APPENDIX A

$C_{FM}^{F'M'}$ COEFFICIENTS

The coefficients $C_{Fm}^{F'm'}$ are defined by the relation

$$C_{Fm}^{F'm+q} \equiv \left(\frac{1}{\sqrt{2}}\right)^{|q|} \langle F'm+q \mid \sigma_{1q} \mid Fm \rangle \tag{A.1}$$

where $q = 0, \pm 1$, and σ_{1q} are the components of the Pauli spin operator:

$$\sigma_{11} = -\frac{1}{\sqrt{2}}\left(\sigma_x + i\sigma_y\right) \qquad \sigma_{1\ -1} = \frac{1}{\sqrt{2}}\left(\sigma_x - i\sigma_y\right) \qquad \sigma_{10} = \sigma_z \tag{A.2}$$

and

$$\sigma_x = -\frac{1}{\sqrt{2}}(\sigma_{11} - \sigma_{1\ -1}) \qquad \sigma_y = \frac{i}{\sqrt{2}}(\sigma_{11} + \sigma_{1\ -1}). \tag{A.3}$$

With the rotations given in Section 2.6, we have

$$\sigma_{1\ \pm 1} = \sigma'_{1\ \pm 1} \mp \frac{1}{\sqrt{2}}\left(\frac{B_x}{B} \pm i\frac{B_y}{B}\right)\sigma_{10}. \tag{A.4}$$

The values of the $C_{Fm_F}^{F'm'_F}$ are given by

$$C_{3m}^{4m} = C_{4m}^{3m} = \frac{\sqrt{16 - m^2}}{4}, \tag{A.5}$$

$$C_{4m\pm 1}^{4m} = \pm\frac{1}{8}\sqrt{(5 \pm m)\,(4 \mp m)}, \tag{A.6}$$

$$C_{3m\pm1}^{3m} = \mp\frac{1}{8}\sqrt{(4 \pm m)(3 \mp m)}, \tag{A.7}$$

$$C_{4m\pm1}^{3m} = -\frac{1}{8}\sqrt{(4 \pm m)(5 \pm m)}, \tag{A.8}$$

$$C_{3m\pm1}^{4m} = \frac{1}{8}\sqrt{(3 \mp m)(4 \mp m)} \tag{A.9}$$

$$C_{3m}^{3m} = -\frac{m}{4}, \text{ and} \tag{A.10}$$

$$C_{4m}^{4m} = \frac{m}{4}. \tag{A.11}$$