Table 15.4 from (1981AJ01): Radiative decays in $^{15}$N [a]

| $E_i$ (MeV) | $J_i^\pi$ | $E_f$ (MeV) | $J_f^\pi$ | Branch (%) | Mult. mixing ratio $\delta$ | Refs. |
|---|---|---|---|---|---|---|
| 5.27 | $\frac{5}{2}^+$ | 0 | $\frac{1}{2}^-$ | 100 | $-0.131 \pm 0.013$ | (1975BE23, 1976BE1B) |
| 5.30 | $\frac{1}{2}^+$ | 0 | $\frac{1}{2}^-$ | 100 | | |
| 6.32 | $\frac{3}{2}^-$ | 0 | $\frac{1}{2}^-$ | 100 | $+0.122 \pm 0.006$ [k] | (1975MO28, 1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $< 1$ | | (1965WA16, 1975MO28) |
| | | 5.30 | $\frac{1}{2}^+$ | $< 0.5$ | | (1975MO28) |
| 7.16 | $\frac{5}{2}^+$ | 0 | $\frac{1}{2}^-$ | $< 0.1$ | | (1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $100 \pm 0.4$ | $-0.014^{+0.012}_{-0.015}$ | (1976BE1B) |
| | | 5.30 | $\frac{1}{2}^+$ | $< 4$ | | (1966AL18, 1968GI11) |
| | | 6.32 | $\frac{3}{2}^-$ | $< 0.5$ | | (1965WA16) |
| 7.30 | $\frac{3}{2}^+$ | 0 | $\frac{1}{2}^-$ | $99.3 \pm 0.7$ | $-0.017^{+0.005}_{-0.008}$ | (1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $0.6 \pm 0.1$ | $+0.18 \pm 0.15$, or $+2.5 \pm 1.0$ | (1976BE1B) |
| | | 5.30 | $\frac{1}{2}^+$ | $0.2 \pm 0.1$ | $-0.31 \pm 0.15$, or $+4.6 \pm 3.4$ | (1976BE1B) |
| | | 6.32 | $\frac{3}{2}^-$ | $< 0.25$ | | (1965WA16) |
| 7.57 | $\frac{7}{2}^+$ | 0 | $\frac{1}{2}^-$ | $1.3 \pm 0.6$ | | (1975BE23, 1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $98.7 \pm 1.0$ | $-0.028 \pm 0.012$ | (1976BE1B) |
| | | 5.30 | $\frac{1}{2}^+$ | $< 4$ | | (1966AL18) |
| | | 6.32 | $\frac{3}{2}^-$ | $< 0.6$ | | (1965WA16) |
| 8.31 | $\frac{1}{2}^+$ | 0 | $\frac{1}{2}^-$ | $79 \pm 2$ | | (1965WA16, 1966WA08, 1967PH03) |
| | | 5.27 | $\frac{5}{2}^+$ | $< 3$ | | (1965WA16) |
| | | 5.30 | $\frac{1}{2}^+$ | $10 \pm 2$ | | (1965WA16) |
| | | 6.32 | $\frac{3}{2}^-$ | $7.8 \pm 2$ | | (1965WA16) |
| | | | | $4.4 \pm 1.0$ [A] | | (1967PH03) |
| | | 7.16 | $\frac{5}{2}^+$ | $1.2 \pm 0.6$ | | (1967PH03) |
| | | 7.30 | $\frac{3}{2}^+$ | $2.2 \pm 0.4$ | | (1965WA16) |
| | | | | $4.4 \pm 0.7$ [A] | | (1967PH03) |
| 8.57 [c] | $\frac{3}{2}^+$ | 0 | $\frac{1}{2}^-$ | $33 \pm 2$ | | (1965WA16, 1966WA08, 1967PH03) |
| | | | | | $-0.085^{+0.005}_{-0.009}$ | (1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $65 \pm 3$ | | (1966WA08) |
| | | | | | $-0.091 \pm 0.007$ | (1976BE1B) |
| | | 5.30 | $\frac{1}{2}^+$ | $< 12$ | | (1965WA16) |
| | | 6.32 | $\frac{3}{2}^-$ | $3 \pm 1$ | | (1965WA16) |
| | | | | $1.4 \pm 0.6$ [A] | | (1967PH03) |
| | | 7.16 | $\frac{5}{2}^+$ | $3.6 \pm 0.5$ | | (1967PH03) |
| | | 7.30 | $\frac{3}{2}^+$ | $< 0.7$ | | (1965WA16) |
| | | 7.57 | $\frac{7}{2}^+$ | $< 3$ | | (1965WA16, 1966WA08) |
| 9.05 | $\frac{1}{2}^+$ | 0 | $\frac{1}{2}^-$ | $92 \pm 3$ [A] | | (1965WA16, 1966WA08) |

Table 15.4 from (1981AJ01): Radiative decays in $^{15}$N [a] (continued)

| $E_i$ (MeV) | $J_i^\pi$ | $E_f$ (MeV) | $J_f^\pi$ | Branch (%) | Mult. mixing ratio $\delta$ | Refs. |
|---|---|---|---|---|---|---|
| | | | | $91.6 \pm 00.9$ | | (1967PH03) |
| | | 5.27 | $\frac{5}{2}^+$ | $3.5 \pm 1$ [A] | | (1966WA08) |
| | | | | $4.7 \pm 0.7$ | | (1967PH03) |
| | | 6.32 | $\frac{3}{2}^-$ | $4.5 \pm 1$ [A] | | (1966WA08) |
| | | | | $3.7 \pm 0.5$ | | (1967PH03) |
| | | 7.16 | $\frac{5}{2}^+$ | $< 10$ | | (1965WA16) |
| | | 7.30 | $\frac{3}{2}^+$ | $1.2 \pm 0.4$ [A] | | (1965WA16) |
| | | 7.57 | $\frac{7}{2}^+$ | $< 2$ | | (1965WA16) |
| | | 8.31 | $\frac{1}{2}^+$ | $< 0.5$ | | (1965WA16) |
| 9.152 | $\frac{3}{2}^-$ | 0 | $\frac{1}{2}^-$ | $100 \pm 3$ | | (1969SI04, 1976BE1B) |
| | | | | | $+0.015^{+0.041}_{-0.034}$ | (1976BE1B) |
| 9.155 [c,d] | $\frac{5}{2}^+$ | 0 | $\frac{1}{2}^-$ | $< 2$ | | (1978HA39) |
| | | 5.27 | $\frac{5}{2}^+$ | $11 \pm 1$ | | (1978HA39) |
| | | 5.30 | $\frac{1}{2}^+$ | $10 \pm 1$ | | (1978HA39) |
| | | 6.32 | $\frac{3}{2}^-$ | $22 \pm 2$ | | (1978HA39) |
| | | 7.16 | $\frac{5}{2}^+$ | $57 \pm 3$ | | (1978HA39) |
| 9.23 [e] | $\frac{1}{2}^-$ | 0 | $\frac{1}{2}^-$ | $22 \pm 5$ | | (1979HA38) |
| | | 5.30 | $\frac{1}{2}^+$ | $42 \pm 8$ | | (1979HA38) |
| | | 6.32 | $\frac{3}{2}^-$ | $35 \pm 6$ | | (1979HA38) |
| | | 7.16 | $\frac{5}{2}^+$ | $< 30$ | | (1965WA16) |
| | | | | $< 1$ | | (1967PH03) |
| | | 7.30 | $\frac{3}{2}^+$ | $< 30$ | | (1965WA16) |
| | | | | $2.6 \pm 0.7$ | | (1967PH03) |
| | | 7.57 | $\frac{7}{2}^+$ | $< 20$ | | (1965WA16) |
| | | 8.31 | $\frac{1}{2}^+$ | $< 5$ | | (1965WA16) |
| 9.76 [c] | $\frac{5}{2}^-$ | 0 | $\frac{1}{2}^-$ | $81.5 \pm 2.8$ | | (1967PH03) |
| | | $5.27 + 5.30$ | | $7.5 \pm 1.5$ | | (1967PH03) |
| | | 6.32 | $\frac{3}{2}^-$ | $3.7 \pm 0.8$ | | (1967PH03) |
| | | 7.16 | $\frac{5}{2}^+$ | $2.3 \pm 0.5$ | | (1967PH03) |
| | | 7.57 | $\frac{7}{2}^+$ | $5.0 \pm 0.6$ | | (1967PH03) |
| | | 8.31 | $\frac{1}{2}^+$ | $< 1$ | | (1967PH03) |
| | | 8.57 | $\frac{3}{2}^+$ | $< 2$ | | (1965WA16, 1967PH03) |
| 9.83 [c] | $\frac{7}{2}^-$ | 0 | $\frac{1}{2}^-$ | $< 4$ | | (1967PH03) |
| | | 5.27 | $\frac{5}{2}^+$ | $\approx 85$ | | (1965WA16, 1967PH03) |
| | | 5.30 | $\frac{1}{2}^+$ | $< 15$ | | (1965WA16) |
| | | 6.32 | $\frac{3}{2}^-$ | $2.2 \pm 0.9$ | | (1967PH03) |
| | | 7.16 | $\frac{5}{2}^+$ | $2.4 \pm 1.1$ | | (1967PH03) |
| | | 7.30 | $\frac{3}{2}^+$ | $3.7 \pm 0.9$ | | (1967PH03) |

Table 15.4 from (1981AJ01): Radiative decays in $^{15}$N [a] (continued)

| $E_i$ (MeV) | $J_i^\pi$ | $E_f$ (MeV) | $J_f^\pi$ | Branch (%) | Mult. mixing ratio $\delta$ | Refs. |
|---|---|---|---|---|---|---|
| | | 7.57 | $\frac{7}{2}^+$ | $7.3 \pm 1.0$ | | (1967PH03) |
| 9.93 | $\frac{3}{2}^-$ | 0 | $\frac{1}{2}^-$ | $77.6 \pm 1.9$ | | (1967PH03) |
| | | $5.27 + 5.30$ | | $15.4 \pm 1.5$ | | (1967PH03) |
| | | 6.32 | $\frac{3}{2}^-$ | $4.9 \pm 1.2$ | | (1967PH03) |
| | | 7.16 | $\frac{5}{2}^+$ | $< 1$ | | (1967PH03) |
| | | 7.30 | $\frac{3}{2}^+$ | $2.1 \pm 0.8$ | | (1967PH03) |
| | | 7.57 | $\frac{7}{2}^+$ | $< 1$ | | (1967PH03) |
| | | 8.31 | $\frac{1}{2}^+$ | $< 1$ | | (1967PH03) |
| | | 8.57 | $\frac{3}{2}^+$ | $< 1$ | | (1967PH03) |
| 10.07 | $\frac{3}{2}^+$ | 0 | $\frac{1}{2}^-$ | $96.0 \pm 0.7$ | | (1967PH03) |
| | | $5.27 + 5.30$ | | $4.0 \pm 0.7$ | | (1967PH03) |
| | | 6.32, 7.16, 7.30, 7.57 | | $< 2$ | | (1966WA08) |
| | | 8.31 | $\frac{1}{2}^+$ | $< 2$ | | (1965WA16) |
| | | 8.57 | $\frac{3}{2}^+$ | $< 3$ | | (1965WA16) |
| 10.45 | $\frac{5}{2}^-$ | 0 | $\frac{1}{2}^-$ | $< 12$ | | (1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $55.0 \pm 0.8$ | $+0.021 \pm 0.033$ | (1976BE1B) |
| | | 5.30 | $\frac{1}{2}^+$ | $< 2$ | | (1976BE1B) |
| | | 6.32 | $\frac{3}{2}^-$ | $31.3 \pm 1.7$ | $-0.59 \pm 0.13$ | (1976BE1B) |
| | | 7.16 | $\frac{5}{2}^+$ | $5.2 \pm 0.1$ | $+0.13^{+0.03}_{-0.04}$ | (1976BE1B) |
| | | 8.57 | $\frac{3}{2}^+$ | $3.8 \pm 0.6$ | $-0.3 \pm 0.4$ | (1976BE1B) |
| | | 9.152 | $\frac{3}{2}^-$ | $4.7 \pm 0.1$ | $-0.32^{+0.09}_{-0.10}$ | (1976BE1B) |
| | | 9.83 | $\frac{7}{2}$ | $< 0.1$ | | (1976BE1B) |
| 10.53 | $\frac{5}{2}^+$ | 0 | $\frac{1}{2}^-$ | $< 0.1$ | | (1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $38.7 \pm 0.2$ | $-0.27 \pm 0.03$ | (1976BE1B) |
| | | 6.32 | $\frac{3}{2}^-$ | $7.7 \pm 0.1$ | $-0.028 \pm 0.004$ | (1976BE1B) |
| | | 7.16 | $\frac{5}{2}^+$ | $19.4 \pm 0.2$ | $+0.007^{+0.010}_{-0.008}$ | (1976BE1B) |
| | | 7.30 | $\frac{3}{2}^+$ | $31.4 \pm 0.5$ | $+0.066 \pm 0.005$ | (1976BE1B) |
| | | 8.57 | $\frac{3}{2}^+$ | $2.4 \pm 0.1$ | $+0.012^{+0.006}_{-0.005}$ | (1976BE1B) |
| | | 9.152 | $\frac{3}{2}^-$ | $0.3 \pm 0.1$ | $-0.20^{+0.03}_{-0.02}$ | (1976BE1B) |
| 10.69 [c] | $\frac{9}{2}^+$ | 5.27 | $\frac{5}{2}^+$ | $61.6 \pm 0.3$ | | (1975BE23, 1976BE1B) |
| | | 7.16 | $\frac{5}{2}^+$ | $2.1 \pm 0.1$ | $-0.03 \pm 0.07$ | (1975BE23, 1976BE1B) |
| | | 7.57 | $\frac{7}{2}^+$ | $36.3 \pm 0.6$ | $+0.118 \pm 0.008$ | (1975BE23, 1976BE1B) |
| 10.70 [f] | $\frac{3}{2}^-$ | 0 | $\frac{1}{2}^-$ | $52.6 \pm 0.8$ | $+0.180^{+0.006}_{-0.002}$ | (1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $37.4 \pm 0.6$ | $-0.24^{+0.004}_{-0.008}$ | (1976BE1B) |
| | | 5.30 | $\frac{1}{2}^+$ | $0.8 \pm 0.1$ | $-0.13 \pm 0.07$ | (1976BE1B) |
| | | 6.32 | $\frac{3}{2}^-$ | $3.8 \pm 0.1$ | $+0.135 \pm 0.015$ | (1976BE1B) |
| | | 7.16 | $\frac{5}{2}^+$ | $0.4 \pm 0.1$ | $0.3 \pm 0.3$ | (1976BE1B) |

Table 15.4 from (1981AJ01): Radiative decays in $^{15}$N [a] (continued)

| $E_i$ (MeV) | $J_i^\pi$ | $E_f$ (MeV) | $J_f^\pi$ | Branch (%) | Mult. mixing ratio $\delta$ | Refs. |
|---|---|---|---|---|---|---|
| | | 7.30 | $\frac{3}{2}^+$ | $2.3 \pm 0.1$ | $-0.027 \pm 0.023$ | (1976BE1B) |
| | | 8.31 | $\frac{1}{2}^+$ | $0.8 \pm 0.1$ | $-0.017^{+0.018}_{-0.016}$ | (1976BE1B) |
| | | 9.05 | $\frac{1}{2}^+$ | $0.2 \pm 0.1$ | $-0.007 \pm 0.12$ | (1976BE1B) |
| | | 9.152 | $\frac{3}{2}^-$ | $0.2 \pm 0.1$ | $-0.11 \pm 0.03$ | (1976BE1B) |
| | | 9.23 | $\frac{1}{2}^-$ | $1.5 \pm 0.1$ | $+0.049^{+0.006}_{-0.005}$ | (1976BE1B) |
| 10.80 | $\frac{3}{2}^+$ [l] | 0 | $\frac{1}{2}^-$ | $51.5 \pm 0.4$ | $-0.02 \pm 0.01$ [f] | (1976BE1B) |
| | | 5.27 | $\frac{5}{2}^+$ | $4.9 \pm 0.1$ | $-0.63 \pm 0.04$ [f] | (1976BE1B) |
| | | 5.30 | $\frac{1}{2}^+$ | $15.5 \pm 0.2$ | $-0.55 \pm 0.02$ [f] | (1976BE1B) |
| | | 6.32 | $\frac{3}{2}^-$ | $5.4 \pm 0.2$ | $-0.07 \pm 0.05$ [f] | (1976BE1B) |
| | | 7.16 | $\frac{5}{2}^+$ | $7.8 \pm 0.1$ | $+0.14 \pm 0.03$ [f] | (1976BE1B) |
| | | 7.30 | $\frac{3}{2}^+$ | $5.8 \pm 0.1$ | $-0.12 \pm 0.02$ [f] | (1976BE1B) |
| | | 8.31 | $\frac{1}{2}^+$ | $3.6 \pm 0.1$ | $+0.12 \pm 0.03$ [f] | (1976BE1B) |
| | | 9.05 | $\frac{1}{2}^+$ | $0.3 \pm 0.1$ | | (1976BE1B) |
| | | 9.152 | $\frac{3}{2}^-$ | $0.9 \pm 0.1$ | | (1976BE1B) |
| | | 9.155 | $\frac{5}{2}$ | $4.2 \pm 0.1$ | | (1976BE1B) |
| 11.62 [g] | $\frac{1}{2}^+; T = \frac{3}{2}$ | 0 | $\frac{1}{2}^-$ | $90.7 \pm 3.0$ | | (1971KU01) |
| | | 5.27 | $\frac{5}{2}^+$ | $< 1$ | | (1971KU01) |
| | | 5.30 | $\frac{1}{2}^+$ | $7.4 \pm 1.5$ | | (1971KU01) |
| | | 6.32 | $\frac{3}{2}^-$ | $1.9 \pm 1.5$ | | (1971KU01) |
| 12.52 | $\frac{5}{2}^+; T = \frac{3}{2}$ | 0 | $\frac{1}{2}^-$ | $< 1$ | | (1971KU01) |
| | | 5.27 | $\frac{5}{2}^+$ | $94.2 \pm 0.6$ [h] | | (1971YO03) |
| | | 5.30 | $\frac{1}{2}^+$ | $< 1$ | | (1971KU01) |
| | | 6.32 | $\frac{3}{2}^-$ | $5.8 \pm 0.6$ [i] | | (1971YO03) |
| 13.39 [j] | $\frac{3}{2}^+$ | 0 | $\frac{1}{2}^-$ | 100 | | (1976KU01) |

A = adopted.

[a] See also Tables 15.5 and 15.17.

[b] Please note that (1976BE1B) is an unpublished Ph.D. thesis.

[c] See also (1979HA38).

[d] See also Table 15.5 in (1976AJ04).

[e] See also (1967PH03).

[f] See (1969SI04).

[g] $\Gamma_\gamma = 49 \pm 20$, $4 \pm 2$, $1.0 \pm 0.8$ eV for transitions to $^{15}$N*(0, 5.30, 6.32) (1971KU01): see however Table 15.12.

[h] $\Gamma_\gamma = 4.3 \pm 0.7$ eV (1971YO03); $\delta = -0.02 \pm 0.04$ (E2/M1) (1971KU01).

[i] $\Gamma_\gamma = 0.27 \pm 0.05$ eV (1971YO03); $\delta = -0.02 \pm 0.04$ (E2/M1) (1971KU01).

[j] $\Gamma_{\gamma_0} = 3.0 \pm 0.9$ eV, $\Gamma_p \Gamma_{\gamma_0}/\Gamma = 1.70 \pm 0.5$ eV; $\delta = 0.00 \pm 0.04$ (M2/E1); $B$(E1) $= (1.2 \pm 0.4) \times 10^{-3}\ e^2 \cdot$ fm$^2$. Transitions to $^{15}$N*(5.27, 5.30) $< 8$% and to $^{15}$N*(6.32, 7.16, 7.30) $< 5$% (1976KU01).

[k] See also Table 15.17.

[l] $\pi$ 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).