

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}$  †

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$
0.110	$\frac{1}{2}^-$	0	100 <sup>a</sup>	
0.197	$\frac{5}{2}^+$	0	100 <sup>a</sup>	
		0.110	< 0.06	
1.35	$\frac{5}{2}^-$	0.110	$96.8 \pm 1$	$0.0 \pm 0.7$
		0.197	$3.2 \pm 1$	
1.46 <sup>b</sup>	$\frac{3}{2}^-$	0	$20.5 \pm 0.7$ <sup>c</sup>	$0.01 \pm 0.03$ <sup>d</sup>
		0.110	$68.8 \pm 0.9$ <sup>c</sup>	$0.248 \pm 0.020$ <sup>d</sup>
		0.197	$10.7 \pm 0.5$ <sup>c</sup>	
1.55 <sup>b</sup>	$\frac{3}{2}^+$	0	$2.55 \pm 0.10$ <sup>a</sup>	
		0.110	$4.85 \pm 0.12$ <sup>a</sup>	
		0.197	$92.6 \pm 0.2$ <sup>a</sup>	
2.78 <sup>b</sup>	$\frac{9}{2}^+$	0.197	100 <sup>a</sup>	
3.91 <sup>b,e</sup>	$\frac{3}{2}^+$	0	$48 \pm 2$ <sup>a</sup>	
		0.110	$17 \pm 2$ <sup>a</sup>	
		0.197	$14 \pm 2$ <sup>a</sup>	
		1.55	$21 \pm 3$ <sup>a</sup>	
4.00 <sup>b</sup>	$\frac{7}{2}^-$	0.197	$18 \pm 4$	
		1.35	$70 \pm 4$	
		1.46	$12 \pm 6$	
4.03 <sup>b</sup>	$\frac{9}{2}^-$	1.35	100	
4.38 <sup>f,g</sup>	$\frac{7}{2}^+$	0	< 5	
		0.110	< 2	
		0.197	$80.5 \pm 2.0$ <sup>a</sup>	$0.155 \pm 0.022$
		2.78	$19.5 \pm 1.0$ <sup>a</sup>	$-0.16 \pm 0.07$
4.55 <sup>b,h,i</sup>	$\frac{5}{2}^+$	0.197	$69 \pm 7$	
		1.35	$5 \pm 3$	
		1.46	$8 \pm 3$	
		1.55	$18 \pm 4$	
4.56 <sup>b</sup>	$\frac{3}{2}^-$	0	$36 \pm 4$	
		0.110	$45 \pm 5$	
		0.197	$9 \pm 3$	
		1.35	$4 \pm 3$	
		1.46	< 4	
		1.55	$6 \pm 3$	
4.65	$\frac{13}{2}^+$	2.78	100	$ M ^2 = 5.5 \pm 1.8$ W.u.
4.68 <sup>b,c,j</sup>	$\frac{5}{2}^-$	0.197	$5.6 \pm 0.9$	$0 < \delta < 2.0$
		1.35	$63.1 \pm 3.8$	$-0.22^{+0.14}_{-0.24}$
		1.46	$31.3 \pm 2.2$	$0.0 \pm 0.24$ or $2.0^{+1.5}_{-0.6}$

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$	
5.11	$\frac{5}{2}^+$	0.197	80	$\Gamma_\gamma/\Gamma = 0.83 \pm 0.10$	
		1.46	20		
5.34	$\frac{1}{2}^{(+)}$	0	$37 \pm 4$		
		0.110	$42 \pm 4$		
		1.46	$20 \pm 2$		
5.42	$\frac{7}{2}^-$	1.35	70		
		1.46	13		
		4.00	10		
		4.03	6		
5.46	$\frac{7}{2}^+$	0.197	4		
		1.35	32		
		1.55	5		
		2.78	59		
5.50	$\frac{3}{2}^+$	0.110	25		
		0.197	49		
		1.35	16		
		1.55	11		
5.54	$\frac{5}{2}^+$	0	7		
		0.197	47		
		1.46	45		
5.62 <sup>1</sup>	$\frac{3}{2}^-$	0.197	$39 \pm 4$		
		1.35	$61 \pm 4$		
5.94	$\frac{1}{2}^+$	0	$7 \pm 4$		
		0.110	$20 \pm 6$		
		0.197	$2 \pm 1$		
		1.46	$63 \pm 6$		$0.25 \pm 0.02$
		1.55	$< 2$		
6.07 <sup>m</sup>	$\frac{7}{2}^+$	3.91	$8 \pm 3$	$0.28 \pm 0.09$	
		0.197	$54 \pm 5$	$-0.26 \pm 0.02$	
		1.35	$19 \pm 2$		
		1.55	$1_{-0.5}^{+1}$	$0.035 \pm 0.023$	
		2.78	$23 \pm 3$	$0.06 \pm 0.08$	
		4.38	$4 \pm 1$		
6.09 <sup>n</sup>	$\frac{3}{2}^-$	0	$25 \pm 4$	$-0.021 \pm 0.014$	
		0.110	$61 \pm 5$	$0.045 \pm 0.021$	
		0.197	$14 \pm 3$	$0.014 \pm 0.043$	
6.16 <sup>o</sup>	$\frac{7}{2}^-$	0.197	$31 \pm 3$	$-0.045 \pm 0.025$	
		1.35	$65 \pm 4$	$0.077 \pm 0.007$	

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$
6.28	$\frac{5}{2}^+$	1.46	$1.3 \pm 0.6$	$-0.05 \pm 0.07$
		4.00	$1.6 \pm 0.6$	
		4.03	$2.3 \pm 0.3$	
		0	$14 \pm 2$	
		0.197	$4.2 \pm 1.0$	
		1.35	$36 \pm 2$	
6.33	$\frac{7}{2}^+$	1.46	$26 \pm 2$	$-0.01 \pm 0.09$
		1.55	$20 \pm 2$	$-0.02 \pm 0.04$
		0.197	$56 \pm 3$	$0.11 \pm 0.06$
		1.35	$17 \pm 2$	$-0.27 \pm 0.24$
6.497	$\frac{3}{2}^+$	1.55	$8.5 \pm 1.5$	$-0.02 \pm 0.03$
		4.38	$18 \pm 2$	$0.00 \pm 0.14$
		0	$38 \pm 2$	$0.04 \pm 0.20$
		0.110	$14 \pm 2$	$-0.06 \pm 0.04$ or $2.00 \pm 0.17$
		0.197	$9 \pm 2$	$0.00 \pm 0.03$
		1.35	$14 \pm 2$	$0.3 \rightarrow 1.8$
6.500 <sup>p</sup>	$\frac{11}{2}^+$	1.46	$25 \pm 2$	$-0.11 \pm 0.09$
		2.78	55	$0.00 \pm 0.07$
		4.65	45	
		0	$29 \pm 2$	
6.53	$\frac{3}{2}^+$	0.110	$59 \pm 3$	$0.32 \pm 0.04$ or $0.90 \pm 0.06$
		4.55	$12 \pm 2$	$0.00 \pm 0.02$
		0.197	$19 \pm 2$	$-0.23 \pm 0.13$
6.55	$\frac{7}{2}$	1.35	$55 \pm 4$	$0.03 \pm 0.05$
		2.78	$26 \pm 3$	$0.01 \pm 0.03$
		0.197	$13 \pm 2$	$0.05 \pm 0.07$
		2.78	$63 \pm 3$	$-0.13 \pm 0.13$
6.59 <sup>q</sup>	$\frac{9}{2}^+$	4.38	$24 \pm 2$	$-0.20 \pm 0.20$
		0	$15 \pm 2$	$0.02 \pm 0.07$
		0.110	$39 \pm 2$	$-0.08 \pm 0.03$
		0.197	$13 \pm 2$	$0.11 \pm 0.02$
6.79	$\frac{3}{2}^-$	1.35	$5.3 \pm 0.8$	$0.05 \pm 0.06$
		1.46	$25 \pm 2$	$-0.13 \pm 0.08$
		3.91	$2.6 \pm 1.0$	
		0	$9 \pm 5$	
		0.110	$9 \pm 5$	
		0.197	$27 \pm 6$	$-0.5 \pm 0.5$
6.84	$\frac{5}{2}^+$	1.35	$10 \pm 7$	

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$
6.89 <sup>r</sup>	$\frac{3}{2}^-$	1.46	$45 \pm 8$	$-0.02 \pm 0.11$
		0	$9 \pm 2$	
		1.35	$61 \pm 5$	$0.22 \rightarrow 2.2$
6.93	$\frac{7}{2}^-$	1.46	$30 \pm 5$	$0.15 \pm 0.12$
		0.197	$73 \pm 3$	$-0.01 \pm 0.03$
		1.35	$22 \pm 2$	$0.01 \pm 0.02$
		2.78	$2.4 \pm 0.5$	$0.00 \pm 0.16$
		4.00	$1.3 \pm 0.5$	
7.17	$\frac{11}{2}^-$	4.03	$1.3 \pm 0.5$	
		4.00	$5 \pm 1$	
		4.03	$91 \pm 1$	
7.54	$\frac{5}{2}^+; T = \frac{3}{2}$	4.65	$4 \pm 1$	
		0.197	$29 \pm 3$	$0.09 \pm 0.04$
		1.35	$1.2 \pm 0.4$	
		1.55	$41 \pm 3$	$0.017 \pm 0.015$
		4.38	$27 \pm 3$	$0.042 \pm 0.030$
7.66 <sup>b,t</sup>	$\frac{3}{2}^+; T = \frac{3}{2}$	5.11	$1.7 \pm 0.4$	
		0	$38 \pm 4$	$0.06 \pm 0.02$
		0.197	$13 \pm 2$	$0.06 \pm 0.07$ or $3.5 \pm 1.1$
		1.55	$36 \pm 2$	$0.06 \pm 0.04$
		3.91	$(3_{-2}^{+3})$	
		4.55	$5.1 \pm 0.3$	$-0.11 \pm 0.13$
		5.11	$5.9 \pm 0.5$	$-0.04 \pm 0.16$
7.93	$\frac{7}{2}^+, \frac{9}{2}$	0.197	4	
		2.78	96	
7.94 <sup>u</sup>	$\frac{11}{2}^+$	2.78	10	
		4.65	90	
8.14 <sup>v</sup>	$\frac{1}{2}^+$	0	$8 \pm 1$	
		0.11	$24 \pm 2$	
		0.197	$8 \pm 1$	
		1.55	$2 \pm 1$	
		3.91	$54 \pm 2$	$\Gamma_\gamma = 1.3 \text{ eV}$
		5.94	$1.0 \pm 0.5$	
		6.26	$3 \pm 1$	
8.25 <sup>v</sup>	$(\frac{5}{2}^+)$	0.197	$18 \pm 7$	
		1.35	$33 \pm 10$	
		1.46	$24 \pm 8$	
		3.91	$25 \pm 8$	

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$
8.29 <sup>w</sup>	$\frac{13}{2}^-$	4.03	$93 \pm 4$	$\Gamma_\gamma = 72 \pm 8 \text{ meV}$
		4.65	$7 \pm 4$	
8.31 <sup>x</sup>	$\frac{5}{2}^+$	0	$9 \pm 3$	$\Gamma_\gamma = 0.71 \pm 0.17 \text{ eV}$
		1.55	$12 \pm 1^A$	
		1.55	$48 \pm 6$	
		1.55	$48 \pm 2^A$	
		4.38	$43 \pm 6$	
8.37 <sup>w</sup>	$\frac{7}{2}, \frac{5}{2}^+$	0.197	$40 \pm 2^A$	$\delta = 0.02 \pm 0.05 \text{ or } 2.2 \pm 0.6$
		1.35	$13 \pm 2$	
		2.78	$39 \pm 3$	
		2.78	$30 \pm 3$	
		4.00	$30 \pm 3$	
8.58	$\frac{5}{2}^+$	0	$18 \pm 3$	$\delta = -0.14 \pm 0.07$
		0.197	$4 \pm 1^A$	
		0.197	$44 \pm 2$	
		0.197	$38 \pm 5^A$	
		1.35	$24 \pm 2$	
		1.35	$23 \pm 3^A$	
		1.55	$20 \pm 2$	
		1.55	$20 \pm 3^A$	
		4.00	$4 \pm 1^w$	
		4.55	$2.0 \pm 0.7^A$	
		5.42	$6 \pm 1$	
		5.42	$4 \pm 1^A$	
		5.46	$2.0 \pm 0.5^A$	
		5.62	$2.2 \pm 0.5^A$	
		5.94	$1.8 \pm 0.5^A$	
		6.16	$2.5 \pm 0.5^A$	
8.59 <sup>b,x</sup>	$\frac{3}{2}^-$	6.93	$0.5 \pm 0.3^A$	$\Gamma_\gamma = 0.85 \pm 0.17 \text{ eV}$
		0	$5 \pm 2^A$	
		0.11	$3 \pm 1^A$	
		0.197	$59 \pm 2$	
		0.197	$42 \pm 2^A$	
		1.35	$7 \pm 1^A$	
		1.55	$34 \pm 2$	
		1.55	$28 \pm 3^A$	
		3.91	$7 \pm 1$	
		3.91	$8 \pm 1^A$	
4.55	$3.6 \pm 0.6^A$			

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$			
8.63 <sup>w</sup>	$\frac{7}{2}^-$	5.11	$1.0 \pm 0.5^A$				
		5.50	$1.5 \pm 0.5^A$				
		6.28	$0.6 \pm 0.2^A$				
		6.79	$0.3 \pm 0.1^A$				
		0.197	$34 \pm 2$				
		1.35	$6 \pm 1$				
		1.46	$6 \pm 1$				
		2.78	$38 \pm 2$				
		4.00	$13 \pm 1$				
		4.03	$3 \pm 1$				
8.65 <sup>v</sup>	$\frac{1}{2}^+$	0.11	$53 \pm 6$				
		1.46	$23 \pm 6$				
		3.91	$24 \pm 6$				
8.79 <sup>b,v</sup>	$\frac{1}{2}^+; T = \frac{3}{2}$	0	$1.2 \pm 0.4$				
		0.11	$30 \pm 1$				
		0.197	$0.3 \pm 0.2$				
		1.46	$22 \pm 1$				
		1.55	$8 \pm 1$				
		3.91	$22 \pm 1$				
		5.34	$0.5 \pm 0.1$				
		5.94	$1.8 \pm 0.2$				
		6.09	$1.7 \pm 0.2$				
		6.26	$0.2 \pm 0.1$				
		6.49	$6 \pm 1$				
		6.53	$2.1 \pm 0.2$				
		6.79	$1.2 \pm 0.3$				
		6.99	$0.5 \pm 0.1$				
		7.26	$1.7 \pm 0.2$				
		7.36	$0.6 \pm 0.1$				
		7.66	$0.2 \pm 0.1$				
		8.86 <sup>w</sup>	$\frac{3}{2}$		1.35	100	
					8.92 <sup>v</sup>	$\frac{3}{2}$	
		8.92 <sup>v</sup>	$\frac{3}{2}$		0.11	$10 \pm 2$	$0.20 \pm 0.04$ or $2.9 \pm 0.4$
0.197	$24 \pm 7$			$1.0 \pm 0.8$			
1.46	$25 \pm 7$			$3.0 \pm 2.5$			
1.55	$23 \pm 7$			$0.30 \pm 0.06$ or $\infty$			
3.91	$13 \pm 7$						
8.95 <sup>w</sup>	$\frac{11}{2}^-$			2.78	$50 \pm 2$	$\Gamma_\gamma(\text{tot}) = 230 \pm 30$ meV	
2.78				$50 \pm 2$			

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$		
9.03 <sup>w</sup>	$\frac{5}{2}, \frac{7}{2}$	4.00	$26 \pm 2$			
		4.03	$9 \pm 1$			
		4.65	$10 \pm 2$			
		5.42	$5 \pm 1$			
		0.197	$44 \pm 5$			
		4.38	$30 \pm 5$			
9.098 <sup>x</sup>	$\frac{7}{2}^-$	6.07	$26 \pm 4$			
		0.197	$2.0 \pm 0.3^A$	$\delta = 0.0 \pm 0.2$ or $2.5 \pm 0.6$		
		1.35	$2.7 \pm 0.3^A$	$-0.1 \pm 0.3$ or $\infty$		
		2.78	$71 \pm 2$			
			$47 \pm 2^A$	$-0.09 \pm 0.10$		
		4.00	$2.5 \pm 0.3^A$	$0.3 \pm 0.3$ or $-2.2 \pm 0.9$		
		4.03	$9 \pm 1$			
			$7.0 \pm 0.5^A$	$-0.08 \pm 0.01$ or $\infty$		
		4.68	$2.0 \pm 0.3^A$	$-0.09 \pm 0.34$ or $\infty$		
		5.11	$1.2 \pm 0.2^A$	$0.0 \pm 0.2$ or $3.0 \pm 1.6$		
9.101 <sup>w</sup>	$\frac{7}{2}^+, \frac{9}{2}^+$	5.42	$20 \pm 2$			
			$19 \pm 2^A$	$0.25 \pm 0.10$ or $-6.0 \pm 5.5$		
		5.54	$1.3 \pm 0.7^A$	$0.1 \pm 0.3$		
		5.62	$3.3 \pm 0.3^A$	$0.17 \pm 0.10$		
		6.10	$12 \pm 1^A$	$0.0 \pm 0.3$		
		2.78	$11 \pm 2$			
		4.00	$24 \pm 2$			
		4.38	$24 \pm 2$			
		6.07	$15 \pm 2$			
		6.33	$10 \pm 2$			
		9.17 <sup>w</sup>	$\frac{1}{2}^+$	0.197	$51 \pm 2$	
				1.55	$30 \pm 2$	
4.56	$19 \pm 2$					
9.20 <sup>w</sup>	$\frac{3}{2}$	0	$18 \pm 2$			
		0.110	$46 \pm 3$			
		0.197	$10 \pm 4$			
		1.35	$26 \pm 3$			
9.27 <sup>w</sup>	$\frac{11}{2}^+, \frac{9}{2}^+$	2.78	$27 \pm 2$			
		4.38	$18 \pm 2$			
		4.65	$55 \pm 3$			
9.28 <sup>w</sup>	$\frac{7}{2}, \frac{9}{2}$	4.00	$58 \pm 3$			
		4.03	$42 \pm 3$			

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$			
9.32 <sup>b,x</sup>	$\frac{1}{2}^+$	0	$29 \pm 2$ $30 \pm 1^A$	$0.10 \pm 0.08$ or $1.4 \pm 0.3$			
		0.197	$9 \pm 1$ $12 \pm 1^A$	$0.1 \pm 0.4$ or $\geq 0.6$			
		1.46	$41 \pm 3$ $28 \pm 1^A$	$0.1 \pm 0.2$			
		1.55	$21 \pm 3$ $17 \pm 1^A$	$-0.2 \pm 0.3$ or $\leq 0.9$			
		3.91	$3.0 \pm 0.3^A$	$0.40 \pm 0.05$ or $\geq 2.3$			
		4.56	$3.2 \pm 0.3^A$	$0.2 \pm 0.3$			
		4.68	$6.8 \pm 0.5^A$	$0.1 \pm 0.2$			
		9.33 <sup>w</sup>	$< \frac{5}{2}^+$	1.55	100		
		9.51 <sup>w</sup>		$\frac{5}{2}^+, \frac{7}{2}^+$	1.35	$14 \pm 2$	
					1.55	$14 \pm 2$	
9.54 <sup>v</sup>	$\frac{5}{2}^+$	2.78	$72 \pm 3$				
		1.35	$100^w$				
			$26 \pm 2^A$	$0.3 \pm 1.1$			
		4.56	$15 \pm 1$	$0.7 \pm 0.4$			
		4.68	$12 \pm 1$	$0.3 \pm 0.3$			
		5.11	$29 \pm 2$	$0.3 \pm 0.2$			
		7.54	$10 \pm 1$	$0.7 \pm 0.3$			
		7.66	$6 \pm 1$	$0.4 \pm 0.3$ or $1.0 \pm 0.4$			
9.565 <sup>v</sup>	$\frac{3}{2}^-$	8.02	$2 \pm 1$				
		0.197	$77 \pm 10$				
9.574 <sup>v</sup>	$\frac{3}{2}^-$	6.26	$23 \pm 6$				
		1.46	$26 \pm 2$	$-0.1 \pm 0.2$			
		3.91	$4 \pm 1$	$-6 \pm 7$			
		4.55	$17 \pm 2$				
		6.09	$38 \pm 2$	$1.8 \pm 1.0$			
		7.54	$11 \pm 2$	$-0.3 \pm 0.8$			
		7.66	$4 \pm 1$	$-0.1 \pm 1.3$			
9.59 <sup>x</sup>	$\frac{7}{2}$	0.197	$24 \pm 2^w$				
		1.35	$17 \pm 2$				
			$32 \pm 4^A$	$0.0 \pm 0.5$ or $3.7 \pm 2.5$			
		2.78	$33 \pm 3$				
			$30 \pm 2^A$	$0.1 \pm 0.2$ or $11 \pm 5$			
		4.00	$15 \pm 2$ $17 \pm 2^A$	$-0.7 \pm 1.1$			

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$		
9.64 <sup>w</sup>	$\frac{3}{2}, \frac{5}{2}$	4.03	$11 \pm 1^w$			
		4.55	$21 \pm 2^A$			
		0.197	$13 \pm 3$			
		1.35	$61 \pm 7$			
		4.55	$26 \pm 6$			
9.65 <sup>w</sup>	$\frac{3}{2}, \frac{5}{2}$	1.35	$41 \pm 9$			
		1.55	$59 \pm 9$			
		0	$34 \pm 5$			
9.67 <sup>b,x</sup>	$\frac{3}{2}^+$	0	$34 \pm 5$			
			$22 \pm 2^A$	$-0.72 \pm 0.04$ or $-10 \pm 4$		
		0.11	$36 \pm 5$			
			$20 \pm 2^A$	$0.00 \pm 0.05$		
		0.197	$9 \pm 1^A$	$0.30 \pm 0.03$ or $1.7 \pm 0.3$		
		1.35	$9 \pm 1^A$	$0.00 \pm 0.03$		
		1.46	$5 \pm 1^A$	$0.00 \pm 0.07$		
		1.55	$30 \pm 6$			
			$10 \pm 1^A$	$0.00 \pm 0.06$ or $-4.2 \pm 1.3$		
		3.91	$5.5 \pm 0.5^A$	$0.12 \pm 0.03$ or $-7.5 \pm 2.0$		
		4.38	$0.5 \pm 0.2^A$			
		4.55	$8 \pm 1^A$	$0.00 \pm 0.03$ or $4.7 \pm 0.5$		
		5.11	$1.5 \pm 0.3^A$	$0.00 \pm 0.05$		
		5.34	$1.0 \pm 0.2^A$	$-0.22 \pm 0.03$ or $3.3 \pm 0.2$		
		6.84	$1.0 \pm 0.3^A$	$0.05 \pm 0.02$ or $3.3 \pm 0.2$		
		7.54	$4.0 \pm 0.3^A$	$0.02 \pm 0.03$		
		7.66	$3.5 \pm 0.3^A$	$0.14 \pm 0.04$		
		9.71 <sup>w</sup>	$\frac{9}{2}^+, \frac{11}{2}^-$	2.78	$19 \pm 3$	
				4.03	$80 \pm 4$	
				4.65	$1 \pm 1$	
0.11	$0.7 \pm 0.2^A$					
9.82 <sup>b,x</sup>	$\frac{5}{2}^-$	0.197	$41 \pm 2$			
			$41 \pm 2^A$	$0.00 \pm 0.05$		
		1.35	$2.4 \pm 0.5^A$	$-0.6 \pm 0.2$		
		1.46	$10 \pm 1$			
			$8 \pm 1^A$	$-0.07 \pm 0.05$ or $2.7 \pm 0.7$		
		1.55	$34 \pm 2$			
			$30 \pm 2^A$	$0.01 \pm 0.04$		
		4.00	$1.0 \pm 0.2^A$	$0.0 \pm 0.2$ or $\infty$		
		4.55	$0.5 \pm 0.1^A$	$0.30 \pm 0.15$		
		4.68	$4 \pm 1$			

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$
9.83 <sup>w</sup> 9.87 <sup>x</sup>	$\frac{11}{2}^- \rightarrow \frac{15}{2}^-$		$4.8 \pm 0.3^A$	$0.0 \pm 0.1$ or $-1.7 \pm 0.4$
		5.11	$0.3 \pm 0.2^A$	$0.4 \pm 0.5$ or $\infty$
		5.42	$11 \pm 1$	
			$10 \pm 1^A$	$-0.04 \pm 0.05$ or $\infty$
		5.54	$0.6 \pm 0.2^A$	$0.0 \pm 0.2$
		5.62	$0.7 \pm 0.2^A$	$0.33 \pm 0.15$ or $-3.4 \pm 1.2$
		4.65	100	
		2.78	$68 \pm 4$	
			$63 \pm 3^A$	$0.0 \pm 0.2$
		4.00	$5 \pm 1$	
			$4.2 \pm 1.0^A$	
		4.03	$24 \pm 3$	
			$24 \pm 2^A$	$-0.43 \pm 0.05$ or $2.2 \pm 0.2$
		4.65	$3 \pm 1$	
9.89 <sup>v</sup>	$\frac{1}{2}^+$		$2.1 \pm 0.8^A$	
		6.10	$3.8 \pm 0.8^A$	$0.2 \pm 0.1$ or $2.7 \pm 1.0$
		6.50	$1.9 \pm 0.7^A$	$-0.4 \pm 0.7$
		8.29	$1.0 \pm 0.3^A$	
		0.197	$15 \pm 8$	
		1.46	$15 \pm 5$	
		3.91	$32 \pm 2$	
		5.94	$4 \pm 1$	
		6.09	$13 \pm 3$	
		6.53	$16 \pm 2$	
9.93 <sup>w</sup>	$\frac{9}{2}^+$	7.66	$5 \pm 1$	
		0.197	$1 \pm 1$	
		2.78	$19 \pm 1$	
		5.46	$10 \pm 1$	
		6.07	$7 \pm 1$	
		6.33	$8 \pm 1$	
		6.50	$54 \pm 2$	
10.09 <sup>w</sup>	$\frac{5}{2}^-, \frac{7}{2}^-$	0.197	$10 \pm 1$	
		1.35	$35 \pm 2$	
		4.00	$19 \pm 2$	
		5.42	$26 \pm 2$	
		6.07	$10 \pm 1$	
		1.35	$29 \pm 4$	
10.14 <sup>w</sup>	$\frac{3}{2}^-$	1.46	$71 \pm 4$	

Table 19.7 from (1983AJ01): Radiative transitions in  $^{19}\text{F}^\dagger$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	Branching ratio (%)	$\delta$
10.37 <sup>w</sup>	$\frac{7}{2} \rightarrow \frac{11}{2}$	4.03	100	
10.41 <sup>w</sup>	$\frac{13}{2}^+$	2.78	$3 \pm 1$	
		4.68	$88 \pm 1$	
		6.50	$9 \pm 1$	

A = adopted.

<sup>†</sup> For references see [Table 19.7 in \(1978AJ03\)](#). See also [Tables 19.9, 19.15 and 19.16](#).

<sup>a</sup> [\(1981OL1E\)](#).

<sup>b</sup> See also [\(1978DI13\)](#).

<sup>c</sup> Revised to sum to 100%: see [\(1978AJ03\)](#).

<sup>d</sup> [\(1980DI12\)](#).

<sup>e</sup> Transitions to  $^{19}\text{F}^*(1.35, 1.46, 2.78)$  are  $< 4$ ,  $< 4$  and  $< 2\%$ .

<sup>f</sup>  $\Gamma_\gamma/\Gamma = 0.91 \pm 0.05$  [\(1976RO07\)](#).

<sup>g</sup> Transitions to  $^{19}\text{F}^*(1.35 + 1.46, 1.55)$  are each  $< 0.8\%$ .

<sup>h</sup>  $\Gamma_\gamma/\Gamma = 0.76 + 0.15$  [\(1976RO07\)](#).

<sup>i</sup> Transitions to  $^{19}\text{F}^*(0, 0.11)$  are each  $< 5\%$ .

<sup>j</sup> Transitions to  $^{19}\text{F}^*(0, 0.11, 1.55, 2.78)$  are  $< 0.5$ ,  $< 1.5$ ,  $< 5$  and  $< 2\%$ .

<sup>k</sup> Transitions to  $^{19}\text{F}^*(0.197, 1.35, 1.55)$  are  $< 1$ ,  $< 1.5$  and  $< 2\%$ .

<sup>l</sup> Transitions to  $^{19}\text{F}^*(0, 0.11, 1.46, 1.55)$  are  $< 5$ ,  $< 2$ ,  $< 25$  and  $< 25\%$ .

<sup>m</sup> Transitions to  $^{19}\text{F}^*(4.00, 4.03)$  are  $< 2$  and  $< 1\%$ .

<sup>n</sup> Transitions to  $^{19}\text{F}^*(1.35, 1.46, 1.55)$  are  $< 0.5$ ,  $< 1.5$  and  $< 1\%$ .

<sup>o</sup> Transitions to  $^{19}\text{F}^*(2.78, 4.38, 4.68)$  are  $< 1$ ,  $< 1$  and  $< 2\%$ .

<sup>p</sup> Transitions to  $^{19}\text{F}^*(4.00, 4.03, 4.38, 5.47)$  are  $< 3$ ,  $< 3$ ,  $< 3$  and  $< 2\%$ .

<sup>q</sup> Transitions to  $^{19}\text{F}^*(4.00, 4.03, 4.55, 4.65, 5.43, 5.47)$  are  $< 2$  to  $< 8\%$ : see [\(1978AJ03\)](#).

<sup>r</sup> Transitions to  $^{19}\text{F}^*(0.11, 0.197)$  are  $< 8$  and  $< 5\%$ .

<sup>s</sup> Transitions to other states are  $< 0.2$  to  $< 2\%$ : see [\(1978AJ03\)](#).

<sup>t</sup>  $\Gamma_\gamma = 4.7$  eV,  $\Gamma_\gamma/\Gamma = 0.65 \pm 0.10$ ; see [Table 19.9 in \(1972AJ02\)](#). Transitions to  $^{19}\text{F}^*(0.11, 1.35, 1.46, 4.38)$  are  $< 0.4$ ,  $< 1.3$ ,  $< 1$  and  $< 1.3\%$ .

<sup>u</sup> Transitions to other states are  $< 7$  to  $< 10\%$ .

<sup>v</sup> [\(1980WI17\)](#).

<sup>w</sup> [\(1978SY01\)](#): branching ratios are relative intensities at  $\theta = 55^\circ$ .

<sup>x</sup> First branching ratio value shown for each transition is from [\(1978SY01\)](#); second is from [\(1980WI17\)](#).

Where only one value is shown it is from [\(1980WI17\)](#), except when footnoted.