^{114}In β^- decay

		History	
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113, 515 (2012)	1-Jan-2012

Parent: ^{114}In: E=0.0; $J^\pi=1^+$; $T_{1/2}$=71.9 s 1; Q(β^-)=1988.6 6; %β^- decay=99.50 15

2009Wa22: Precise measurement of β-asymmetry parameter.

^{114}In source obtained from IT decay of 49.5-d ^{114m}In. Measured $\beta(\theta,H,t)$; deduced β-asymmetry parameter. Low-temperature nuclear orientation method combined with analysis by GEANT4 simulation code. ^{114}In sample was implanted in Fe foil, then cooled to milli-kelvin temperatures in a strong magnetic hyperfine field induced by a superconducting split-coil magnet. The β particles were detected with two planar HPGe detectors placed at 0° and 90° to the magnetic field. The γ rays were observed with two large volume HPGe detectors.

1969Co04: γ, semi ; β, β shape factor s (1961Da01,1961Ni02,1964An12,1964Da16,1973Bo43); bremsstrahlung endpoint (1969Ko29).

See also ^{114}In ε decay.

^{114}Sn Levels

E(level)	$J^{\pi\dagger}$	$T_{1/2}{}^\dagger$
0.0	0^+	stable
1299.92 7	2^+	0.30 ps 6

† From Adopted Levels.

β^- radiations

E(decay)	E(level)	$I\beta^{-\dagger}$	Log ft	Comments
(688.7 6)	1299.92	0.14 2	5.58 7	av Eβ=223.80 23
1984 4	0.0	99.36 6	4.4701 9	av Eβ=778.72 28
				E(decay): weighted av of 1952Jo02, 1961Ni02, 1961Da01, 1964An12.
				Iβ^-: from 1964An12.
				β-asymmetry parameter=−0.994 10(stat) 10(syst).(2009Wa22) This value is in agreement with −1 from standard model predictions.

† Absolute intensity per 100 decays.

$\gamma(^{114}\text{Sn})$

Iγ normalization: from Iβ(1300 level)/Iβ(g.s.) (1964An12).

$E_\gamma{}^\dagger$	$I_\gamma{}^\ddagger$	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
1299.83 7	100	1299.92	2^+	0.0	0^+	E2	B(E2)(W.u.)=15 3

† From 1969Co04, 1974HeYW.
‡ For absolute intensity per 100 decays, multiply by 0.00140 10.

^{114}In β^- decay

Decay Scheme

Intensities: I_γ per 100 parent decays

1$^+$ 0.0   71.9 s *1*

Q_{β^-}=1988.6 *6*   %β^-=99.50

$^{114}_{49}$In$_{65}$

$I\beta^-$ Log *ft*

1299.83 E2 0.140

0.14   5.58   2$^+$ 1299.92   0.30 ps *6*

99.36   4.4701   0$^+$ 0.0   stable

$^{114}_{50}$Sn$_{64}$