Table 17.21 from (1982AJ01): Resonances in ^{16}O(p, p)^{16}O and ^{16}O(p, α)^{13}N [a]

$E_{\rm p}$ (MeV $\pm$ keV)	$\Gamma_{\rm c.m.}$ (keV)	Particles out	$\Gamma_{\rm p_0}/\Gamma$	^{17}F* (MeV)	$J^\pi; T$
2.663 ± 7	19 ± 1	p_0		3.105	$\frac{1}{2}^-$
3.47	1.53 ± 0.2	p_0		3.86	$\frac{5}{2}^-$
4.354 ± 10	225	p_0		4.696	$\frac{3}{2}^-$
4.787 ± 10	1530	p_0		5.103	$\frac{3}{2}^+$
5.231 ± 10	68	p_0		5.521	$\frac{3}{2}^-$
5.392 ± 10	40	p_0		5.672	$\frac{7}{2}^-$
5.402 ± 10	< 0.6	p_0		5.682	$\frac{1}{2}^+$
5.546 ± 10	180	p_0		5.817	$\frac{3}{2}^+$
5.779 ± 10	30	p_0		6.036	$\frac{1}{2}^-$
6.332 ± 10	200	p_0		6.556	$\frac{1}{2}^+$
6.4944 ± 0.1 [b]	< 3	p_0		6.7087	[j]
6.564 ± 10	4.5	p_0		6.774	$\frac{3}{2}^+$
6.833 ± 10	3.8	p_0, $\gamma_{6.13}$		7.027	$\frac{5}{2}^-$
7.183 ± 10	10 ± 2	p_0, p_2, α_0		7.356	$\frac{3}{2}^+$
7.280 ± 7	≤ 5	p_0		7.448	
7.287 ± 7	7 ± 2	p_0, p_1, p_2, α		7.454	
7.305 ± 7	5 ± 2	p_0, p_2		7.471	
7.313 ± 10	795	p_0		7.479	$\frac{3}{2}^+$
7.385 ± 10	30	p_0, p_2, $\gamma_{6.13}$		7.546	$\frac{7}{2}^-$
7.60 ± 20	179 ± 3	p_0, p_1, α_0		7.75	$\frac{1}{2}^+$
7.81 ± 15	10 ± 3	p_2		7.95	
7.88 ± 20	50 ± 20	p_0, $\gamma_{6.13}$, $\gamma_{6.92}$, α_0		8.01	
7.94 ± 15	100 ± 20	p_0, p_1, α_0		8.07	$\frac{5}{2}^+$
8.1	700 ± 250	(p_0), p_1, α_0		8.2	$\frac{3}{2}^-$
8.275 ± 4	11 ± 5	$p_0 \rightarrow p_3$, α_0		8.383	$\frac{5}{2}^-$
8.310 ± 10	45 ± 10	$p_0 \rightarrow p_3$, $\gamma_{6.13}$, $\gamma_{6.92}$, α_0		8.416	$\frac{7}{2}^+$
8.66 ± 30	170 ± 30	p_2, p_3, p_4, α_0		8.75	$\frac{5}{2}^+$
8.68	90 ± 20	p_0	0.2	8.76	$\frac{3}{2}^+$
8.91 [c]	165 ± 30	$p_0 \rightarrow p_4$, $\gamma_{6.13}$, $\gamma_{6.92}$, α_0	0.34 ± 0.05	8.98 ± 0.02	$\frac{7}{2}^-$
9.11 [c]	140 ± 30	$p_0 \rightarrow p_4$, $\gamma_{6.13}$, $\gamma_{6.92}$, α_0	0.55 ± 0.05	9.17 ± 0.06 [d]	$\frac{3}{2}^-$
9.91 [c]	90 ± 30	p_0, p_2, α_0	0.095 ± 0.005	9.92	$\frac{9}{2}^+$
10.04 ± 20	280 ± 100	p_0, p_1		10.04	$\frac{7}{2}^-$
10.23 ± 20	250 ± 80	α_0		10.22	
10.42 ± 20	160 ± 40	p_0, p_1, p_3		10.40	$(\frac{5}{2}^+)$
10.525 ± 15	165 ± 25	p_0, p_2, α_0	0.28 ± 0.03	10.499	$\frac{7}{2}^-$
(10.75 ± 50)		p_0, p_1, α_0		(10.71)	$(\frac{7}{2}^-)$
10.83 ± 20	120 ± 40	p_0, p_2, (p_3), (α_0)		10.79	

Table 17.21 from (1982AJ01): Resonances in ^{16}O(p, p)^{16}O and ^{16}O(p, α)^{13}N [a] (continued)

E_p (MeV ± keV)	$\Gamma_{c.m.}$ (keV)	Particles out	Γ_{p_0}/Γ	^{17}F* (MeV)	$J^\pi; T$
10.96 ± 100	560 ± 100	p_0	0.25 ± 0.07	10.91	$\frac{1}{2}^-$
11.00 ± 20	190 ± 50	(p_2), p_3, (α_0)		10.95	
11.2636 ± 2.0 [e]	0.20 ± 0.04	p_0, p_2, p_4, α_0	0.093 ± 0.013	11.1928 ± 2.1	$\frac{1}{2}^-; \frac{3}{2}$
11.52 ± 20	240 ± 50	p_2, α_0		11.43	
11.67 ± 40	160 ± 30	p_0, p_3		11.58	
12.12 ± 20	120 ± 40	p_2, α_0		12.00	
12.39 ± 20	300 ± 30	p_0, p_2	0.26 ± 0.03	12.25	$\frac{3}{2}^-$
12.500 ± 10	190 ± 20	p_0, p_1, p_4	0.31 ± 0.03	12.355	$\frac{1}{2}^-$
≈ 12.65	≈ 600	p_0	≈ 0.09	≈ 12.50	$\frac{7}{2}^-$
12.7077 ± 2.0 [f]	2.83 ± 0.12	p_0, p_2, p_4, p_5, α_0, α_1	0.332 ± 0.018	12.5504 ± 2.3	$\frac{3}{2}^-; \frac{3}{2}$
(13.06 ± 100)		p_0		(12.88)	$(\frac{7}{2}^-)$
(13.06 ± 50)		p_0		(12.88)	$(\frac{1}{2}^+)$
13.250 ± 4	2 ± 1	p_0, p_{1+2}, p_{3+4}, p_5, α_0	0.15 ± 0.04	13.060	$\frac{5}{2}^-; \frac{3}{2}$
13.271 ± 4	2 ± 1	$p_0 \rightarrow p_4$, α_0	0.04 ± 0.02	13.080	$(\frac{1}{2}^+); \frac{3}{2}$
13.32 ± 100	520 ± 50	p_0	0.163 ± 0.016	13.13	$\frac{5}{2}^-$
14.017 ± 4	12 ± 5	p_0, p_{1+2}, p_{3+4}, α_0	0.02 ± 0.01	13.781	$\frac{5}{2}^+; \frac{3}{2}$
(14.20 ± 50)		p_0		(13.95)	$(\frac{1}{2}^+)$
14.25 ± 50	260 ± 30	p_0	0.08 ± 0.01	14.00	$\frac{7}{2}^-$
14.438 ± 6	27 ± 5	p_0, p_{3+4}	0.04 ± 0.02	14.177	$\frac{3}{2}^-; \frac{3}{2}$ [i]
14.5730 ± 3.0 [g]	19.3 ± 1.6	p_0, p_{1+2}, p_{3+4}, p_5, α_0	0.085 ± 0.008	14.3037 ± 3.1	$\frac{7}{2}^-; \frac{3}{2}$
14.65 ± 50	610 ± 50	p_0	0.10 ± 0.01	14.38	$\frac{5}{2}^-$
(14.94 ± 100)		p_0			$(\frac{3}{2}^-)$
15.00 ± 100	470 ± 100	p_0	0.25 ± 0.03	14.71	$\frac{1}{2}^-$
15.110 ± 20	190 ± 25	p_0	0.150 ± 0.015	14.809	$\frac{1}{2}^+$
(15.245 ± 100)		p_0		(14.94)	$(\frac{5}{2}^+)$
(15.30 ± 50)		p_0		(14.98)	$(\frac{3}{2}^+)$
(15.37 ± 100)		p_0		(15.05)	$(\frac{3}{2}^-)$
(15.545 ± 100)		p_0		(15.22)	$(\frac{7}{2}^-)$
15.9 [h]	≈ 550	p_0, p_{1+2}		15.6	
17.6	1500	p_0, p_{3+4}		17.1	$\frac{5}{2}^-$
20.4	600	p_0		19.8	$\frac{3}{2}^+$
21.6	600	p_0, (α)		20.9	$\frac{9}{2}^+$
22.6	400	p_0, (α)		21.8	$(\frac{9}{2}^+)$
23.5	600	p_0, p_5		22.7	$\frac{7}{2}^+$
24.7	600	p_0, (α)		23.8	$\frac{7}{2}^+$
26.4	1500	p_0, (α)		25.4	$\frac{7}{2}^-$
28.3	1500	p_0		27.2	$\frac{5}{2}^-$

Table 17.21 from (1982AJ01): Resonances in ^{16}O(p, p)^{16}O and ^{16}O(p, α)^{13}N [a] (continued)

$E_{\rm p}$ (MeV $\pm$ keV)	$\Gamma_{\rm c.m.}$ (keV)	Particles out	$\Gamma_{\rm p_0}/\Gamma$	^{17}F* (MeV)	$J^\pi; T$
30.1	2000	p_0		28.9	$\frac{5}{2}^+$

[a] See earlier references in Tables 17.20 (1971AJ02) and 17.19 (1977AJ02). See also Table 17.20 here.
[b] Preliminary value (1980BA1M). See also (1981ST04).
[c] (1981KR1B): polarized protons; preliminary results. $\Gamma_{\rm p} = 51 \pm 8$, 143 ± 30 and 11.4 ± 2 keV for ^{17}F*(8.98, 9.17, 9.92).
[d] (1981KR1B) report that there are indications of two very sharp resonances corresponding to ^{17}F*(9.10, 9.13) with $J^\pi = \frac{1}{2}^-$ and $\frac{3}{2}^-$.
[e] $\Gamma_{\rm p_0} = 19 \pm 3$ eV (1976HI09).
[f] $\Gamma_{\rm p_0} = 0.94 \pm 0.06$ keV, $\Gamma_{\alpha_0} = 62 \pm 16$ eV, $\Gamma_{\alpha_1} = 53 \pm 22$ eV (1976HI09); J. Lowe, private communication.
[g] $\Gamma_{\rm p_0} = 1.65 \pm 0.12$ keV, $\Gamma_{\alpha_0} = 2.6 \pm 0.7$ keV (1976HI09).
[h] See also Table 17.20 of (1971AJ02), for possible other resonances.
[i] (1979DA11) have confirmed $J^\pi = \frac{3}{2}^-$.
[j] $J^\pi = (\frac{3}{2}, \frac{5}{2})^+$ (G. Bauer and H.T. Richards, private communication).