

Table 19.7 from (1972AJ02): Resonances in $^{15}\text{N}(\alpha, \gamma)^{19}\text{F}$ ^a

E_α (MeV \pm keV)	Γ (keV)	$\frac{1}{2}(2J+1)\Gamma_\gamma\Gamma_\alpha/\Gamma$ (eV)	J^π ^c	E_x (MeV)	Refs.
0.850 \pm 1	$(43.8 \pm 8.5) \times 10^{-6}$	$(6 \pm 1) \times 10^{-3}$ ^b	$\frac{5}{2}^-$	4.684	(1970AI01, 1972RO01)
1.385 \pm 3		$(13 \pm 8) \times 10^{-3}$ ^b	$\frac{5}{2}^+$	5.106	(1970AI01)
1.681 \pm 5	< 2	1.64 ± 0.16	$\frac{1}{2}^-$	5.340	(1957PR1A, 1970AI01, 1971DI09)
1.790		0.42 ± 0.09 ^b	$\frac{7}{2}^-$	5.426	(1970AI01)
1.839 \pm 2	< 1	2.5 ± 0.4 ^b	$\frac{7}{2}^+$	5.464	(1957PR1A, 1971DI18)
1.883 \pm 3	4 \pm 1	4.2 ± 1.1 ^b	$\frac{3}{2}^+$	5.499	(1957PR1A)
1.930		0.48 ± 0.11 ^b	$\frac{5}{2}^+$	5.54	(1970AI01)
2.05				5.63	(1970AI01)
2.44			$\frac{1}{2}^-$	5.94	A, (1970AI01)
2.61			$(\frac{7}{2}^+)$	6.07	A, (1970AI01)
2.64			$(\frac{3}{2}^-)$	6.10	A, (1970AI01)
2.74			$\frac{7}{2}^-$	6.18	A, (1970AI01)
2.88			$\frac{5}{2}^+$	6.29	(1970AI01)
2.95			$\frac{7}{2}^+$	6.34	(1970AI01)
3.147 \pm 1.5		1.7 ± 0.3	$\frac{3}{2}^+$	6.497	B, (1970AI01)
3.150 \pm 1.5		2.3 ± 0.4	$\frac{11}{2}^+$	6.499	B, (1969AI01, 1970AI01)
3.183 \pm 1.5		2.35 ± 0.35	$\frac{3}{2}^+$	6.525	B
3.218 \pm 1.5		0.57 ± 0.12	$\frac{7}{2}^-$	6.553	B
3.268 \pm 1.5		1.64 ± 0.25	$\frac{9}{2}^+$	6.592	B, (1971DI18)
3.515 \pm 3		10.9 ± 1.5	$\frac{3}{2}^-$	6.787	B
3.58 \pm 5				6.838	B
3.691 \pm 3		9.7 ± 1.4	$\frac{7}{2}^-$	6.926	B
3.996 \pm 3		1.15 ± 0.23	$\frac{11}{2}^-$, $(\frac{7}{2}^-)$	7.167	B
4.11 \pm 5				7.257	B
4.468 \pm 3		17.0 ± 2.7	$\frac{5}{2}^+$; $T = \frac{3}{2}$	7.539	A, B, (1969AI02)
4.623 \pm 3		3.7 ± 0.9	$\frac{3}{2}^+$; $T = \frac{3}{2}$	7.662	A, B, (1969AI02)
4.75 \pm 5				7.762	B
4.96 \pm 3		2.3 ± 0.4	$\frac{7}{2}^+$; $\frac{9}{2}$	7.928	B, (1971DI18)
4.97 \pm 3		3.1 ± 0.5	$\frac{11}{2}^+$	7.935	A, B, (1971DI18)
5.07 \pm 5				8.014	B
d				8.287	C
d				8.942	C

A: D. Rogers, private communication.

B: W.R. Dixon and R.S. Storey, private communication.

C: K. Bharuth-Ram, K.P. Jackson, N.A. Jelley, P.G. Lawson and K.W. Allen, private communication.

^a See also [Table 19.9](#).

^b Recalculated by D. Rogers (private communication) on basis of results of (1971DI09) for $^{19}\text{F}^*(5.34)$.

^c See (1970AI01) for tentative assignments to rotational bands.

^d Resonant energies determined to ± 3 and ± 6 keV, respectively. $^{19}\text{F}^*(8.29)$ decays only to the $J^\pi = \frac{9}{2}^-$ state at 4.03 MeV and γ -ray angular distribution studies establish $J = \frac{13}{2}$ or $\frac{9}{2}$. The former is favored since no other branches are observed. Of $J^\pi = \frac{13}{2}^-$, and with $\omega\gamma = 1.02 \pm 0.21$ eV, the strength of the transition to $^{19}\text{F}^*(4.03)$ is 21.1 ± 4.3 W.u. $^{19}\text{F}^*(8.94)$ is weaker than expected for the $\frac{11}{2}^-$ member of the $K^\pi = \frac{1}{2}^-$ band (K.W. Allen, private communication).