.8 *4*	100 *25*	239.2	(7/2$^+$)
		524.6 *5*	52 *19*	0.0	(9/2$^+$)
1299.0	(5/2$^-$)	774.7 *4*	100	524.3	(5/2$^+$)

† From ^{73}Co β^- decay.

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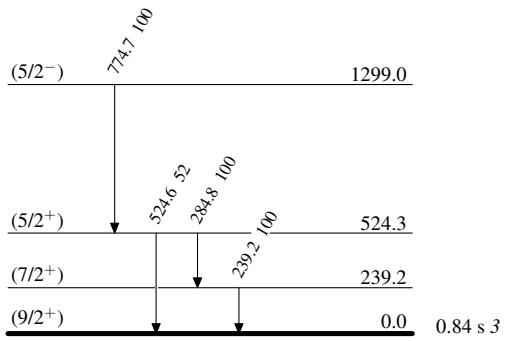
Level Scheme

Intensities: Relative photon branching from each level



$^{73}_{28}Ni_{45}$