

Table 20.17 from (1987AJ02): Resonances in $^{16}\text{O}(\alpha, \gamma)^{20}\text{Ne}$ ^a

E_α (MeV \pm keV)	$\Gamma_{\text{c.m.}}$ (keV)	$\omega\gamma$ ^b (eV)	E_x (MeV \pm keV)	$J^\pi; T$
1.116 \pm 4	2.6×10^{-6} ^d	$(1.7 \pm 0.3) \times 10^{-3}$	5.627 \pm 4	3 ⁻ ; 0
1.3174 \pm 2.2 ^c	$(2.8 \pm 0.3) \times 10^{-2}$ ^d	$(1.7 \pm 0.3) \times 10^{-2}$ ^l	5.7877 \pm 3.0	1 ⁻ ; 0
2.490 \pm 8	20 \pm 3 ^{d,m}	$(7.1 \pm 1.2) \times 10^{-2}$ ^m	6.726 \pm 6	0 ⁺ ; 0
3.0359 \pm 2.3 ^c	8.2 \pm 0.3 ^l		7.1563 \pm 0.5	3 ⁻ ; 0
3.069	4	$(4.4 \pm 0.8) \times 10^{-3}$	7.189 \pm 3	0 ⁺ ; 0
3.359	8	0.146 \pm 0.019	7.421 \pm 1	2 ⁺ ; 0
3.868	2.4	0.343 \pm 0.035	7.828 \pm 3	2 ⁺ ; 0
(4.647 \pm 3)			(8.451 \pm 3)	(5 ⁻ ; 0)
4.969 \pm 9	2.1 \pm 0.8	0.21 \pm 0.05	8.708 \pm 7	1 ⁻ ; 0
5.05	< 3	1.35 \pm 0.15	8.776 \pm 3.2	6 ⁺ ; 0
5.364	3.2	3.05 \pm 0.38	9.024 \pm 3	4 ⁺ ; 0
5.477 \pm 4	< 4	0.18 \pm 0.02	9.114 \pm 3	3 ⁻ ; 0
5.94 \pm 30	29 \pm 15	1.3 \pm 0.5	9.48 \pm 24	2 ⁺ ; 0
6.61 \pm 30	155 \pm 30	8 \pm 3	10.02 \pm 24	(4 ⁺); 0
6.924 \pm 7 ^k	\leq 1	19.5 \pm 1.5 ^e	10.271 \pm 7 ^f	2 ⁺ ; 1
7.948 \pm 4	< 1	30.2 \pm 3.5	11.090 \pm 3	4 ⁺ ; 1
8.180 \pm 5 ^g	< 1	2.06 \pm 0.25 ^h	11.276 \pm 4	1 ⁻ ; 1
8.535 \pm 6	1.3 \pm 0.8	0.41 \pm 0.05	11.559 \pm 6	0 ⁺ ; 0 ^j
8.994 \pm 8	< 1	0.23 \pm 0.05 ⁱ	11.926 \pm 6	4 ⁺ ; 0
9.02		0.131 \pm 0.018	11.950 \pm 4	8 ⁺ ; 0
(9.05 \pm 50)	< 40		(11.97)	
(9.15 \pm 50)	< 40		(12.05)	
9.362 \pm 5	< 1	1.41 \pm 0.23	12.221 \pm 4	2 ⁺ ; 1
9.406 \pm 4	< 1	6.6 \pm 0.8 ^g	12.256 \pm 3	3 ⁻ ; 1
9.57 \pm 10	33 \pm 4	1.94 \pm 0.15	12.39	3 ⁻ ; (1)
9.70 \pm 30	\leq 10	0.17 \pm 0.05	12.49	

- ^a For complete references see Tables 20.22 in (1978AJ03) and 20.20 in (1983AJ01). See also Table 20.18 here.
- ^b $\omega\gamma = (2J + 1)\Gamma_\alpha\Gamma_\gamma/\Gamma$.
- ^c The strength of the γ -decay of $^{20}\text{Ne}^*(7.16)$ to $^{20}\text{Ne}^*(5.79)$ (see Table 20.14) is strong evidence that these two states are members of the $K^\pi = 0^-$ band.
- ^d This is also Γ_α .
- ^e Other values are $\omega\gamma = 19.2 \pm 1.9$ eV; $\Gamma_\alpha = 116 \pm 20$ eV; $\Gamma_\gamma = 4.26 \pm 0.23$ eV: see (1983AJ01).
- ^f 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.
- ^g See also Table 20.20 in (1983AJ01).
- ^h The γ -decay is partly (see Table 20.14) to a state at $E_x = 9318 \pm 2$ keV. The strength of this transition and the subsequent decay to $^{20}\text{Ne}^*(1.63)$ (and not to the ground state) favor 2^- for $^{20}\text{Ne}^*(9.32)$. The other M1 transition [11.27 \rightarrow 8.85] is also strong suggesting similar structures for $^{20}\text{Ne}^*(8.85, 9.32)$ (1980FI01).
- ⁱ Also observed as a resonance in the yield of 6.13 MeV γ -rays with $(2J + 1)\Gamma_{\alpha_0}\Gamma_{\alpha_2}/\Gamma = 5.2 \pm 0.9$ eV (1980FI01).
- ^j From (α, α_0) : see (1984RI07).
- ^k See also (1984RO04).
- ^l Best value including the recent work by (1987HA24).
- ^m (1987HA24).