

Table 16.22 from (1986AJ04): Excited states observed in $^{16}\text{O}(e, e')^{16}\text{O}^a$

E_x (MeV \pm keV)	$J^\pi; T$	Mult.	$\Gamma_{\text{c.m.}}$ (keV)	Γ_{γ_0} (eV)
6.05	0^+	C0		3.55 ± 0.21^c
6.13	3^-	C3		$(2.60 \pm 0.13) \times 10^{-5}$
6.92	2^+	C2		0.105 ± 0.007
7.12	1^-	C1		$(4.6 \pm 2.3) \times 10^{-2}$
8.87 ^b	2^-	M2		
9.84	2^+	C2		$(8.8 \pm 1.7) \times 10^{-3}$
10.36	4^+	C4		$(5.6 \pm 2.0) \times 10^{-8}$
11.52	2^+	C2		0.61 ± 0.02
12.05	0^+	C0		4.03 ± 0.09^c
12.44 ^b	1^-	C1		
12.53 ^b	2^-	M2		0.021 ± 0.006
12.97 ^b	2^-	M2		0.071 ± 0.002
13.02	2^+	C2		0.89
13.10 ± 250	$1^-; 1$	C1		$\leq 49 \pm 13$
13.26 ^b	3^-	C3		
13.87 ^b	4^+	C4		
14.00 ± 50^b $\approx 14.7^b$	0^+	C0	170 ± 50 ≈ 600	3.3 ± 0.7^c
14.93 ^b	2^+	C2		
15.15 ± 150	2^+	C2	500 ± 200	1.0 ± 0.5
15.20 ^b	2^-	M2		
15.41 ^b $\approx 15.85^b$	3^-	C3	≈ 600	
$16.22 \pm 10^{b,d}$	$1^+; 1$	M1	18 ± 3	3.2 ± 0.3
$16.45 \pm 10^{b,d}$	2^+	C2	32 ± 4	0.18 ± 0.01
$16.82 \pm 10^{b,d}$	2^-	M2	30 ± 5	0.05 ± 0.01
$17.14 \pm 10^{b,d}$	$1^+; 1$	M1	< 25	6.1 ± 0.5
$17.30 \pm 10^{b,d}$	1^-	C1	70 ± 10	3.4 ± 2.3
17.774 ± 17^b	$4^-; 0$	M4		
$17.78 \pm 10^{d,e}$	2^-	M2		0.07 ± 0.01

Table 16.22 from (1986AJ04): Excited states observed in $^{16}\text{O}(e, e')^{16}\text{O}^a$ (continued)

E_x (MeV \pm keV)	$J^\pi; T$	Mult.	$\Gamma_{\text{c.m.}}$ (keV)	Γ_{γ_0} (eV)
17.880 \pm 15 ^b	4 ⁺	C4		
18.021 \pm 23 ^b	3 ⁻ ; 1			
18.20 \pm 10 ^d	2 ⁺	C2	280 \pm 20	1.68 \pm 0.22
18.50 \pm 10 ^{b,d}	2 ⁻	M2	70 \pm 5	0.38 \pm 0.07
18.635 \pm 20 ^b	(4 ⁻)		35 \pm 30	
18.79 \pm 10 ^d	1 ⁺ ; 1	M1	120 \pm 20	5.3 \pm 0.3
18.968 \pm 17 ^{b,f}	4 ⁻ ; 1	M4		
19.02 \pm 40 ^{d,g}	2 ⁻ ; 1	M2	420 \pm 50	2.52 \pm 0.38
19.206 \pm 12 ^b	3 ⁻ ; 1	C3		
19.43 \pm 20 ^b	1 ⁻ ; 1	C1	150 \pm 15	40 \pm 20
20.19 \pm 40 ^b		M2	450 \pm 70	2.9 \pm 1.0
20.34 \pm 25 ^b			\approx 200	
20.51 \pm 25 ^b	(4 ⁻)		50 \pm 30	
20.88 ^b			\approx 90	
20.95 \pm 50	1 ⁻ ; 1	C1	270 \pm 70	180 \pm 50
\approx 21.46 ^b			\approx 300	
22.60 \pm 20 ^b			90 \pm 40	
23.0				
23.7 \pm 250	(2 ⁻ ; 1)			
24.2				
25.5 \pm 250	1 ⁻ ; 1	C1		
26.7 \pm 250	1 ⁺	M1		
44.5	(1 ⁻ ; 1)		2000 – 3000	5300
49	(1 ⁻ ; 1)		2000 – 3000	19000

^a See also [Table 16.26 in \(1971AJ02\)](#). For references see [Table 16.24 in \(1977AJ02\)](#). See also the text.

^b ([1985HY1A](#): momentum transfer range 0.8 to 2.5 fm⁻¹). I am indebted to Drs. C.E. Hyde-Wright and B.L. Berman for communicating these results to me.

^c Monopole matrix element in fm².

^d ([1983KU14](#)).

^e An unresolved complex of M1 strength has a centroid at $E_x \approx 17.7$ MeV: the total Γ_{γ_0} is 7.4 ± 1.9 eV ([1983KU14](#)).

^f See also ([1986MA48](#)).

^g The total cross section ($E_x = 18.7 - 19.4$ MeV) is 12% M1 and 88% M2, leading to $B(M1)\uparrow = 0.13 \pm 0.03 \mu_N^2$ and $B(M2)\uparrow = 341 \pm 51 \mu_N^2 \cdot \text{fm}^2$, A. Richter (private communication). I am greatly indebted to Professor Richter for his comments.