

Table 19.9 from (1995TI07): Energy levels of ^{19}F ^a

E_x (MeV \pm keV)	$J^\pi; T$	K^π	τ_m or $\Gamma_{\text{c.m.}}$	Decay	Reactions
0	$\frac{1}{2}^+; \frac{1}{2}$	$\frac{1}{2}^+$	stable		9, 11, 12, 15, 17, 18, 19, 21, 22, 23, 24, 25, 26, 31, 32, 33, 34, 39, 41, 42, 45, 46, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62
0.109894 ± 0.005	$\frac{1}{2}^-$	$\frac{1}{2}^-$	$\tau_m = 0.853 \pm 0.010$ ns	γ	9, 11, 15, 18, 19, 24, 26, 32, 34, 37, 38, 39, 41, 45, 49, 58, 60, 62
0.197143 ± 0.004	$\frac{5}{2}^+$	$\frac{1}{2}^+$	$\tau_m = 128.8 \pm 1.5$ ns [$ g = 1.441 \pm 0.003$]	γ	8, 9, 12, 15, 17, 18, 19, 24, 25, 26, 32, 33, 34, 39, 41, 42, 45, 49, 51, 53, 58, 60
1.34567 ± 0.13	$\frac{5}{2}^-$	$\frac{1}{2}^-$	$\tau_m = 4.13 \pm 0.06$ ps [$ g = 0.27 \pm 0.04$]	γ	9, 11, 12, 17, 18, 19, 24, 26, 32, 34, 39, 41, 42, 45, 49
1.4587 ± 0.3	$\frac{3}{2}^-$	$\frac{1}{2}^-$	$\tau_m = 90 \pm 20$ fs	γ	11, 12, 18, 19, 24, 32, 37, 39, 41, 42, 45, 49, 53, 60
1.554038 ± 0.009	$\frac{3}{2}^+$	$\frac{1}{2}^+$	$\tau_m = 5 \pm 3$ fs	γ	9, 17, 18, 19, 24, 25, 26, 31, 32, 33, 34, 39, 41, 42, 45, 49, 51, 53, 58, 60
2.779849 ± 0.034	$\frac{9}{2}^+$	$\frac{1}{2}^+$	$\tau_m = 280 \pm 30$ fs	γ	3, 4, 7, 9, 12, 14, 17, 18, 19, 22, 24, 25, 31, 32, 39, 41, 42, 49, 51, 53, 59, 60
3.90817 ± 0.20	$\frac{3}{2}^+$	$\frac{3}{2}^+$	$\tau_m = 9 \pm 5$ fs	γ	9, 18, 19, 24, 26, 32, 34, 37, 39, 42, 49, 60
3.9987 ± 0.7	$\frac{7}{2}^-$	$\frac{1}{2}^-$	$\tau_m = 19 \pm 7$ fs	γ	9, 18, 19, 24, 31, 32, 33, 39, 42, 49, 60
4.0325 ± 1.2	$\frac{9}{2}^-$	$\frac{1}{2}^-$	$\tau_m = 67 \pm 15$ fs	γ	9, 12, 17, 18, 19, 24, 31, 39, 42, 49, 60
4.377700 ± 0.042	$\frac{7}{2}^+$	$\frac{3}{2}^+$	$\tau_m < 11$ fs	γ	4, 9, 17, 18, 19, 24, 25, 26, 31, 32, 34, 39, 42, 49, 60
4.5499 ± 0.8	$\frac{5}{2}^+$	$\frac{3}{2}^+$	$\tau_m < 50$ fs	γ	9, 18, 19, 24, 26, 39, 42, 49, 60
4.5561 ± 0.5	$\frac{3}{2}^-$		$\tau_m = 17_{-8}^{+10}$ fs	γ	9, 18, 19, 26, 31, 32, 39, 42, 49, 60
4.648 ± 1	$\frac{13}{2}^+$	$\frac{1}{2}^+$	$\tau_m = 3.7 \pm 0.4$ ps	γ	4, 17, 18, 19, 24, 25, 26, 39, 49, 60
4.6825 ± 0.7	$\frac{5}{2}^-$		$\tau_m = 15.4 \pm 3.0$ fs	γ, α	4, 9, 18, 22, 24, 26, 31, 32, 39, 42, 49, 60
5.1066 ± 0.9	$\frac{5}{2}^+$		$\tau_m < 30$ fs	γ, α	4, 9, 18, 19, 24, 26, 31, 32, 39, 42, 49, 60
5.337 ± 2	$\frac{1}{2}^{(+)}$		$\tau_m \leq 0.1$ fs	γ, α	9, 18, 19, 24, 26, 32, 33, 39, 42, 49, 60
5.418 ± 1	$\frac{7}{2}^-$		$\Gamma = (2.6 \pm 0.7) \times 10^{-3}$ keV	γ, α	4, 9, 18, 24, 26, 32, 33, 39, 42, 49

Table 19.9 from (1995TI07): Energy levels of ^{19}F ^a (continued)

E_x (MeV \pm keV)	$J^\pi; T$	K^π	τ_m or $\Gamma_{\text{c.m.}}$	Decay	Reactions
5.4635 \pm 1.5	$\frac{7}{2}^+$	$\frac{1}{2}^+$	$\tau_m \leq 0.26$ fs	γ, α	4, 9, 12, 17, 18, 19, 24, 25, 26, 39, 42, 49
5.5007 \pm 1.7	$\frac{3}{2}^+$		$\Gamma = 4 \pm 1$ keV	γ, α	9, 10, 19, 24, 26, 33, 39, 42, 49
5.535 \pm 2	$\frac{5}{2}^+$			γ, α	9, 24, 26, 33, 39, 42, 49, 60
5.621 \pm 1	$\frac{5}{2}^-$		$\tau_m < 1.3$ fs	γ, α	9, 24, 26, 31, 32, 39, 42, 49, 59, 60
5.938 \pm 1	$\frac{1}{2}^+$			γ, α	9, 26, 31, 32, 33, 39, 42, 60
6.070 \pm 1	$\frac{7}{2}^+$		$\Gamma = 1.2$ keV	γ, α	4, 9, 24, 39, 42
6.088 \pm 1	$\frac{3}{2}^-$		$\Gamma = 4$ keV	γ, α	9, 12, 18, 19, 24, 26, 39, 42, 60
6.100 \pm 2	$\frac{9}{2}^-$			γ	4, 26, 39
6.1606 \pm 0.9	$\frac{7}{2}^-$		$\Gamma = (3.7 \pm 1.0) \times 10^{-3}$ keV	γ, α	4, 9, 26, 33, 39, 42, 60
6.255 \pm 1	$\frac{1}{2}^+$		$\Gamma = 8$ keV	α	10, 24, 26, 31, 32, 33, 39, 42, 60
6.282 \pm 2	$\frac{5}{2}^+$		$\Gamma = 2.4$ keV	γ, α	9, 10, 17, 24, 26, 31, 33, 39, 42
6.330 \pm 2	$\frac{7}{2}^+$		$\Gamma = 2.4$ keV	γ, α	4, 7, 10, 12, 24, 39, 42
6.429 \pm 8	$\frac{1}{2}^-$		$\Gamma = 280$ keV	α	10, 39
6.4967 \pm 1.4	$\frac{3}{2}^+$			γ, α	9, 19, 25, 26, 32, 33, 39
6.5000 \pm 0.9	$\frac{11}{2}^+$	$\frac{3}{2}^+$	$\Gamma > 2.4 \times 10^{-3}$ keV	γ, α	4, 9, 19, 24, 26, 39
6.5275 \pm 1.4	$\frac{3}{2}^+$		$\Gamma = 4$ keV	γ, α	9, 17, 19, 24, 26, 39
6.554 \pm 2	$\frac{7}{2}^{(+)}$		$\Gamma = 1.6$ keV	γ, α	9, 24, 39
6.592 \pm 2	$\frac{9}{2}^+$	$\frac{3}{2}^+$	$\Gamma = (7.6 \pm 1.8) \times 10^{-3}$ keV	γ, α	4, 9, 17, 24, 26, 32, 39
6.787 \pm 2	$\frac{3}{2}^-$		$\Gamma = (6.9 \pm 1.1) \times 10^{-3}$ keV	γ, α	9, 10, 24, 26, 32, 39
6.8384 \pm 0.9	$\frac{5}{2}^+$		$\Gamma = 1.2$ keV	γ, α	9, 10, 24, 26, 27
6.891 \pm 4	$\frac{3}{2}^-$		$\Gamma = 28$ keV	γ, α	9, 10, 24, 39
6.9265 \pm 1.7	$\frac{7}{2}^-$		$\Gamma = 2.4$ keV	γ, α	4, 9, 10, 12, 17, 18, 24, 26, 32, 33, 39
6.989 \pm 3	$\frac{1}{2}^-$		$\Gamma = 51$ keV	α	10, 26, 39
7.114 \pm 6	$\frac{7}{2}^+$		$\Gamma = 32$ keV	α	10, 32, 39
7.1662 \pm 0.7	$\frac{11}{2}^-$		$\Gamma = (6.9 \pm 1.1) \times 10^{-3}$ keV	γ, α	4, 9, 26, 39
7.262 \pm 2	$\frac{3}{2}^+$		$\Gamma < 6$ keV	α	10, 17, 18, 19, 26, 31, 32, 39, 51
7.364 \pm 4	$\frac{1}{2}^+$			α	19, 26, 31, 32, 33, 39
7.5396 \pm 0.9	$\frac{5}{2}^+; \frac{3}{2}^+$		$\Gamma = 0.16 \pm 0.05$ keV ^c	γ, α	9, 10, 12, 17, 26, 32, 33, 39
7.56 \pm 10	$\frac{7}{2}^+$		$\Gamma < 90$ keV	α	10
7.587	$(\frac{5}{2}^-)$			γ	39
7.6606 \pm 0.9	$\frac{3}{2}^+; \frac{3}{2}^-$		$\Gamma = 0.0022 \pm 0.0007$ keV	γ, α	9, 10, 26, 32, 33, 37, 39, 61
7.702 \pm 5	$\frac{1}{2}^-$		$\Gamma < 30$ keV	α	10, 17, 26, 32, 39
7.74 \pm 40	$(\frac{5}{2}, \frac{7}{2}^-)$		$\Gamma < 6$ keV		39, 51

Table 19.9 from (1995TI07): Energy levels of ^{19}F ^a (continued)

E_x (MeV \pm keV)	$J^\pi; T$	K^π	τ_m or $\Gamma_{\text{c.m.}}$	Decay	Reactions
(7.90)			$\Gamma < 200$ keV	α	10
7.929 \pm 3	$\frac{7}{2}^+, \frac{9}{2}$			γ, α	9, 17, 19
7.937 \pm 3	$\frac{11}{2}^+$			γ, α	9, 25
8.0140 \pm 1.0	$\frac{5}{2}^+$			p	32, 33
8.084 \pm 3			$\Gamma \leq 3$ keV	p, α	10, 30, 32
8.1377 \pm 1.2	$\frac{1}{2}^+$		$\Gamma \leq 0.3$ keV	γ, p, α	10, 26, 30, 31, 32
(8.16)			$\Gamma < 50$ keV	α	10
8.1990 \pm 1.0	$(\frac{5}{2}^+)$		$\Gamma < 0.8$ keV	γ, p, α	10, 26, 30, 32
8.2543 \pm 2.6	$(\frac{5}{2}, \frac{7}{2})^-$		$\Gamma \leq 1.5$ keV	γ, p	26, 32, 51
8.288 \pm 2	$\frac{13}{2}^-$	$(\frac{1}{2}^-)$	$\Gamma < 1$ keV ^c	γ, α	4, 9, 10, 11, 12, 13, 14, 17, 18
8.3100 \pm 1.2	$\frac{5}{2}^+$		$\Gamma = 0.047 \pm 0.019$ keV	γ, p, α	9, 26, 30, 32
8.370 \pm 4	$\frac{7}{2}, \frac{5}{2}^+$		$\Gamma = 7.5 \pm 1.5$ keV	γ, α	9
8.5835 \pm 1.6	$\frac{5}{2}^+$		$\Gamma \leq 0.5$ keV	γ, p, α	9, 26
8.5919 \pm 1.0	$\frac{3}{2}^-$		$\Gamma = 2.0 \pm 0.1$ keV	γ, p, α	9, 17, 26, 28, 30, 32
8.629 \pm 4	$\frac{7}{2}^-$		$\Gamma < 1$ keV ^c	γ, α	4, 9, 10, 51
8.65	$\frac{1}{2}^+$		$\Gamma \approx 300$ keV	γ, p, α	26, 28, 30
8.7932 \pm 1.5	$\frac{1}{2}^+; \frac{3}{2}$		$\Gamma = 46 \pm 2$ keV	γ, p	26, 28, 30, 32, 33
8.864 \pm 4	$< \frac{9}{2}$		$\Gamma \approx 1$ keV	γ, α	9
8.9267 \pm 2.8	$\frac{3}{2}^-$		$\Gamma = 3.6 \pm 0.2$ keV	γ, p, α	17, 18, 26, 28, 30
8.953 \pm 3	$\frac{11}{2}^-$	$\frac{1}{2}^-$ ^d	$\Gamma \approx 1$ keV ^c	γ, α	4, 9, 10, 11, 12, 13, 14
9.030 \pm 5	$\frac{5}{2}, \frac{7}{2}$		$\Gamma = 4.2 \pm 1$ keV	γ, α	9
9.0997 \pm 0.7	$\frac{7}{2}^-$		$\Gamma = 0.57 \pm 0.03$ keV	γ, p, α	9, 26, 28, 30
9.101 \pm 4	$\frac{7}{2}^+, \frac{9}{2}^+$		$\Gamma \approx 1$ keV	γ, α	4, 9, 32
9.167 \pm 1.4	$\frac{1}{2}^+$		$\Gamma = 6.2 \pm 0.5$ keV	γ, p, α	9, 28, 30, 32
9.204 \pm 7	$\frac{3}{2}$		$\Gamma = 10.2 \pm 1.5$ keV	γ, α	9
9.267 \pm 4	$\frac{11}{2}^+, \frac{9}{2}^+$		$\Gamma = 2 \pm 1$ keV	γ, α	9
9.280 \pm 5	$(\frac{7}{2}, \frac{9}{2})^+$		$\Gamma < 1.5$ keV	γ, α	9, 51
9.318 \pm 2	$\frac{3}{2}^+$		$\Gamma = 3.4 \pm 0.7$ keV	γ, p, α	9, 17, 26
9.321 \pm 1.1	$\frac{1}{2}^+$		$\Gamma = 5.0 \pm 0.2$ keV	γ, p, α	28, 30
9.329 \pm 4	$< \frac{5}{2}$		$\Gamma \approx 6$ keV	γ, α	9
9.509 \pm 4	$\frac{5}{2}^+, \frac{7}{2}^+$ ^c		$\Gamma < 1$ keV ^c	γ, α	9, 10
9.527 \pm 6	$(\frac{5}{2})$		$\Gamma = 28$ keV	p, α	28, 30
9.5364 \pm 2.0	$\frac{5}{2}^+$		$\Gamma = 6.3 \pm 1.5$ keV	γ, p, α	9, 26
9.566 \pm 3	$\frac{3}{2}^-$		$\Gamma = 26 \pm 3$ keV	γ, p	26
9.575 \pm 4	$\frac{3}{2}^-$		$\Gamma = 67 \pm 3$ keV	γ, p, α	26, 28, 30
9.586 \pm 3	$\frac{7}{2}$		$\Gamma = 8.9 \pm 1.2$ keV	γ, p, α	9, 26, 32
9.642 \pm 6	$\frac{3}{2}, \frac{5}{2}$		$\Gamma \approx 8$ keV	γ, α	9

Table 19.9 from (1995TI07): Energy levels of ^{19}F ^a (continued)

E_x (MeV \pm keV)	$J^\pi; T$	K^π	τ_m or $\Gamma_{\text{c.m.}}$	Decay	Reactions
9.654 \pm 6	$\frac{3}{2}, \frac{5}{2}$		$\Gamma \approx 6$ keV	γ, α	9
9.6675 \pm 1.5	$\frac{3}{2}^+$		$\Gamma = 3.6 \pm 0.4$ keV	γ, p, α	9, 26, 28, 30, 32
9.710 \pm 4	$\frac{9}{2}^+, \frac{11}{2}^-$ ^c		$\Gamma < 1$ keV ^c	γ, α	4, 9, 10, 17
9.820 \pm 1.0	$\frac{5}{2}^-$		$\Gamma = 0.3 \pm 0.05$ keV	γ, p, α	9, 26, 28, 30
9.834 \pm 3	$\frac{11}{2} \rightarrow \frac{15}{2}$		$\Gamma < 1$ keV ^c	γ, α	4, 9, 10
9.8740 \pm 1.8	$\frac{11}{2}^-$		$\Gamma = (2.6 \pm 0.6) \times 10^{-3}$ keV	γ, p, α	4, 9, 10, 17, 18, 26
9.887 \pm 3	$\frac{1}{2}^+$		$\Gamma = 25 \pm 2$ keV	γ, p, α	26, 28, 30
9.895 \pm 5				γ	4
9.926 \pm 3	$\frac{9}{2}^+, \frac{3}{2}^-$ ^c		$\Gamma \approx 1$ keV ^c	γ, α	4, 9, 10
10.088 \pm 5	$\frac{5}{2}^-, \frac{7}{2}^-$ ^c		$\Gamma < 1.5$ keV ^c	γ, α	9, 10, 12
10.137 \pm 0.8	$\frac{3}{2}^-$		$\Gamma = 4.3 \pm 0.6$ keV	γ, p, α	9, 26, 30
10.162 \pm 3	$\frac{1}{2}^+$		$\Gamma = 31$ keV	p, α	28, 30
10.232 \pm 3	$\frac{1}{2}^+$		$\Gamma < 1$ keV	p, α	10, 28, 30
10.254 \pm 3	$\frac{1}{2}^+$		$\Gamma = 22$ keV	p, α	28, 30
10.308 \pm 4	$\frac{3}{2}^+$		$\Gamma = 9.2$ keV	p, α	10, 19, 28, 30
10.365 \pm 4	$\frac{7}{2} \rightarrow \frac{11}{2}$		$\Gamma = 3 \pm 1.5$ keV	γ, α	4, 9, 32
10.411 \pm 3	$\frac{13}{2}^+$	$\frac{3}{2}^+$	$\Gamma < 1.5$ keV ^c	γ, α	4, 9, 10, 12, 17, 18, 19, 26, 59
10.469 \pm 4			$\Gamma = 11.0 \pm 1.2$ keV	p, α	10
10.488 \pm 4			$\Gamma = 4.8 \pm 0.8$ keV	p, α	10
10.4963 \pm 1.3	$\frac{3}{2}^+$		$\Gamma = 5.7 \pm 0.6$ keV	n, p, α	10, 27, 28, 30
10.521 \pm 4			$\Gamma = 14 \pm 2$ keV	p, α	10, 32
10.5423 \pm 1.1			$\Gamma = 2.5 \pm 0.2$ keV	n, p, α	10, 27
10.555 \pm 3	$\frac{3}{2}^+; (\frac{3}{2})$		$\Gamma = 4.0 \pm 1.2$ keV	p, α	10, 28, 30
10.5647 \pm 2.0			$\Gamma = 4.6 \pm 0.7$ keV	n, p, α	10, 27
10.581 \pm 4	$(\frac{5}{2}^+)$		$\Gamma = 22 \pm 3$ keV	p, α	28, 30
10.6143 \pm 1.6	$\frac{5}{2}^+; \frac{3}{2}$		$\Gamma = 4.7 \pm 0.5$ keV	n, p, α	27, 28, 30
10.7633 \pm 2.5	$\frac{1}{2}^-$		$\Gamma = 6 \pm 3$ keV	n, p, α	17, 27, 28, 30
10.8597 \pm 1.9	$\frac{5}{2}^+$		$\Gamma = 240 \pm 1.5$ keV	n, p, α	27, 28, 30
10.927 \pm 8				γ	4
10.9750 \pm 2.5	$(\frac{3}{2}, \frac{5}{2})^+$		$\Gamma = 14 \pm 2$ keV	n, p, α	27, 28, 30
10.989 \pm 2.5			$\Gamma = 7 \pm 2$ keV	n, p	27
11.072 \pm 2.7	$\frac{1}{2}^+$		$\Gamma = 35 \pm 4$ keV	n, p, α	27, 28, 30
11.188 \pm 4	$(\frac{1}{2}^-)$		$\Gamma = 17 \pm 4$ keV	n, p, α	27, 28, 30
11.273 \pm 3			$\Gamma = 7 \pm 2$ keV	n, p	27
11.286 \pm 7	$\frac{5}{2}^+$		$\Gamma = 22 \pm 5$ keV	n, p, α	27, 28, 30
11.35 \pm 25	$\frac{1}{2}^+$		$\Gamma = 272 \pm 31$ keV	p	28
11.450 \pm 3.5	$\frac{1}{2}^-$		$\Gamma = 38 \pm 7$ keV	$n, p, (\alpha)$	17, 27, 28, 30

Table 19.9 from (1995TI07): Energy levels of ^{19}F ^a (continued)

E_x (MeV \pm keV)	$J^\pi; T$	K^π	τ_m or $\Gamma_{\text{c.m.}}$	Decay	Reactions
11.478 \pm 5			$\Gamma = 7 \pm 3$ keV	n, p	27
11.502 \pm 5	$(\frac{3}{2}^-)$		$\Gamma = 4 \pm 2$ keV	n, p, α	27, 28, 30
11.540 \pm 7	$\frac{5}{2}^+$		$\Gamma = 22 \pm 5$ keV	n, p, α	27, 28, 30
11.569 \pm 7	$(T = \frac{3}{2})$		$\Gamma = 15 \pm 10$ keV	n, p	27
11.603 \pm 12	$\frac{3}{2}^-$		$\Gamma = 63 \pm 7$ keV	n, p	27, 28
11.653 \pm 4	$\frac{3}{2}^+; (\frac{3}{2})$		$\Gamma = 33 \pm 6$ keV	n, p, (α)	12, 17, 27, 28, 30
11.84 \pm 10			$\Gamma < 50$ keV	n, p	27
11.93 \pm 10			$\Gamma = 90$ keV	n, p	27
12.04 \pm 20	$\frac{1}{2}^-$		$\Gamma = 71 \pm 24$ keV	p, α	12, 28, 30
12.136 \pm 8	$\frac{3}{2}^-; \frac{3}{2}$		$\Gamma = 105 \pm 14$ keV	n, p, (α)	27, 28, 30
12.222 \pm 12	$\frac{3}{2}^+$		$\Gamma = 74 \pm 1$ keV	n, p, α	27, 28, 30
12.522 \pm 7	$\frac{1}{2}^-$		$\Gamma = 15 \pm 4$ keV	p	28
12.577 \pm 10	$\frac{5}{2}^+$		$\Gamma = 48 \pm 10$ keV	p, α	28, 30
12.58 \pm 25	$\frac{1}{2}^-; \frac{3}{2}$		$\Gamma = 285 \pm 48$ keV	p	28
12.78 \pm 10	$\frac{5}{2}^+; \frac{3}{2}$		$\Gamma = 95 \pm 38$ keV	n, p, (α)	17, 27, 28, 30
12.86 \pm 30	$\frac{3}{2}^+; \frac{3}{2}$		$\Gamma = 276 \pm 38$ keV	p	28
12.94 \pm 25	$\frac{5}{2}^+$		$\Gamma = 71 \pm 24$ keV	p, α	28, 30
12.98 \pm 50	$\frac{1}{2}^-$		$\Gamma = 124 \pm 38$ keV	p	28
13.068 \pm 4	$\frac{1}{2}^+$		$\Gamma \leq 10$ keV	n, p, t	15, 27
13.09 \pm 75	$\frac{3}{2}^-$		$\Gamma = 285 \pm 71$ keV	p	28
13.17 \pm 15			$\Gamma = 70$ keV	n, p	27
13.245 \pm 10	$\frac{1}{2}^-$		$\Gamma = 7$ keV	t	15
13.270 \pm 10	$\frac{1}{2}^+$		$\Gamma = 4.5$ keV	t	15
13.317 \pm 8	$\frac{7}{2}^-; (\frac{3}{2})$		$\Gamma = 28 \pm 6$ keV	n, p, α	27, 28, 30, 33
13.36 \pm 25	$\frac{3}{2}^-$		$\Gamma = 38 \pm 19$ keV	p	28
13.532 \pm 10	$\frac{1}{2}^+$		$\Gamma = 22$ keV	t	15
13.732 \pm 11	$\frac{7}{2}^-; \frac{3}{2}$		$\Gamma = 52 \pm 10$ keV	n, p, (α)	18, 27, 28, 30, 33
13.878 \pm 15	$\frac{1}{2}^+$		$\Gamma = 101$ keV	t	15
14.04 \pm 20	$\frac{5}{2}^+$		$\Gamma = 141 \pm 28$ keV	p	28
14.10 \pm 21	$\frac{3}{2}^-$		$\Gamma = 84 \pm 28$ keV	p	12, 18, 28
14.147 \pm 20	$\frac{1}{2}^+$		$\Gamma = 21$ keV	t	15
14.24 \pm 15			$\Gamma = 350$ keV	n, p	27
14.255 \pm 15	$\frac{3}{2}^+$		$\Gamma = 51$ keV	t	15
14.33 \pm 20	$\frac{3}{2}^-$		$\Gamma = 76 \pm 28$ keV	p	28
14.352 \pm 10	$\frac{1}{2}^+$		$\Gamma = 154$ keV	t	15
14.46 \pm 25	$\frac{3}{2}^+$		$\Gamma = 179$ keV	t	15
14.46 \pm 25	$\frac{5}{2}^+$		$\Gamma = 46$ keV	t	15

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E_x (MeV \pm keV)	$J^\pi; T$	K^π	τ_m or $\Gamma_{\text{c.m.}}$	Decay	Reactions
14.70 \pm 20	$\frac{3}{2}^-$		$\Gamma = 124 \pm 38$ keV	p	28
14.72 \pm 70	$\frac{1}{2}^-$		$\Gamma = 257 \pm 67$ keV	α	30
14.74 \pm 50	$\frac{1}{2}^+$		$\Gamma = 361 \pm 67$ keV	p, α	28, 30
14.78 \pm 20	$\frac{5}{2}^+$			n, p	27, 28
14.92 \pm 30	$\frac{7}{2}^-$			p	12, 18, 28
15.00 \pm 20				n, p	27
15.36 \pm 20	$\frac{1}{2}^-$			p	28
15.40 \pm 30	$\frac{5}{2}^+$			p	28
15.56 \pm 30					18
15.77 \pm 21	$\frac{3}{2}^-$		$\Gamma = 150$ keV	n, p	27
16.09 \pm 50					12
16.20 \pm 40	$\frac{3}{2}^+$			p	28
16.23 \pm 30	$\frac{7}{2}^-$			p	28
16.28 \pm 20	$\frac{3}{2}^-$		$\Gamma = 200$ keV	n, p	27, 28
16.45 \pm 50					12
16.80 \pm 30				n, p	27
17.05 \pm 40	$\frac{3}{2}^-$		$\Gamma = 331 \pm 67$ keV	p	28
17.16 \pm 40	$\frac{7}{2}^-$		$\Gamma = 323 \pm 67$ keV	p	28
17.45 \pm 30	$\frac{3}{2}^-$		$\Gamma = 32 \pm 19$ keV	p	12, 28
17.65 \pm 60	$\frac{7}{2}^-$		$\Gamma = 95 \pm 57$ keV	p	28
17.93 \pm 40	$\frac{3}{2}^-$		$\Gamma = 255 \pm 57$ keV	p	28
18.03 \pm 60	$\frac{7}{2}^-$		$\Gamma = 365 \pm 57$ keV	p	12, 28
18.92 \pm 30					12
19.07 \pm 60	$\frac{3}{2}^-$		$\Gamma = 555 \pm 143$ keV	p	28
19.83 \pm 150	$\frac{5}{2}^-$		$\Gamma = 369 \pm 57$ keV	p	28
19.89 \pm 30	$\frac{3}{2}^-$		$\Gamma = 473 \pm 57$ keV	p	12, 28
20.81 \pm 50	$\frac{1}{2}^-$		$\Gamma = 412 \pm 57$ keV	p	28
20.93 \pm 50	$\frac{3}{2}^-$		$\Gamma = 317 \pm 48$ keV	p	28
21.05 \pm 40	$\frac{7}{2}^-$		$\Gamma = 448 \pm 29$ keV	p	28

^a See also Tables 19.10 and 19.11.

^b For evidence of additional states see reaction 36.

^c See Table 19.14.

^d See (1989PR01).