

$$q_{00} = \frac{1}{\sqrt{4\pi}} \int \rho(\mathbf{x}') d^3x' = \frac{1}{\sqrt{4\pi}} q \quad (4.4)$$

$$\left. \begin{aligned} q_{11} &= -\sqrt{\frac{3}{8\pi}} \int (x' - iy') \rho(\mathbf{x}') d^3x' = -\sqrt{\frac{3}{8\pi}} (p_x - ip_y) \\ q_{10} &= \sqrt{\frac{3}{4\pi}} \int z' \rho(\mathbf{x}') d^3x' = \sqrt{\frac{3}{4\pi}} p_z \end{aligned} \right\} \quad (4.5)$$

$$\left. \begin{aligned} q_{22} &= \frac{1}{4} \sqrt{\frac{15}{2\pi}} \int (x' - iy')^2 \rho(\mathbf{x}') d^3x' = \frac{1}{12} \sqrt{\frac{15}{2\pi}} (Q_{11} - 2iQ_{12} - Q_{22}) \\ q_{21} &= -\sqrt{\frac{15}{8\pi}} \int z' (x' - iy') \rho(\mathbf{x}') d^3x' = -\frac{1}{3} \sqrt{\frac{15}{8\pi}} (Q_{13} - iQ_{23}) \\ q_{20} &= \frac{1}{2} \sqrt{\frac{5}{4\pi}} \int (3z'^2 - r'^2) \rho(\mathbf{x}') d^3x' = \frac{1}{2} \sqrt{\frac{5}{4\pi}} Q_{33} \end{aligned} \right\} \quad (4.6)$$