Table 16.13 from (1986AJ04): States of ^{16}O from ^{12}C(^{6}Li, d) and ^{12}C(^{7}Li, t)

E_x [a] (MeV ± keV)	$\Gamma_{c.m.}$ [b] (keV)	$\theta^2_\alpha/\theta^2_\alpha(2^+)$ [c]	Γ_{α_0}/Γ	J^π; K^π
0		0.93, 0.18		0^+
6.05		0.38, 1.10		$0^+; 0^+$
6.13		0.23, 0.22		3^-
6.92		$\equiv 1.0$		$2^+; 0^+$
7.12		0.53, 0.39		1^-
8.87	< 20			2^-
9.63 ± 30 [d]	400 ± 10	0.30, 0.60		$1^-; 0^-$
9.84	< 20	$\leq 0.05, \leq 0.01$		2^+
10.346 ± 6 [e]	35 ± 5	0.25, 0.47	0.86 ± 0.09	$4^+; 0^+$
10.96				0^-
11.10 [e]	< 30	$\leq 0.06, \leq 0.03$	0.31 ± 0.03 $(J = 4^+)$	$3^+ + 4^+$
11.59 ± 20	700 ± 100	≈ 0.4		$3^-; 0^-$
13.09	≈ 230			1^-
14.363 ± 15	< 120			> 5, $\pi =$ nat.
14.66 ± 20	500 ± 50		1.03 ± 0.1	$5^-; 0^-$
14.82	45 ± 10			(6^+)
16.30 ± 20	300 ± 50		1.07 ± 0.11	$6^+; 0^+$
17.65 ± 50	100 ± 50			
17.85 ± 50	≈ 200			
(18.6) [f]				(5^-)
19.30 ± 50	≈ 200			
20.8 ± 100 [e]	500 ± 100		1.16 ± 0.23	$7^-; 0^-$
21.6 ± 100	≤ 100		0.67 ± 0.14	6^+
23.0 ± 100	≈ 200			(6^+)
23.8 ± 100	1980 ± 250			(6^+)
26.9 ± 100	1700 ± 250			(7^-)
27.7 [f]				(7^-)
(29.3) [f]				(7^-)
32 [g]	broad			

Table 16.13 from (1986AJ04): States of ^{16}O from ^{12}C(^{6}Li, d) and ^{12}C(^{7}Li, t) (continued)

E_x [a] (MeV ± keV)	$\Gamma_{c.m.}$ [b] (keV)	$\theta^2_\alpha/\theta^2_\alpha(2^+)$ [c]	Γ_{α_0}/Γ	$J^\pi; K^\pi$
34 [h]				$10^+(9^-)$
35 [g]	broad			

[a] E_x quoted without errors are from Table 16.10. For the earlier references see Table 16.14 in 1982AJ01). Angular distributions are reported in both reactions for the first nine states.

[b] Line widths, not corrected for α-penetrabilities.

[c] Ratio of dimensionless reduced α-width calculated at a channel radius of 5.4 fm, relative to that for ^{16}O*(6.92). (N, L) here are taken to be (2, 0) and (4, 1) respectively, for ^{16}O*(0, 7.12). The first number listed is the value reported at $E(^6\text{Li}) = 42$ MeV, the second at $E(^6\text{Li}) = 90.2$ MeV.

[d] On the basis of studies of the ^{12}C(^{6}Li, d), ^{12}C(^{7}Li, t), ^{12}C(^{10}B, ^{6}Li) and ^{19}F(p, α) reactions, the energy of ^{16}O*(9.6) is 9619 ± 15 keV with $\Gamma = 400 \pm 10$ keV (line width). $\Gamma_R = 430 \pm 10$ keV as inferred from the best fit B-W line shape. This value is corrected for penetrability ((1981OV02) and F. Becchetti, private communication).

[e] Angular distributions are reported at $E(^6\text{Li}) = 35.5 - 35.6$ MeV to ^{16}O*(10.36) and to the unresolved 3^+ and 4^+ states at 11.1 MeV. It appears that the 4^+ state is dominantly populated, and that two-step processes may be important in this reaction.

[f] (1982AR20); decay primarily by α_0.

[g] (1982AR20); decay primarily by α_1.

[h] (1982AR20, 1983AR12); decays primarily by α_2.