

^{112}Ru β^- decay 1991Jo11

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, F. G. Kondev		NDS 124, 157 (2015)	1-Aug-2014

Parent: ^{112}Ru : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=1.75$ s 7; $Q(\beta^-)=4104$ 45; $\% \beta^-$ decay=100.0

1991Jo11: Facility: IGISOL at Jyvaskyla; Source: Mass separated from $^{238}\text{U}(\text{p},\text{F})$. $E(\text{p})=20$ MeV; Detectors: ΔE -E telescope comprising one Si(Au) surface barrier detector and one plastic scintillator, two HPGe, CE spectrometer ELLI; Measured: Q_β , E_γ , I_γ , CE, $T_{1/2}$; Deduced: level scheme, J^π , $\log ft$; Also from the same group: 1990AyZX, 1990JoZY, 1990JoZS.

 ^{112}Rh Levels

E(level) [†]	J^π [‡]	$T_{1/2}$	Comments
0.0	(1 ⁺)	2.1 s 3	$T_{1/2}$: From 1991Jo11 using a two component fit to 777.5γ - $\beta(t)$ (^{112}Pd), one associated with decay from ^{112}Ru (1.75 s 7) and the other with a direct population of ^{112}Rh in fission.
82.27 17	(1 ⁺ , 2 ⁺)		
327.03 17	(1 ⁺)		
542.0 5			
670.2 5	(1)		

[†] From a least-squares fit to E_γ .

[‡] From Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-$ [‡]	$\log ft$ [†]	Comments
(3.43×10^3 5)	670.2	≈ 1.9	≈ 5.5	av $E\beta=1460$ 22
(3.56×10^3 5)	542.0	≈ 0.2	≈ 6.5	av $E\beta=1521$ 22
(3.78×10^3 5)	327.03	≈ 24.4	≈ 4.5	av $E\beta=1623$ 22
				$E(\text{decay})$: 4190 keV 80 using a sum gates on 245γ and 327γ (1991Jo11).
(4.02×10^3 5)	82.27	≈ 3.5	≈ 5.5	av $E\beta=1739$ 22
(4.10×10^3 5)	0.0	≈ 70	≈ 4.2	av $E\beta=1778$ 22
				$I\beta^-$: 70 +15-70 in 1991Jo11 using a fit to 777.5γ - $\beta(t)$ (^{112}Pd).

[†] The decay scheme is incomplete, the quoted values are approximate.

[‡] Absolute intensity per 100 decays.

 $\gamma(^{112}\text{Rh})$

I_γ normalization: From $\text{Ti}(82.3\gamma) + \text{Ti}(327.0\gamma) \approx 30$. The decay scheme is incomplete and the quoted value is approximate.

E_γ [‡]	I_γ ^{‡@}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [#]	δ	α [†]	Comments
82.3 2	320 20	82.27	(1 ⁺ , 2 ⁺)	0.0	(1 ⁺)	M1+E2	0.45 +20-24	1.0 3	$\alpha(\text{K})=0.77$ 20; $\alpha(\text{L})=0.15$ 7; $\alpha(\text{M})=0.028$ 12; $\alpha(\text{N}+..)=0.0045$ 19 $\alpha(\text{N})=0.0043$ 19; $\alpha(\text{O})=0.000129$ 25 Mult., δ : from $\alpha(\text{K})_{\text{exp}}=0.77$ 19 in 1991Jo11. $\alpha(\text{K})_{\text{exp}}=0.45$ from KX/ γ -ray ratio (1991Jo11).
128.0 5	10 3	670.2	(1)	542.0					

Continued on next page (footnotes at end of table)

$^{112}\text{Ru} \beta^-$ decay [1991Jo11](#) (continued) $\gamma(^{112}\text{Rh})$ (continued)

E_γ [†]	I_γ ^{‡@}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [#]	δ	α [†]	Comments
244.8 2	320 20	327.03	(1 ⁺)	82.27	(1 ⁺ ,2 ⁺)	M1(+E2)	0.3 3	0.033 5	$\alpha(\text{K})=0.028$ 4; $\alpha(\text{L})=0.0035$ 7; $\alpha(\text{M})=0.00065$ 13; $\alpha(\text{N}+..)=0.000112$ 21 $\alpha(\text{N})=0.000107$ 20; $\alpha(\text{O})=5.2 \times 10^{-6}$ 6 Mult., δ : from $\alpha(\text{K})_{\text{exp}}=0.028$ 9 in 1991Jo11 . $\alpha(\text{K})_{\text{exp}}=0.053$ 14 from KX/ γ -ray ratio (1991Jo11).
327.0 2	1000 70	327.03	(1 ⁺)	0.0	(1 ⁺)	M1+E2	≈ 1.9	0.0197	$\alpha(\text{K})=0.01701$ 24; $\alpha(\text{L})=0.00224$ 4; $\alpha(\text{M})=0.000418$ 6; $\alpha(\text{N}+..)=7.09 \times 10^{-5}$ 10 $\alpha(\text{N})=6.80 \times 10^{-5}$ 10; $\alpha(\text{O})=2.93 \times 10^{-6}$ 5 Mult., δ : from $\alpha(\text{K})_{\text{exp}}=0.017$ 5 in 1991Jo11 .
^x 429									
459.5 5	20 6	542.0		82.27	(1 ⁺ ,2 ⁺)				
588.1 5	94 11	670.2	(1)	82.27	(1 ⁺ ,2 ⁺)	[M1]		0.00347	$\alpha(\text{K})=0.00304$ 5; $\alpha(\text{L})=0.000352$ 5; $\alpha(\text{M})=6.53 \times 10^{-5}$ 10; $\alpha(\text{N}+..)=1.142 \times 10^{-5}$ 17 $\alpha(\text{N})=1.086 \times 10^{-5}$ 16; $\alpha(\text{O})=5.59 \times 10^{-7}$ 8

[†] Additional information 1.[‡] From [1991Jo11](#).[#] From $\alpha(\text{K})_{\text{exp}}$ in [1991Jo11](#).[@] For absolute intensity per 100 decays, multiply by ≈ 0.018 .^x γ ray not placed in level scheme.

$^{112}\text{Ru} \beta^- \text{ decay}$ 1991Jo11

Decay Scheme

 Intensities: I_γ per 100 parent decays

Legend

