Table 5.1. *Spherical harmonics $Y_{lm}(\theta, \varphi)$ for $l = 0, 1, 2, 3$*

$Y_{00} = \left(\frac{1}{4\pi}\right)^{1/2}$	$Y_{30} = \left(\frac{7}{16\pi}\right)^{1/2} (5\cos^3\theta - 3\cos\theta)$
$Y_{10} = \left(\frac{3}{4\pi}\right)^{1/2} \cos\theta$	$Y_{3,\pm1} = \mp\left(\frac{21}{64\pi}\right)^{1/2} \sin\theta(5\cos^2\theta - 1)e^{\pm i\varphi}$
$Y_{1,\pm1} = \mp\left(\frac{3}{8\pi}\right)^{1/2} \sin\theta\, e^{\pm i\varphi}$	$Y_{3,\pm2} = \left(\frac{105}{32\pi}\right)^{1/2} \sin^2\theta\cos\theta\, e^{\pm 2i\varphi}$
$Y_{20} = \left(\frac{5}{16\pi}\right)^{1/2} (3\cos^2\theta - 1)$	$Y_{3,\pm3} = \mp\left(\frac{35}{64\pi}\right)^{1/2} \sin^3\theta\, e^{\pm 3i\varphi}$
$Y_{2,\pm1} = \mp\left(\frac{15}{8\pi}\right)^{1/2} \sin\theta\cos\theta\, e^{\pm i\varphi}$	
$Y_{2,\pm2} = \left(\frac{15}{32\pi}\right)^{1/2} \sin^2\theta\, e^{\pm 2i\varphi}$	

Table 6.1. *Radial functions R_{nl} for the hydrogen-like atom for $n = 1$ to 6. The variable ρ is given by $\rho = 2Zr/na_\mu$*

$$R_{10} = 2(Z/a_\mu)^{3/2} e^{-\rho/2}$$

$$R_{20} = \frac{(Z/a_\mu)^{3/2}}{2\sqrt{2}}(2 - \rho)e^{-\rho/2}$$

$$R_{21} = \frac{(Z/a_\mu)^{3/2}}{2\sqrt{6}}\rho e^{-\rho/2}$$

$$R_{30} = \frac{(Z/a_\mu)^{3/2}}{9\sqrt{3}}(6 - 6\rho + \rho^2)e^{-\rho/2}$$

$$R_{31} = \frac{(Z/a_\mu)^{3/2}}{9\sqrt{6}}(4 - \rho)\rho\, e^{-\rho/2}$$

$$R_{32} = \frac{(Z/a_\mu)^{3/2}}{9\sqrt{30}}\rho^2\, e^{-\rho/2}$$

$$R_{40} = \frac{(Z/a_\mu)^{3/2}}{96}(24 - 36\rho + 12\rho^2 - \rho^3)e^{-\rho/2}$$

$$R_{41} = \frac{(Z/a_\mu)^{3/2}}{32\sqrt{15}}(20 - 10\rho + \rho^2)\rho\, e^{-\rho/2}$$

$$R_{42} = \frac{(Z/a_\mu)^{3/2}}{96\sqrt{5}}(6 - \rho)\rho^2\, e^{-\rho/2}$$

$$R_{43} = \frac{(Z/a_\mu)^{3/2}}{96\sqrt{35}}\rho^3\, e^{-\rho/2}$$