^{71}Ge ε decay (11.43 d)

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 188,1 (2023)	17-Jan-2023

Parent: ^{71}Ge: E=0.0; $J^\pi=1/2^-$; $T_{1/2}$=11.43 d *3*; Q(ε)=232.47 *9*; %ε decay=100

^{71}Ge-J^π,$T_{1/2}$: From ^{71}Ge Adopted Levels.

^{71}Ge-Q(ε): from 2021Wa16.

1991Ke05,1991Lj02: looked for a possible violation of the Pauli Exclusion Principle (PEP) in nuclear decays by trying to detect γ rays between 8 and 35 MeV with a 3.2 Curie ^{71}Ge source and a well-type NaI(Tl) detector. If PEP is violated, it is expected that the excited states of ^{71}Ga would be populated which would then decay by the emission of a γ ray or a nucleon. This probability was estimated in this work to be $<3.0\times10^{-12}$ at a 95.5% confidence limit.

1991Zl01,1991Lj02: a search for neutrinos of mass 10-40 keV was made by analyzing the internal bremsstrahlung spectrum of ^{71}Ge ε decay. The authors claim to have discovered evidence for a neutrino of mass=17.2 keV *+13−11* (95% confidence limit) which is emitted in 1.6% *8* (95% confidence limit) of the decays. In later works by 1993Di03 and 1995Le19, from the measurement of inner bremsstrahlung spectrum, no evidence was found for 17-keV neutrinos emitted by the decay of ^{71}Ge.

^{71}Ga Levels

E(level)	J^π	Comments
0.0	$3/2^-$	J^π: From the Adopted Levels.

ε radiations

E(decay)	E(level)	Iε†	Log *ft*	Comments
232.47 *9*	0.0	100	4.349 *1*	εK=0.8759; εL=0.1049; εM+=0.01920 E(decay): 233.0 *5*, weighted average of measured values from 1954La38, 1955Bi96, and 1984HaZA, internal bremsstrahlung measurements. Iε: εL/εK=0.1180 *8* (weighted average of values from 1971Ge02 and 1962Ma26). εM/εL=0.162 *3* (1971Ge02).

† Absolute intensity per 100 decays.