Table 18.10 from (1978AJ03): Energy levels of ^{18}F [a]

E_x (MeV ± keV)	$J^\pi; T$	K^π	τ or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
0	$1^+; 0$	0^+	$\tau_{1/2} = 109.77 \pm 0.05$ min	β^+	1, 3, 4, 5, 6, 7, 11, 12, 15, 23, 24, 25, 26, 27, 29, 30, 31, 37, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 51, 52
0.93720 ± 0.06	$3^+; 0$	0^+	$\tau_m = 67.6 \pm 2.5$ psec	γ	4, 7, 11, 12, 15, 23, 24, 25, 26, 31, 37, 39, 40, 41, 43, 44, 46, 47, 52
1.04155 ± 0.08	$0^+; 1$		4^{+3}_{-2} fsec	γ	7, 11, 24, 26, 31, 37, 39, 40, 41, 43, 46, 47, 51
1.08054 ± 0.12	$0^-; 0$	0^-	27.5 ± 1.9 psec	γ	7, 11, 12, 23, 24, 26, 39, 40, 43, 46, 47
1.12136 ± 0.15	$5^+; 0$	0^+	218 ± 8 nsec $\mu = +2.855 \pm 0.030$ nm $Q = 0.13 \pm 0.03$ b	γ	4, 7, 11, 12, 23, 24, 25, 26, 28, 31, 37, 39, 40, 44, 47, 52
1.70081 ± 0.18	$1^+; 0$	1^+	1.09 ± 0.10 psec	γ	7, 12, 23, 24, 25, 31, 39, 40, 41, 47, 51, 52
2.10061 ± 0.10	$2^-; 0$	0^-	4.3 ± 1.4 psec	γ	7, 12, 15, 24, 25, 26, 31, 39, 40, 43, 47, 52
2.52335 ± 0.18	$2^+; 0$	1^+	0.68 ± 0.11 psec	γ	7, 12, 24, 25, 31, 37, 39, 43, 47, 52
3.06184 ± 0.18	$2^+; 1$		< 1.5 fsec	γ	7, 24, 31, 37, 39, 40, 43, 47, 51, 52
3.13387 ± 0.15	$1^-; 0$	1^-	0.32 ± 0.10 psec	γ	7, 12, 24, 25, 31, 40, 43, 47, 52
3.3582 ± 1.0	$3^+; 0$	1^+	0.49 ± 0.07 psec	γ	7, 12, 24, 25, 31, 47, 52
3.72419 ± 0.22	$1^+; 0$		4 ± 2 fsec	γ	7, 12, 24, 26, 31, 40, 43, 47, 52
3.79149 ± 0.22	$3^-; 0$	1^-	224 ± 35 fsec	γ	7, 12, 24, 25, 26, 31, 40, 47
3.83917 ± 0.22	$2^+; 0$		29 ± 9 fsec	γ	7, 12, 24, 26, 31, 37, 40, 47, 52
4.11590 ± 0.25	$3^+; 0$		91 ± 22 fsec	γ	7, 12, 24, 25, 26, 31, 37, 40, 47, 52
4.2258 ± 0.7	$2^-; 0$	(1^-)	110 ± 15 fsec	γ	7, 12, 24, 26, 31, 40, 47, 52
4.36015 ± 0.26	$1^{(+)}$		27 ± 10 fsec	γ	7, 12, 24, 31, 40, 47, 52
4.3981 ± 0.7	$4^-; 0$	0^-	58 ± 12 fsec	γ	7, 12, 15, 24, 25, 26, 31, 40, 47, 52
4.652 ± 2	$4^+; 1$		< 10 fsec	γ	7, 24, 31, 37, 40, 47
4.753 ± 3	$(0^+; 1)$			γ	24, 40, 47
4.860 ± 2	$1^-; 0$		66 ± 18 fsec	γ, α	7, 24, 31, 47, 52
4.9636 ± 0.8	$2^+; 1$		< 4 fsec	γ, α	7, 24, 31, 37, 47
5.2976 ± 1.5	$4^+; 0$	1^+	30 ± 5 fsec	γ, α	7, 12, 24, 25, 47, 52
5.502 ± 2	$3^{(-)}; 0$		$\tau_m = 63 \pm 25$ fsec	γ, α	7, 12, 24, 31, 47, 52

Table 18.10 from (1978AJ03): Energy levels of ^{18}F [a] (continued)

E_x (MeV ± keV)	$J^\pi; T$	K^π	τ or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
5.60338 ± 0.27	1^+			γ	31, 52
5.60486 ± 0.28	$1^-; 0+1$		$\Gamma < 1.2$	γ, α	7, 10, 12, 24, 25, 26, 31, 37, 47, 52
5.668 ± 2	$1^-; 0+1$		$\Gamma < 0.8$	γ, α	7, 10, 12, 24, 31, 37, 47
5.786 ± 2.4	$2^-; 0$		$\tau_m = 15 \pm 10$ fsec	γ, α	7, 24, 25, 47, 52
6.0964 ± 1.1	$4^-; 0$	1^-	$\Gamma = 0.27 \pm 0.09$	γ, p, α	7, 12, 24, 31, 35, 47, 52
6.108 ± 3	$1, 2, 3^{(-)}; 0$			γ, α	7, 10, 24, 47
6.13647 ± 0.33	$0^+; 1$		≤ 1	γ, p	24, 31, 47
6.1632 ± 0.9	$3^+; (1)$		13 ± 1	γ, p	24, 31, 33, 47, 52
6.2409 ± 0.9	$3^-; 1$		< 0.8	γ, p, α	7, 10, 24, 31, 33, 35, 47
6.262 ± 2.5	$1^+; 0$		< 3	γ, α	7, 12, 24, 35, 47, 52
6.2832 ± 0.9	$2^+; 1$		8.5 ± 1.0	γ, p	24, 31, 33
6.3105 ± 0.8	$3^+; 0$		≤ 1.2	γ, p, α	7, 24, 31, 33, 35
6.3855 ± 1.7	$2^+; 0+1$		≤ 1	γ, p, α	7, 24, 31, 35, 47
6.480 ± 1.5	$3^+; (0)$		≤ 2	γ, p, α	7, 24, 31, 35, 47
6.5670 ± 1.5	5^+	1^+	(< 0.8)	γ, α	7, 10, 12, 24, 25, 47, 52
6.6437 ± 1.2	$2^-; 1$		0.87 ± 0.09	γ, p, α	7, 9, 24, 31, 47
6.647 ± 4	1^-		91 ± 4	p, α	10, 12, 35, 52
6.777 ± 2	$4^+; 0$		9 ± 3	γ, p, α	24, 26, 31, 33, 47, 52
6.8031 ± 1.5	$1^+, 2, 3^+; (0)$		≤ 2	γ, p	12, 24, 25, 26, 31, 33, 47, 52
6.810 ± 5	2^-		79 ± 5	p, α	9, 10, 35
6.878 ± 2	$3^{(-)}, 4^-; (0)$		≤ 2	γ, p, α	24, 26, 31, 35, 47, 52
7.197 ± 4	$(4^+); 0$		< 4	α	10, 24, 25, 47
7.27	(1^+)		45 ± 10	α	10
7.313 ± 10	(3^-)		53 ± 6	p, α	9, 10, 47
7.500 ± 10	(3^-)		43 ± 9	p, α	9, 10, 24, 35, 47
7.57			60	p, α	9, 10, 24, 35
7.61			40	p, α	9, 10, 24
7.70			11	p, α	24, 35
7.74			120	p, α	9, 10, 35
7.877 ± 10 [d]	(2^-)		32 ± 5	p, α	24, 25, 35
7.92	(2^-)		30	p, α	9, 10, 35
7.95	(1^+)		70	p, α	9, 10
(8.050 ± 10) [d]			30 ± 10	p, α	24, 35
(8.21)			≈ 15	p, α	24, 35
(8.23)			≈ 10	p, α	24, 35
(8.37) [b]			≈ 50	p, α	35

Table 18.10 from (1978AJ03): Energy levels of ^{18}F [a] (continued)

E_x (MeV $\pm$ keV)	$J^\pi; T$	K^π	τ or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
8.46 [b]	1^+		88 ± 10	p, d, α	18, 19, 20
9.207 ± 15 [d]	$3, 4^-; 0$		108 ± 12	p, d, α	18, 19, 20, 24
9.31 ± 20	$2, 3^+; 0$		80 ± 20	n, p, d, α	17, 20, 24, 32
9.58 ± 20	6^+	1^+	55 ± 25		12, 24, 25
9.605 ± 10			35 ± 7	n, p, d	17, 18, 24, 32
9.694 ± 10			33	n, p	32
9.845 ± 20			≈ 100	n, p	32
10.12				n, p, d	17, 18, 19
10.23	$3, 4^-; 0$		≈ 140	n, p, d, α	20, 32
11.22 ± 30	7^+	1^+			12, 24
14.18 ± 40	[c]				12

[a] See also Tables 18.11 for radiative transitions and 18.12 for lifetime measurements.

[b] For other states with $7.3 < E_x < 9.6$ MeV, see also Tables 18.15 and 18.17 here, and Tables 18.18 and 18.19 in (1972AJ02).

[c] For other states with $10.3 < E_x < 19.4$ MeV and $J^\pi = 1^- \rightarrow 7^+$ [natural parity], see Tables 18.14, 18.15 and 18.16. Tables 18.14 and 18.16 display the states deduced from the yields of the isospin forbidden α_1 groups in $^{14}\mathrm{N} + \alpha$ and $^{16}\mathrm{O} + \mathrm{d}$, respectively. (1976CH24) reports 151 isospin mixed natural parity states with $10.4 < E_x < 17.5$ MeV [^{14}N(α, α_1)] and (1973JO13) reports 138 such states with $9.2 < E_x < 19.4$ MeV [^{16}O(d, α_1)] of which 16 have $E_x > 17.5$ MeV. In addition (1971JA04) have reported α_1 resonances in $^{16}\mathrm{O} + \mathrm{d}$ corresponding to ^{18}F*(20.3, 20.8) with $\Gamma \approx 300$ and ≈ 550 keV. Thus in the region $10.4 < E_x < 20.8$ MeV some 169 states with mixed isospin and natural parity have been reported.

[d] Uncertainty estimated by reviewer.