

$^{22}\text{Ne}(t,p\gamma)$

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia, Anagha Chakraborty		NDS 186, 2 (2022)	31-Mar-2022

1974Wa04: E=2.8 MeV. Measured $\sigma(\text{Ep}, \text{E}\gamma, \theta(\gamma))$, DSA. Solid Ne target.

1970Ho17: E=3.3 MeV. Measured $\sigma(\text{Ep}, \text{E}\gamma, \theta(p\gamma))$.

1969Bh01: E~30 MeV. Measured $\text{E}\gamma$, Doppler-shift attenuation. Deduced half-life. Ge(Li) detector.

1968Be55: E=2.5 MeV; 97.7% enriched ^{22}Ne target. Protons detected by an annular solid-state counter between 164° and 176° , γ -rays detected by NaI(Tl). Measured: $\text{E}\gamma$, p- γ coincidence between 0° to 90° , γ -ray angular correlation. Deduced.

1978DoZJ: $^{22}\text{Ne}(t,p\gamma)$ E=22 MeV. Measured γ -spectra, recoil distance. Deduced half-life.

 ^{24}Ne Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [#]	Comments
0	0^+		
1980.9 10	2^+	0.65 ps 20	J^π : From 1968Be55 (γ -ray angular distribution) and also from analysis of γ -ray angular distribution data in 1970Ho17 . $T_{1/2}$: Weighted average of 0.62 ps +25-20 (1974Wa04) and 0.7 ps +2-3 (1969Bh01). Other: <21 ns (1968Be55).
3867 5	2^+	<0.07 ps	$T_{1/2}$: From 1969Bh01 . Others: <0.12 ps (1974Wa04), <21 ns (1968Be55).
3963	4	<21 ns	E(level): From Adopted Levels, rounded value to keV. J^π : From 1970Ho17 (p- γ angular correlation). $T_{1/2}$: Estimated from the resolving time (1970Ho17).
4765.9 15	0^+	1.8 ps 6	$T_{1/2}$: Weighted average of 2.3 ps +15-8 (1974Wa04) and 1.1 ps +10-4 (1978DoZJ). Other values: >1 ps (1969Bh01), <21 ns (1968Be55).
5577	$2^{(+)}$	<21 ns	E(level): From Adopted Levels, rounded value to keV. J^π : 2 from 1970Ho17 (p- γ angular correlation measurements). γ to 2^+ . $T_{1/2}$: Estimated from the resolving time (1970Ho17).

[†] From $\text{E}\gamma$, except where otherwise noted.

[‡] From Adopted Levels, except otherwise noted.

[#] Using Doppler-shift-attenuation method in **1974Wa04** and **1969Bh01**.

 $\gamma(^{24}\text{Ne})$

$E_i(\text{level})$	J_i^π	E_γ [†]	I_γ	E_f	J_f^π	Mult.	δ	Comments
1980.9	2^+	1980.8 10	100	0	0^+			
3867	2^+	1886 [#] 4	90 [‡] 2	1980.9	2^+	D(+Q)	+0.15 15	$\text{E}\gamma$: Other: 1880 (unresolved - 1968Be55). Mult., δ : From 1968Be55 (γ -ray angular distribution).
		3830 [‡] 50	10 [‡] 2	0	0^+			
3963	4	1990 [‡] 20	100	1980.9	2^+			$A_2=+0.43$ 3; $A_4=-0.87$ 4 (1968Be55)
4765.9	0^+	2784.9 [#] 10	100	1980.9	2^+			$\text{E}\gamma$: Other: 2770 20 (1968Be55).
5577	$2^{(+)}$	3596	100	1980.9	2^+	D(+Q)	+0.07 7	$A_2=+0.54$ 6; $A_4=-0.14$ 8 (1970Ho17) $\text{E}\gamma$: From level energy difference. Mult., δ : From 1970Ho17 .

[†] From **1970Ho17**, except otherwise noted.

[‡] From **1968Be55**.

[#] From **1969Bh01**.

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Level Scheme

Intensities: % photon branching from each level

