

Table 15.5 from (1986AJ01): Radiative decays in  $^{15}\text{N}^a$ 

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	$J_f^\pi$	Branch (%)	Mult. mixing ratio $\delta$
5.27	$\frac{5}{2}^+$	0	$\frac{1}{2}^-$	100	$-0.131 \pm 0.013$
5.30	$\frac{1}{2}^+$	0	$\frac{1}{2}^-$	100	
6.32 <sup>b</sup>	$\frac{3}{2}^-$	0	$\frac{1}{2}^-$	100	$+0.132 \pm 0.004^p$
7.16 <sup>c</sup>	$\frac{5}{2}^+$	5.27	$\frac{5}{2}^+$	$100 \pm 0.4$	$-0.014^{+0.012}_{-0.015}$
7.30	$\frac{3}{2}^+$	0	$\frac{1}{2}^-$	$99.3 \pm 0.7$	$-0.017^{+0.005}_{-0.008}$
		5.27	$\frac{5}{2}^+$	$0.6 \pm 0.1$	$+0.18 \pm 0.15$ , or $+2.5 \pm 1.0$
		5.30	$\frac{1}{2}^+$	$0.2 \pm 0.1$	$-0.31 \pm 0.15$ , or $+4.6 \pm 3.4$
		6.32	$\frac{3}{2}^-$	$< 0.25$	
7.57 <sup>d</sup>	$\frac{7}{2}^+$	0	$\frac{1}{2}^-$	$1.3 \pm 0.6$	
		5.27	$\frac{5}{2}^+$	$98.7 \pm 1.0$	$-0.028 \pm 0.012$
8.31	$\frac{1}{2}^+$	0	$\frac{1}{2}^-$	$79 \pm 2$	
		5.27	$\frac{5}{2}^+$	$< 3$	
		5.30	$\frac{1}{2}^+$	$10 \pm 2$	
		6.32	$\frac{3}{2}^-$	$4.4 \pm 1.0$	
		7.16	$\frac{5}{2}^+$	$1.2 \pm 0.6$	
		7.30	$\frac{3}{2}^+$	$4.4 \pm 0.7$	
8.57 <sup>e</sup>	$\frac{3}{2}^+$	0	$\frac{1}{2}^-$	$33 \pm 2$	$-0.085^{+0.005}_{-0.009}$
		5.27	$\frac{5}{2}^+$	$65 \pm 3$	$-0.091 \pm 0.007$
		6.32	$\frac{3}{2}^-$	$1.4 \pm 0.6$	
		7.16	$\frac{5}{2}^+$	$3.6 \pm 0.5$	
9.05 <sup>f</sup>	$\frac{1}{2}^+$	0	$\frac{1}{2}^-$	$92 \pm 3$	
		5.27	$\frac{5}{2}^+$	$3.5 \pm 1$	
		6.32	$\frac{3}{2}^-$	$4.5 \pm 1$	
		7.30	$\frac{3}{2}^+$	$1.2 \pm 0.4$	
9.152	$\frac{3}{2}^-$	0	$\frac{1}{2}^-$	$100 \pm 3$	$+0.015^{+0.041}_{-0.034}$
9.155	$\frac{5}{2}^+$	0	$\frac{1}{2}^-$	$< 2$	
		5.27	$\frac{5}{2}^+$	$11 \pm 1$	
		5.30	$\frac{1}{2}^+$	$10 \pm 1$	
		6.32	$\frac{3}{2}^-$	$22 \pm 2$	
		7.16	$\frac{5}{2}^+$	$57 \pm 3$	

Table 15.5 from (1986AJ01): Radiative decays in  $^{15}\text{N}^a$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	$J_f^\pi$	Branch (%)	Mult. mixing ratio $\delta$
9.23 <sup>g</sup>	$\frac{1}{2}^-$	0	$\frac{1}{2}^-$	$22 \pm 5$	
		5.30	$\frac{1}{2}^+$	$42 \pm 8$	
		6.32	$\frac{3}{2}^-$	$35 \pm 6$	
		7.30	$\frac{3}{2}^+$	$2.6 \pm 0.7$	
9.76 <sup>h</sup>	$\frac{5}{2}^-$	0	$\frac{1}{2}^-$	$81.5 \pm 2.8$	
		5.27 + 5.30		$7.5 \pm 1.5$	
		6.32	$\frac{3}{2}^-$	$3.7 \pm 0.8$	
		7.16	$\frac{5}{2}^+$	$2.3 \pm 0.5$	
		7.57	$\frac{7}{2}^+$	$5.0 \pm 0.6$	
9.83 <sup>i</sup>	$\frac{7}{2}^-$	5.27	$\frac{5}{2}^+$	$\approx 85$	
		6.32	$\frac{3}{2}^-$	$2.2 \pm 0.9$	
		7.16	$\frac{5}{2}^+$	$2.4 \pm 1.1$	
		7.30	$\frac{3}{2}^+$	$3.7 \pm 0.9$	
		7.57	$\frac{7}{2}^+$	$7.3 \pm 1.0$	
9.93 <sup>j</sup>	$\frac{3}{2}^-$	0	$\frac{1}{2}^-$	$77.6 \pm 1.9$	
		5.27 + 5.30		$15.4 \pm 1.5$	
		6.32	$\frac{3}{2}^-$	$4.9 \pm 1.2$	
		7.30	$\frac{3}{2}^+$	$2.1 \pm 0.8$	
10.07 <sup>k</sup>	$\frac{3}{2}^+$	0	$\frac{1}{2}^-$	$96.0 \pm 0.7$	
10.45 <sup>l</sup>	$\frac{5}{2}^-$	5.27	$\frac{5}{2}^+$	$55.0 \pm 0.8$	$+0.021 \pm 0.033$
		6.32	$\frac{3}{2}^-$	$31.3 \pm 1.7$	$-0.59 \pm 0.13$
		7.16	$\frac{5}{2}^+$	$5.2 \pm 0.1$	$+0.13^{+0.03}_{-0.04}$
		8.57	$\frac{3}{2}^+$	$3.8 \pm 0.6$	$-0.3 \pm 0.4$
		9.152	$\frac{3}{2}^-$	$4.7 \pm 0.1$	$-0.32^{+0.09}_{-0.10}$
10.53	$\frac{5}{2}^+$	0	$\frac{1}{2}^-$	$< 0.1$	
		5.27	$\frac{5}{2}^+$	$38.7 \pm 0.2$	$-0.27 \pm 0.03$
		6.32	$\frac{3}{2}^-$	$7.7 \pm 0.1$	$-0.28 \pm 0.004$
		7.16	$\frac{5}{2}^+$	$19.4 \pm 0.2$	$+0.007^{+0.010}_{-0.008}$
		7.30	$\frac{3}{2}^+$	$31.4 \pm 0.5$	$+0.066 \pm 0.005$

Table 15.5 from (1986AJ01): Radiative decays in  $^{15}\text{N}^a$  (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	$J_f^\pi$	Branch (%)	Mult. mixing ratio $\delta$
10.69	$\frac{9}{2}^+$	8.57	$\frac{3}{2}^+$	$2.4 \pm 0.1$	$+0.012_{-0.005}^{+0.006}$
		9.152	$\frac{3}{2}^-$	$0.3 \pm 0.1$	$-0.20_{-0.02}^{+0.03}$
		5.27	$\frac{5}{2}^+$	$61.6 \pm 0.3$	
		7.16	$\frac{5}{2}^+$	$2.1 \pm 0.1$	$-0.03 \pm 0.07$
10.70	$\frac{3}{2}^-$	7.57	$\frac{7}{2}^+$	$36.3 \pm 0.6$	$+0.118 \pm 0.008$
		0	$\frac{1}{2}^-$	$52.6 \pm 0.8$	$+0.180_{-0.002}^{+0.006}$
		5.27	$\frac{5}{2}^+$	$37.4 \pm 0.6$	$-0.24_{-0.008}^{+0.004}$
		5.30	$\frac{1}{2}^+$	$0.8 \pm 0.1$	$-0.13 \pm 0.07$
		6.32	$\frac{3}{2}^-$	$3.8 \pm 0.1$	$+0.135 \pm 0.015$
		7.16	$\frac{5}{2}^+$	$0.4 \pm 0.1$	$0.3 \pm 0.3$
		7.30	$\frac{3}{2}^+$	$2.3 \pm 0.1$	$-0.027 \pm 0.023$
		8.31	$\frac{1}{2}^+$	$0.8 \pm 0.1$	$-0.017_{-0.016}^{+0.018}$
		9.05	$\frac{1}{2}^+$	$0.2 \pm 0.1$	$-0.007 \pm 0.12$
		9.152	$\frac{3}{2}^-$	$0.2 \pm 0.1$	$-0.11 \pm 0.03$
10.80 <sup>m</sup>	$\frac{3}{2}^+$	9.23	$\frac{1}{2}^-$	$1.5 \pm 0.1$	$+0.049_{-0.005}^{+0.006}$
		0	$\frac{1}{2}^-$	$51.5 \pm 0.4$	$-0.02 \pm 0.01$
		5.27	$\frac{5}{2}^+$	$4.9 \pm 0.1$	$-0.63 \pm 0.04$
		5.30	$\frac{1}{2}^+$	$15.5 \pm 0.2$	$-0.55 \pm 0.02$
		6.32	$\frac{3}{2}^-$	$5.4 \pm 0.2$	$-0.07 \pm 0.05$
		7.16	$\frac{5}{2}^+$	$7.8 \pm 0.1$	$+0.14 \pm 0.03$
		7.30	$\frac{3}{2}^+$	$5.8 \pm 0.1$	$-0.12 \pm 0.02$
		8.31	$\frac{1}{2}^+$	$3.6 \pm 0.1$	$+0.12 \pm 0.03$
		9.05	$\frac{1}{2}^+$	$0.3 \pm 0.1$	
		9.152	$\frac{3}{2}^-$	$0.9 \pm 0.1$	
		9.155	$\frac{5}{2}^-$	$4.2 \pm 0.1$	
		11.62 <sup>n</sup>	$\frac{1}{2}^+; T = \frac{3}{2}$	0	$\frac{1}{2}^-$
5.27	$\frac{5}{2}^+$			$< 1$	
5.30	$\frac{1}{2}^+$			$7.4 \pm 1.5$	
6.32	$\frac{3}{2}^-$			$1.9 \pm 1.5$	
12.52	$\frac{5}{2}^+; T = \frac{3}{2}$	0	$\frac{1}{2}^-$	$< 1$	

Table 15.5 from (1986AJ01): Radiative decays in  $^{15}\text{N}$  <sup>a</sup> (continued)

$E_i$ (MeV)	$J_i^\pi$	$E_f$ (MeV)	$J_f^\pi$	Branch (%)	Mult. mixing ratio $\delta$
13.39 <sup>o</sup>	$\frac{3}{2}^+$	5.27	$\frac{5}{2}^+$	$94.2 \pm 0.6$	$-0.02 \pm 0.04$
		5.30	$\frac{1}{2}^+$	< 1	
		6.32	$\frac{3}{2}^-$	$5.8 \pm 0.6$	$-0.02 \pm 0.04$
		0	$\frac{1}{2}^-$	100	

<sup>a</sup> See also Tables 15.6, 15.13 and 15.16. For references see Table 15.4 in (1981AJ01). Please note that (1976BE1B) is an unpublished Ph.D. thesis.

<sup>b</sup> Transitions to  $^{15}\text{N}^*(5.27, 5.30)$  are < 0.1% and < 0.05%, respectively (1975MO28).

<sup>c</sup> Transitions to  $^{15}\text{N}^*(0, 5.30, 6.32)$  are < 0.1%, < 4% and < 0.5%.

<sup>d</sup> Transitions to  $^{15}\text{N}^*(5.30, 6.32)$  are < 4% and < 0.6%.

<sup>e</sup> Transitions to  $^{15}\text{N}^*(5.30, 7.30, 7.57)$  are < 12%, < 0.7% and < 3%.

<sup>f</sup> Transitions to  $^{15}\text{N}^*(7.16, 7.57, 8.31)$  are < 10%, < 2% and < 0.5%.

<sup>g</sup> Transitions to  $^{15}\text{N}^*(7.16, 7.57, 8.31)$  are < 1%, < 20% and < 5%.

<sup>h</sup> Transitions to  $^{15}\text{N}^*(7.30, 8.31, 8.57)$  are < 2%, < 1% and < 2%.

<sup>i</sup> Transitions to  $^{15}\text{N}^*(0, 5.30)$  are < 4% and < 15%.

<sup>j</sup> Transitions to  $^{15}\text{N}^*(7.16, 7.57, 8.31, 8.57)$  are each < 1%.

<sup>k</sup> For upper limits for transitions to other states see Table 15.4 (1981AJ01).

<sup>l</sup> Transitions to  $^{15}\text{N}^*(0, 5.30, 9.83)$  are < 12%, < 2% and < 0.1%.

<sup>m</sup>  $\pi$  is + because if  $\pi$  were - the  $\Gamma_\gamma$  and  $\delta$  of the  $10.80 \rightarrow 5.30$  MeV transition would lead to an unacceptably high M2 value (33 W.u.) (P.M. Endt, private communication).

<sup>n</sup> See footnote <sup>g</sup> in Table 15.4 (1981AJ01).

<sup>o</sup>  $\Gamma_{\gamma_0} = 3.0 \pm 0.9$  eV,  $\Gamma_p \Gamma_{\gamma_0} / \Gamma = 1.70 \pm 0.5$  eV;  $\delta = 0.00 \pm 0.04$  (M2/E1);  $B(E1) = (1.2 \pm 0.4) \times 10^{-3} e^2 \cdot \text{fm}^2$ . Transitions to  $^{15}\text{N}^*(5.27, 5.30) < 8\%$  and to  $^{15}\text{N}^*(6.32, 7.16, 7.30) < 5\%$ .

<sup>p</sup> Weighted mean of all measurements (E.K. Warburton, private communication).