Table 20.20 from (1983AJ01): Resonances in $^{16}O(\alpha, \gamma)^{20}Ne$ [a]

E_α (MeV $\pm$ keV)	$\Gamma_{\rm c.m.}$ (keV)	$\omega\gamma$ [b] (eV)	$E_{\rm x}$ (MeV $\pm$ keV)	$J^\pi; T$	K^π
1.116 ± 4	2.6×10^{-6} [c]	$(1.7 \pm 0.3) \times 10^{-3}$	5.624	$3^-; 0$	2^-
1.3174 ± 2.2 [d]	$(2.8 \pm 0.3) \times 10^{-2}$ [c]	$(1.4 \pm 0.3) \times 10^{-2}$	5.785	$1^-; 0$	0^-
2.490 ± 8	15 ± 7 [c]	$(3.8 \pm 1.0) \times 10^{-2}$	6.722	$0^+; 0$	
3035.9 ± 2.3 [d]	8.1 ± 0.3		7.1563 ± 0.5	$3^-; 0$	0^-
3.074	4	$(4.4 \pm 0.8) \times 10^{-3}$	7.189 ± 3	$0^+; 0$	
3.363	8	0.146 ± 0.019	7.421 ± 1	$2^+; 0$	
3.872	2.4	0.343 ± 0.035	7.828 ± 3	$2^+; 0$	
(4.647 ± 3)			(8.447)	$(5^-; 0)$	
4.969 ± 9 [e]	2.1 ± 0.8	0.21 ± 0.05	8.705 ± 7	$1^-; 0$	
5.06	< 3	1.35 ± 0.15	8.776 ± 3.2	$6^+; 0$	
5.368	3.2	3.05 ± 0.38	9.024 ± 3	$4^+; 0$	
5.477 ± 4 [e]	< 4	0.18 ± 0.02	9.111 ± 3	$3^-; 0$	
5.94 ± 30	29 ± 15	1.3 ± 0.5	9.48	$2^+; 0$	
6.61 ± 30	155 ± 30	8 ± 3	10.02	$(4^+); 0$	
6.924 ± 7 [f,g]	≤ 1	19.5 ± 1.5 [h]	10.271 ± 7 [i]	$2^+; 1$	
7.948 ± 4 [e,g]	< 1	30.2 ± 3.5	11.087 ± 3	$4^+; 1$	
8.180 ± 5 [e,g,j]	< 1	2.06 ± 0.25 [k]	11.272 ± 4	$1^-; 1$	
8.535 ± 6 [e,g]	1.3 ± 0.8	0.41 ± 0.05	11.556 ± 6	$(0^+, 2^+); 0$	
8.994 ± 8 [e]	< 1	0.23 ± 0.05 [l]	11.923 ± 6	$4^+; 0$	
9.02 [m]		0.131 ± 0.018	11.950 ± 4	$8^+; 0$	
(9.05 ± 50) [g]	< 40		(11.97)		
(9.15 ± 50) [g]	< 40		(12.05)		
9.362 ± 5 [e]	< 1	1.41 ± 0.23	12.218 ± 4	$2^+; 1$	
9.406 ± 4 [e]	< 1	6.6 ± 0.8 [n]	12.253 ± 3	$3^-; 1$	
9.57 ± 10 [g]	33 ± 4	1.94 ± 0.15	12.38	$3^-; (1)$	
9.70 ± 30 [g]	≤ 10	0.17 ± 0.05	12.49		

[a] For complete references see Table 20.22 in (1978AJ03).
[b] $\omega\gamma = (2J+1)\Gamma_\alpha\Gamma_\gamma/\Gamma$.
[c] This is also Γ_α.
[d] (1980MA27). The strength of the γ-decay of ^{20}Ne*(7.16) to ^{20}Ne*(5.78) (see Table 20.18) is strong evidence that these two states are members of the $K^\pi = 0^-$ band.
[e] (1980FI01). See also Table 20.18.
[f] See also (1978SN1B).
[g] (1978ST08).
[h] $\omega\gamma = 19.2 \pm 1.9$ eV (1978ST08); $\Gamma_\alpha = 116 \pm 20$ eV (1976IN05); $\Gamma_\gamma = 4.26 \pm 0.23$ eV (1977FI08) [summary of several measurements].
[i] From E_γ measurements (1977FI08). The measurements of the decay of this state leads to $E_x = 4247.9 \pm 1.3$, 4966.0 ± 1.9, 5621.0 ± 3.5, 7423.1 ± 3.0, 7828.1 ± 3.8 and 8776.7 ± 2.3 keV (1977FI08).
[j] (1978DA19) find $E_x = 11.278 \pm 0.004$ MeV, $\omega\gamma_0 = 1.0 \pm 0.3$ eV.
[k] The γ-decay is partly (see Table 20.18) to a state at $E_x = 9318 \pm 2$ keV. The strength of this transition and the subsequent decay to ^{20}Ne*(1.63) (and not to the ground state) favor 2^- for ^{20}Ne*(9.32). The other M1 transition [$11.27 \rightarrow 8.85$] is also strong suggesting similar structures for ^{20}Ne*(8.85, 9.32) (1980FI01).
[l] 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).
[m] (1980HU08).
[n] (1980FI01): see also for a discussion of the decay of the 18.43 MeV, $J^\pi = 2^+$, $T = 2$ state.