

^{22}O β^- decay 1989Hu07,2005We06

Type	Author	History	Citation	Literature Cutoff Date
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Parent: ^{22}O : $E=0$; $J^\pi=0^+$; $T_{1/2}=2.25$ s 9; $Q(\beta^-)=6490$ 58; $\% \beta^-$ decay=100.0

1989Hu07: Source produced by $\text{Be}(^{40}\text{Ar},x)$ $E=60$ MeV/A, mass separated by LISE mass spectrometer. HPGe, $\gamma\gamma$ and $\beta\gamma$ coincidences.

2005We06: Mass separated $^{12}\text{C}^{22}\text{O}$ molecular beam from the ISOLDE facility; ^{22}O obtained from fission of uranium by 1.4 GeV protons. Measured E_γ , I_γ , $\gamma\gamma$, $\beta\gamma$ coin using Ge detector for γ rays and plastic scintillator for β rays.

 ^{22}F Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [‡]
0.0	(4 ⁺)	4.23 s 4
71.6 2	(3 ⁺)	
709.0 3	(2 ⁺)	
1627.0 4	1 ⁺	
2571.5 4	1 ⁺	

[†] From γ -ray energies.

[‡] From Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-$ ^{‡‡}	Log ft	Comments
(3.92×10^3 6)	2571.5	68 8	3.8 1	av $E\beta=1759$ 29
(4.86×10^3 6)	1627.0	31 5	4.6 1	av $E\beta=2221$ 29

[†] From γ -ray intensity balance.

^{‡‡} Absolute intensity per 100 decays.

 $\gamma(^{22}\text{F})$

I_γ normalization: Sum of I_γ feeding the g.s. = 100.

E_γ [†]	I_γ ^{‡‡#}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
71.6 2	102 33	71.6	(3 ⁺)	0.0	(4 ⁺)	
637.4 2	100 7	709.0	(2 ⁺)	71.6	(3 ⁺)	
709.6 [@] 3	13 3	709.0	(2 ⁺)	0.0	(4 ⁺)	E_γ : Listed in 1989Hu07 without placement and no coincidence with other γ rays. This γ ray is identified by 2005We06 as sum peak of 71.6 γ and 637.4 γ and simulation accounts its full intensity. Also reported in coincidence with 1862 γ in 2005We06.
918.0 2	34 4	1627.0	1 ⁺	709.0	(2 ⁺)	
944	3 1	2571.5	1 ⁺	1627.0	1 ⁺	E_γ, I_γ : From 2005We06.
1862.6 3	63 7	2571.5	1 ⁺	709.0	(2 ⁺)	I_γ : From 2005We06. Other value: 56 7 (1989Hu07).
³ 1874.2 10	9 4					E_γ : Reported in 1989Hu07 without placement. No 1874 γ seen by 2005We06.
2499	1.5 10	2571.5	1 ⁺	71.6	(3 ⁺)	E_γ, I_γ : From 2005We06.

[†] From 1989Hu07, except otherwise noted.

Continued on next page (footnotes at end of table)

${}^{22}\text{O}$ β^{-} decay [1989Hu07](#), [2005We06](#) (continued)

$\gamma({}^{22}\text{F})$ (continued)

‡ From [1989Hu07](#), except otherwise noted. Intensity not corrected for summing in [1989Hu07](#). [2005We06](#) corrected intensity for summing from simulation, applicable for 2499γ ($1862.6\gamma + 637.4\gamma$). Reported intensities in [1989Hu07](#) and [2005We06](#) are statistically consistent.

For absolute intensity per 100 decays, multiply by 1.04.

@ Placement of transition in the level scheme is uncertain.

x γ ray not placed in level scheme.

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Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend

- $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- $I_{\gamma} > 10\% \times I_{\gamma}^{max}$
- - - - -→ γ Decay (Uncertain)

