

$^{144}\text{Pr} \beta^-$ decay (7.2 min) 1985Da16

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 93, 599 (2001)	1-Dec-2000

Parent: ^{144}Pr : $E=59.03$ 3; $J^\pi=3^-$; $T_{1/2}=7.2$ min 3; $Q(\beta^-)=2997.5$ 24; $\% \beta^-$ decay=0.07

$^{144}\text{Pr} \rightarrow \beta^-$ decay: 1985Da16 determined total β^- decay of 0.00087 from the isomer per 1000 ^{144}Ce decays. Since the isomer is fed in 1.23% of ^{144}Ce decays branching ratio is $0.00087/(1.23-0.00087)=0.07\%$. 1985Da16 give 0.055% assuming 1.51% feeding of ^{144}Pr (7.2 min) in $^{144}\text{Ce} \beta^-$ decay. 1970Fa03 deduced branching ratio of 0.05% 3.

Activity: chemically separated ^{144}Ce in equilibrium with ^{144}Pr (17.3 min + 7.2 min).

Measured: γ , HPGe; $\gamma\gamma$, HPGe-Ge(Li). FWHM=1.75 at 1.33 MeV, 0.18 for iron x ray.

Decay scheme is as given by 1985Da16.

Others: 1979Pr11, 1974Be09, 1970Fa03.

 ^{144}Nd Levels

E(level)	$J^\pi^\dagger$
0.0	0^+
696.49 2	2^+
1314.3 2	4^+
1510.6 1	3^-
2581.8 2	(3^+)
2945.7? 3	$(2^-, 3^-, 4^-)$

† From Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-^\dagger$	Log ft	Comments
(110.8 24)	2945.7?	0.033	4.6	av $E\beta=29.14$ 67
(474.7 24)	2581.8	0.011	7.1	av $E\beta=143.21$ 84
(1545.9 24)	1510.6	<0.026	>8.6	av $E\beta=570.2$ 11
(1742.2 ‡ 24)	1314.3			
(2360.0 ‡ 24)	696.49			

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

 $\gamma(^{144}\text{Nd})$

I_γ normalization: from $I_\gamma(696\gamma)=1.34$ per 1000 $^{144}\text{Ce} \beta^-$ decays and isomer feeding of 1.23% of ^{144}Ce decays.

E_γ	$I_\gamma^{\dagger\ddagger}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
617.8 2	0.16 7	1314.3	4^+	696.49	2^+
696.50 5		696.49	2^+	0.0	0^+
814.10 10		1510.6	3^-	696.49	2^+
1631.36 10	0.30 3	2945.7?	$(2^-, 3^-, 4^-)$	1314.3	4^+
1885.3 2	0.10 3	2581.8	(3^+)	696.49	2^+

† Relative to $I_\gamma(696.5\gamma)=1000$ in ^{144}Pr (17.3 min + 7.2 min) decay.

‡ For absolute intensity per 100 decays, multiply by 0.109.

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Decay Scheme

Intensities: I_γ per 100 parent decays

Legend

