

Table 20.22 from (1978AJ03): Resonances in $^{16}\text{O}(\alpha, \gamma)^{20}\text{Ne}$

E_α (MeV \pm keV)	$\Gamma_{c.m.}$ (keV)	$\omega\gamma^a$ (eV)	E_x (MeV \pm keV)	$J^\pi; T$	Refs.
1.116 \pm 4	2.6×10^{-6} ^a	$(1.7 \pm 0.3) \times 10^{-3}$	5.624	$3^-; 0$ ^d	(1965VA14, 1971TO06, 1971TO1C)
1.319 \pm 3	$> 1.3 \times 10^{-2}$ ^a	$(14 \pm 3) \times 10^{-3}$	5.786	$1^-; 0$ ^e	(1965VA14, 1971TO06, 1971TO1C)
2.490 \pm 8	15 ± 7 ^a	$(38 \pm 10) \times 10^{-3}$	6.722	$0^+; 0$	(1965VA14, 1971TO06, 1971TO1C)
3.074	4	$(4.35 \pm 0.75) \times 10^{-3}$	7.189 ± 3	$0^+; 0$	(1972AL32)
3.363	8	0.146 ± 0.019	7.421 ± 1	$2^+; 0$	(1972AL32)
3.872	2.4	0.343 ± 0.035	7.828 ± 3	$2^+; 0$	(1972AL32)
(4.647 \pm 3)			(8.447)	$(5^-; 0)$	(1971RO33)
5.06	< 3	1.35 ± 0.15	8.776 ± 3.2	$6^+; 0$	(1967LI07, 1971DI08, 1971RO13)
5.368	3.2	3.05 ± 0.38	9.024 ± 3	$4^+; 0$	(1964PE05, 1972AL32)
5.94 ± 30	29 ± 15	1.3 ± 0.5	9.48	$2^+; 0$	(1964PE05)
6.61 ± 30	155 ± 30	8 ± 3	10.02	$(4^+); 0$	(1964PE05)
6.924 ± 7	≤ 1	19.5 ± 1.5 ^g	10.2712 ± 7 ^f	$2^+; 1$	(1964PE05, 1976IN05, 1977FI08, 1977MA07, 1978ST08)
7.932 ± 10	≤ 3	30.4 ± 3	11.074	$(4^+; 1)$	(1964PE05, 1978ST08)
8.161 ± 10	≤ 3	0.58 ± 0.05	11.257	$1^-; 1$	(1964PE05, 1978ST08)
8.53 ± 10	≤ 5	0.41 ± 0.05	11.55	$(2^+, 0^+)$	(1964PE05, 1978ST08)
i		0.104 ± 0.035	11.948	$8^+; 0$ ^h	(1972AL05)
(9.05 ± 50)	< 40		11.97		(1978ST08)
(9.15 ± 50)	< 40		12.05		(1978ST08)
9.359 ± 5 ^b	< 2		12.215	$2^+; 1$	(1977MA07)
9.407 ± 6 ^c	≈ 5		12.254	$3^-, 2^+$	(1977MA07)
9.57 ± 10	33 ± 4	1.94 ± 0.15	12.38	$3^-; (1)$	(1978ST08)
9.70 ± 30	≤ 10	0.17 ± 0.05	12.49		(1978ST08)

^a This is also Γ_α .

^b $\Gamma_{\alpha_0} \Gamma_{\gamma_1} / \Gamma = 0.292 \pm 0.044$ eV; $0.25 \leq \Gamma_{\alpha_0} \leq 1.34$ eV, strong support for the $T = 1$ assignment (1977MA07). See also (1978ST08).

^c $(2J + 1) \Gamma_{\alpha_0} \Gamma_{\gamma_1} / \Gamma = 3.9 \pm 0.8$ eV (1977MA07). See also (1978ST08).

^d $K^\pi = 2^-$ (1973HA63).

^e $K^\pi = 0^-$ (1973HA63).

^f From E_γ measurements (1977FI08). The measurements of the decay of this state lead to $E_x = 4247.9 \pm 1.3, 4966.0 \pm 1.9, 5621.0 \pm 3.5, 7423.1 \pm 3.0, 7828.1 \pm 3.8$ and 8776.7 ± 2.3 keV (1977FI08).

^g $\omega\gamma = 19.2 \pm 1.9$ eV (1978ST08); $\Gamma_\alpha = 116 \pm 20$ eV (1976IN05); $\Gamma_\gamma = 4.26 \pm 0.23$ eV (1977FI08) [summary of several measurements].

^h $K^\pi = 0_1^+$ (1972AL05).

ⁱ $E(^{16}\text{O}) \approx 36.05$ MeV.