^{65}Se εp decay (34.2 ms) 2017GoZT,2011Ro47

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 178, 41 (2021).	12-Nov-2021

Parent: ^{65}Se: E=0; $J^\pi=(3/2^-)$; $T_{1/2}$=34.2 ms *7*; Q(εp)=14010 *SY*; %εp decay=88 *12*

^{65}Se-$T_{1/2}$: Measured 2020Gi02 and 2017GoZT from (implants)β-correlated time distribution, with systematic uncertainty included. Other: 33 ms *4* (2011Ro47) from β^+ decay correlation time spectrum. Value of 9.6 ms *+53−41* measured by 1995Hu24 is in disagreement.

^{65}Se-J^π: As suggested in 2017GoZT and 2011Ro47, T_z=−3/2.

^{65}Se-Q(εp): 14010 *300* (syst, 2021Wa16).

^{65}Se-%εp decay: %εp=88 *+12−13* (2011Ro47) for the decay of ^{65}Se. However, 2017GoZT mention that delayed proton branching of 100% for the decay of ^{65}Se is not certain as the β^+ decay daughter ^{65}As is only weakly proton-unbound with S(p)=−90 keV *80* (2021Wa16).

2017GoZT, 2020Gi02: ^{65}Se produced in ^{9}Be(^{78}Kr,X), E(^{78}Kr)=345 MeV/nucleon reaction, followed by separation of fragments using BigRIPS and Zero Degree Spectrometers at RIBF-RIKEN. Measured half-life of the decay of ^{65}Se, energies and intensities of two delayed proton groups feeding the g.s. and the first 2^+ state of ^{64}Ge.

2011Ro47 (also 2014Ro14): ^{65}Se isotope produced in the fragmentation 70 MeV/nucleon ^{78}Kr beam with Ni target. Fragments selected with the LISE3 separator at GANIL, and identified by time-of-flight and energy loss. Measured E(p), Eβ, Eγ, βp correlations, half-life of ^{65}Se decay using set of four Si detectors (an energy loss ΔE detector, a degrader, DSSD and Si(Li)) for particles surrounded by four HPGe Clover detectors, three EXOGAM and one mini-clover Ge detector for γ rays.

Additional information 1.

1995Hu24: ^{65}Se produced in ^{40}Ca(^{28}Si,3n). Measured Eγ, Iγ, Ep and Ip of beta-delayed protons.

1993Ba12: ^{65}Se produced in ^{40}Ca(^{28}Si,3n),E(^{28}Si)=175 MeV reaction at Berkeley cyclotron facility. Measured β^+-delayed proton spectra.

^{64}Ge Levels

E(level)	J^π †	$T_{1/2}$ †
0	0^+	63.7 s *25*
901.7	2^+	

† From the Adopted Levels.

Delayed Protons (^{64}Ge)

E(p)	E(^{64}Ge)	I(p)	E(^{65}As)	Comments
3770 *30*				Weak proton group.
2642 *15*	901.7	18 *2*	3520	E(p): from 2017GoZT. Other: a 2.62 MeV *3* (2011Ro47) weak proton peak observed, but
3523 *16*	0	44 *2*	3520	E(p): weighted average of 3532 keV *16* (2017GoZT) and 3.51 MeV *2* (2011Ro47) proton

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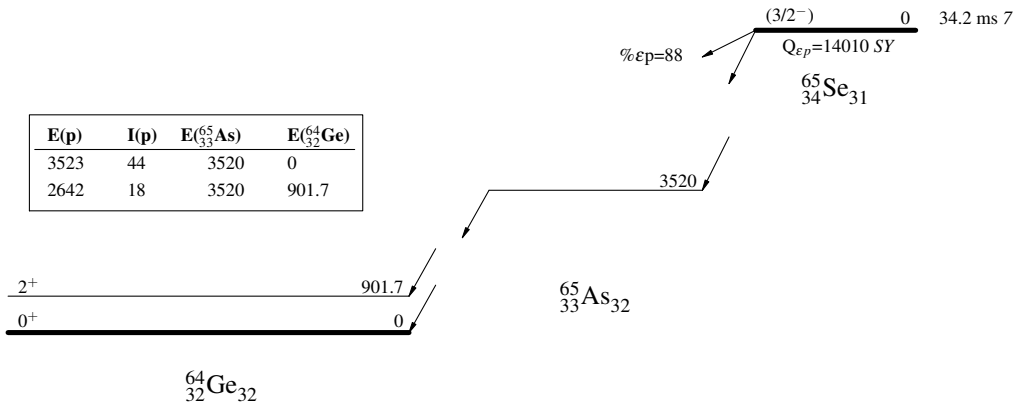
Decay Scheme

I(p) Intensities: Relative I(p)



E(p)	I(p)	E($^{65}_{33}$As)	E($^{64}_{32}$Ge)
3523	44	3520	0
2642	18	3520	901.7