Table 2 from (1988AJ01): Electromagnetic transitions in $A = 5 - 10$ [a]

| Nucleus | $E_{xi} \to E_{xf}$ (MeV) | $J_i^\pi \to J_f^\pi$ [b] | $\Gamma_\gamma$ (eV) | Mult. | $S$ (W.u.) |
|---|---|---|---|---|---|
| $^{5}$He | $16.75 \to 0$ | $\frac{3}{2}^+ \to \frac{3}{2}^-$ | $2.1 \pm 0.4$ | E1 | $(2.3 \pm 0.4) \times 10^{-3}$ |
| $^{5}$Li | $16.66 \to 0$ | $\frac{3}{2}^+ \to \frac{3}{2}^-$ | $5 \pm 1$ | E1 | $(5 \pm 1) \times 10^{-3}$ |
| $^{6}$Li [c] | $2.19 \to 0$ | $3^+ \to 1^+$ | $(4.40 \pm 0.34) \times 10^{-4}$ | E2 | $16.5 \pm 1.3$ |
| | $3.56 \to 0$ | $0^+; 1 \to 1^+; 0$ | $8.19 \pm 0.17$ | M1 | $8.62 \pm 0.18$ |
| | $4.31 \to 0$ | $2^+ \to 1^+$ | $(5.4 \pm 2.8) \times 10^{-3}$ | E2 | $6.8 \pm 3.5$ |
| | $5.37 \to 0$ | $2^+; 1 \to 1^+; 0$ | $0.27 \pm 0.05$ | M1 | $(8.3 \pm 1.5) \times 10^{-2}$ |
| $^{7}$Li [d] | $0.48 \to 0$ | $\frac{1}{2}^- \to \frac{3}{2}^-$ | $(6.30 \pm 0.31) \times 10^{-3}$ | M1 | $2.75 \pm 0.14$ |
| | | | $(3.3 \pm 0.2) \times 10^{-7}$ | E2 | $19.7 \pm 1.2$ |
| | $4.63 \to 0$ | $\frac{7}{2}^- \to \frac{3}{2}^-$ | $6 \times 10^{-3}$ | E2 | 4.3 |
| $^{7}$Be | $0.43 \to 0$ | $\frac{1}{2}^- \to \frac{3}{2}^-$ | $(3.43 \pm 0.45) \times 10^{-3}$ | M1 | $2.07 \pm 0.27$ |
| $^{8}$Li | $0.98 \to 0$ | $1^+ \to 2^+$ | $(5.5 \pm 1.8) \times 10^{-2}$ | M1 | $2.8 \pm 0.9$ |
| | $2.26 \to 0$ | $3^+ \to 2^+$ | $(7.0 \pm 3.0) \times 10^{-2}$ | M1 | $0.29 \pm 0.13$ |
| $^{8}$Be [e] | $16.75 \to 3.04$ | $2^+; 1 \to 2^+; 0$ | $6.4 \pm 0.5$ | M1 | $0.12 \pm 0.01$ |
| | $17.64 \to 0$ | $1^+; 1 \to 0^+; 0$ | 16.7 | M1 | 0.145 |
| | $\to 3.04$ | $\to 2^+; 0$ | $8.15 \pm 0.07$ | M1 | $0.122 \pm 0.001$ |
| | | | $0.15 \pm 0.07$ | E2 | $0.28 \pm 0.13$ |
| | $\to 16.63$ | $\to 2^+; 0+1$ | $(3.2 \pm 0.3) \times 10^{-2}$ | M1 | $1.5 \pm 0.2$ |
| | $\to 16.92$ | $\to 2^+; 0+1$ | $(1.3 \pm 0.3) \times 10^{-3}$ | M1 | $0.17 \pm 0.04$ |
| | $18.15 \to 0$ | $1^+; 0 \to 0^+; 0$ | 3.0 | M1 | $2.4 \times 10^{-2}$ |
| | $\to 3.04$ | $\to 2^+; 0$ | 3.8 | M1 | $5.1 \times 10^{-2}$ |
| | $\to 16.63$ | $\to 2^+; 0+1$ | $(7.7 \pm 1.9) \times 10^{-2}$ | M1 | $1.0 \pm 0.3$ |
| | $\to 16.92$ | $\to 2^+; 0+1$ | $(6.2 \pm 0.7) \times 10^{-2}$ | M1 | $1.6 \pm 0.2$ |
| | $18.91 \to 16.63$ | $2^-; 0 \to 2^+; 0+1$ | 0.168 | E1 | $5.21 \times 10^{-2}$ |
| | $\to 16.92$ | $\to 2^+; 0+1$ | $9.9 \times 10^{-2}$ | E1 | $4.6 \times 10^{-2}$ |
| | $19.07 \to 3.04$ | $3^+; (1) \to 2^+; 0$ | 10.5 | M1 | 0.12 |
| | $27.49 \to 17.64$ | $0^+; 2 \to 1^+; 1$ | $21.9 \pm 3.9$ | M1 | $1.1 \pm 0.2$ |
| $^{8}$B | $0.78 \to 0$ | $1^+ \to 2^+$ | $(5.0 \pm 2.5) \times 10^{-2}$ | M1 | $5.1 \pm 2.5$ |
| $^{9}$Be [f,g] | $1.68 \to 0$ | $\frac{1}{2}^+ \to \frac{3}{2}^-$ | $0.30 \pm 0.12$ | E1 | $0.22 \pm 0.09$ |
| | $2.43 \to 0$ | $\frac{5}{2}^- \to \frac{3}{2}^-$ | $(8.9 \pm 1.0) \times 10^{-2}$ | M1 | $0.30 \pm 0.03$ |
| | | | $(1.89 \pm 0.14) \times 10^{-3}$ | E2 | $24.4 \pm 1.8$ |
| | $3.05 \to 0$ | $\frac{5}{2}^+ \to \frac{3}{2}^-$ | $0.30 \pm 0.25$ | E1 | $(3.6 \pm 3.0) \times 10^{-2}$ |
| | $6.76 \to 0$ | $\frac{7}{2}^- \to \frac{3}{2}^-$ | $(8.2 \pm 3.5) \times 10^{-2}$ | E2 | $6.3 \pm 2.7$ |
| | $14.39 \to 0$ | $\frac{3}{2}^-; \frac{3}{2} \to \frac{3}{2}^-; \frac{1}{2}$ | $6.9 \pm 0.5$ | M1 | $0.11 \pm 0.01$ |
| | $\to 2.43$ | $\to \frac{5}{2}^-; \frac{1}{2}$ | $7.8 \pm 0.9$ | M1 | $0.22 \pm 0.03$ |
| | $\to 3.04$ | $\to \frac{5}{2}^+; \frac{1}{2}$ | $1.3 \pm 0.3$ | E1 | $(3.0 \pm 0.7) \times 10^{-3}$ |
| | $\to 4.70$ | $\to (\frac{3}{2})^+; \frac{1}{2}$ | $0.88 \pm 0.22$ | E1 | $(3.3 \pm 0.8) \times 10^{-3}$ |
| | $16.98 \to 0$ | $\frac{1}{2}^-; \frac{3}{2} \to \frac{3}{2}^-; \frac{1}{2}$ | $16.6 \pm 1.2$ | M1 | $0.161 \pm 0.012$ |
| | $\to 1.68$ | $\to \frac{1}{2}^+; \frac{1}{2}$ | $2.0 \pm 0.2$ | E1 | $(1.9 \pm 0.2) \times 10^{-3}$ |

Table 2 from (1988AJ01): Electromagnetic transitions in $A = 5 - 10$ [a] (continued)

| Nucleus | $E_{\rm xi} \to E_{\rm xf}$ (MeV) | $J_{\rm i}^{\pi} \to J_{\rm f}^{\pi}$ [b] | $\Gamma_{\gamma}$ (eV) | Mult. | $S$ (W.u.) |
|---|---|---|---|---|---|
| | $\to 2.43$ | $\to \frac{5}{2}^-; \frac{1}{2}$ | $0.55 \pm 0.12$ | E2 | $0.92 \pm 0.20$ |
| | $\to 2.78$ | $\to \frac{1}{2}^-; \frac{1}{2}$ | $2.2 \pm 0.7$ | M1 | $(3.7 \pm 1.2) \times 10^{-2}$ |
| | $\to 4.70$ | $\to (\frac{3}{2})^+; \frac{1}{2}$ | $2.2 \pm 0.3$ | E1 | $(4.0 \pm 0.6) \times 10^{-3}$ |
| $^{10}$Be | $3.37 \to 0$ | $2^+ \to 0^+$ | $(3.66 \pm 0.37) \times 10^{-3}$ | E2 | $8.00 \pm 0.80$ |
| | $6.18 \to 3.37$ | $0^+ \to 2^+$ | $(4.6 \pm 2.8) \times 10^{-4}$ | E2 | $2.5 \pm 1.5$ |
| | $\to 5.96$ | $\to 1^-$ | $(1.4 \pm 0.5) \times 10^{-4}$ | E1 | $(4.2 \pm 1.5) \times 10^{-2}$ |
| $^{10}$B [h] | $0.72 \to 0$ | $1^+ \to 3^+$ | $(6.51 \pm 0.10) \times 10^{-7}$ | E2 | $3.23 \pm 0.05$ |
| | $1.74 \to 0.72$ | $0^+; 1 \to 1^+; 0$ | $> 2 \times 10^{-2}$ | M1 | $> 0.9$ |
| | $2.15 \to 0$ | $1^+; 0 \to 3^+; 0$ | $(6.5 \pm 1.0) \times 10^{-5}$ | E2 | $1.34 \pm 0.20$ |
| | $\to 0.72$ | $1^+; 0 \to 1^+; 0$ | $(8.5 \pm 1.0) \times 10^{-5}$ | M1 | $(1.4 \pm 0.2) \times 10^{-3}$ |
| | | | $(4.2 \pm 2.0) \times 10^{-6}$ | E2 | $(6.5 \pm 3.1) \times 10^{-1}$ |
| | $\to 1.74$ | $1^+; 0 \to 0^+; 1$ | $(1.60 \pm 0.17) \times 10^{-4}$ | M1 | $0.11 \pm 0.01$ |
| | $3.59 \to 0$ | $2^+ \to 3^+$ | $(8.2 \pm 1.5) \times 10^{-4}$ | M1 | $(8.5 \pm 1.6) \times 10^{-4}$ |
| | $\to 0.72$ | $\to 1^+$ | $(2.9 \pm 0.3) \times 10^{-3}$ | M1 | $(5.9 \pm 0.6) \times 10^{-3}$ |
| | $\to 2.15$ | $\to 1^+$ | $(6.0 \pm 1.2) \times 10^{-4}$ | M1 | $(9.7 \pm 1.9) \times 10^{-3}$ |
| | $4.77 \to 0$ | $3^+ \to 3^+$ | $(1.0 \pm 0.3) \times 10^{-4}$ | M1 | $(4.4 \pm 1.2) \times 10^{-5}$ |
| | $\to 0.72$ | $\to 1^+$ | $(1.8 \pm 0.2) \times 10^{-2}$ | E2 | $16 \pm 2$ |
| | $5.16 \to 0$ | $2^+; 1 \to 3^+; 0$ | $0.068 \pm 0.007$ | M1 | $(2.3 \pm 0.2) \times 10^{-2}$ |
| | $\to 0.72$ | $\to 1^+; 0$ | $0.33 \pm 0.03$ | M1 | $0.18 \pm 0.02$ |
| | $\to 1.74$ | $\to 0^+; 1$ | $(1.0 \pm 0.3) \times 10^{-2}$ | M1 | $(1.2 \pm 0.4) \times 10^{-2}$ |
| | $\to 2.15$ | $\to 1^+; 0$ | $0.94 \pm 0.09$ | M1 | $1.6 \pm 0.2$ |
| | $\to 3.59$ | $\to 2^+; 0$ | $0.114 \pm 0.015$ | M1 | $1.4 \pm 0.2$ |
| | $5.18 \to 1.74$ | $1^+; 0 \to 0^+; 1$ | $(6 \pm 3) \times 10^{-2}$ | M1 | $(7.0 \pm 3.5) \times 10^{-2}$ |
| | $5.92 \to 0$ | $2^+ \to 3^+$ | $0.12 \pm 0.03$ | M1 | $(2.8 \pm 0.7) \times 10^{-2}$ |
| | $\to 0.72$ | $\to 1^+$ | $0.03 \pm 0.01$ | M1 | $(1.0 \pm 0.3) \times 10^{-2}$ |
| | $6.03 \to 0$ | $4^+ \to 3^+$ | $0.11 \pm 0.02$ | M1 | $(2.4 \pm 0.4) \times 10^{-2}$ |
| | $6.87 \to 0.72$ | $1^-; 0+1 \to 1^+; 0$ | 0.96 | E1 | $1.3 \times 10^{-2}$ |
| | $\to 1.74$ | $\to 0^+; 1$ | 2.6 | E1 | $6.1 \times 10^{-2}$ |
| | $\to 2.15$ | $\to 1^+; 0$ | 0.62 | E1 | $1.9 \times 10^{-2}$ |
| | $\to 5.11$ | $\to 2^-; 0$ | 0.19 | M1 | 1.7 |
| | $\to 5.16$ | $\to 2^+; 1$ | 0.15 | E1 | $9.5 \times 10^{-2}$ |
| | $\to 5.92$ | $\to 2^+; 0$ | 0.17 | E1 | 0.62 |
| | $7.56 \to 0.72$ | $0^+; 1 \to 1^+; 0$ | 6.7 | M1 | 1.0 |
| | $\to 2.15$ | $\to 1^+; 0$ | 0.8 | M1 | 0.24 |
| | $\to 5.18$ | $\to 1^+; 0$ | 1.0 | M1 | 3.5 |
| | $8.893 \to 0$ | $2^+; 1 \to 3^+; 0$ | $0.5 \pm 0.2$ | E2 | $8.5 \pm 3.4$ |
| $^{10}$C | $3.35 \to 0$ | $2^+ \to 0^+$ | $(4.3 \pm 0.7) \times 10^{-3}$ | E2 | $9.6 \pm 1.6$ |

[a] The last column gives the $\gamma$-ray strengths expressed in Weisskopf units (see D.H. Wilkinson, in *Nuclear spectroscopy B*, ed. F. Ajzenberg-Selove (Academic Press, New York, 1960)). The Weisskopf estimates ($\Gamma_{\rm w}$ in eV, $E_\gamma$ in MeV) are:

$$\Gamma_{\rm w}({\rm E1}) = 6.8\times10^{-2}\ A^{2/3}\ E_\gamma^3, \qquad \Gamma_{\rm w}({\rm E2}) = 4.9\times10^{-8}\ A^{4/3}\ E_\gamma^5,$$
$$\Gamma_{\rm w}({\rm E3}) = 2.3\times10^{-14}\ A^{2}\ E_\gamma^7, \qquad \Gamma_{\rm w}({\rm E4}) = 6.8\times10^{-21}\ A^{8/3}\ E_\gamma^9,$$
$$\Gamma_{\rm w}({\rm M1}) = 2.1\times10^{-2}\ E_\gamma^{3,}, \qquad \Gamma_{\rm w}({\rm M2}) = 1.5\times10^{-8}\ A^{2/3}\ E_\gamma^5.$$

The values for these $\gamma$-ray strengths are occasionally different from those listed in other tables of this paper because different values of $r_0$ were used. In this table $r_0 = 1.2$ fm is used consistently. The multipolarities in the next to the last column were used to calculate the $\Gamma_{\rm w}$. See also (1979EN05).

[b] $T$ shown in usual convention [$J^\pi$; $T$] only if transitions from the initial state involve a change in $T$.

[c] See Table 6.4.

[d] See Table 7.5. See also (1984MO1D).

[e] See Table 8.5. See also reaction 2 in $^8$Be.

[f] See Tables 9.3, 9.4 and 9.8.

[g] See also (1984MO1D).

[h] See Tables 10.6, 10.8, 10.10, 10.11 and 10.15.