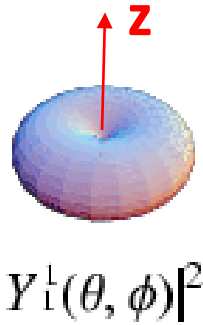
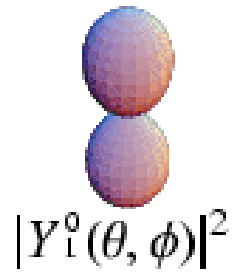


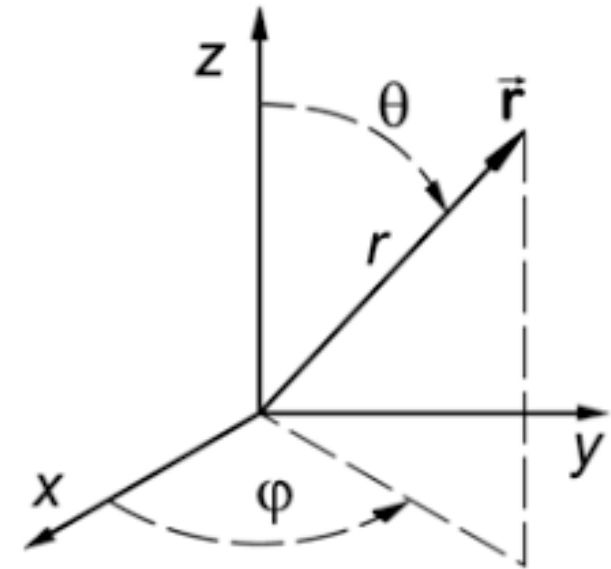
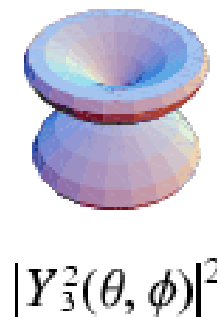
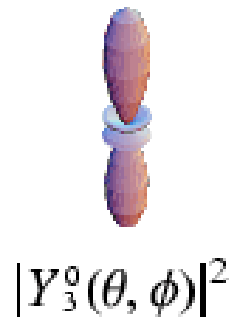
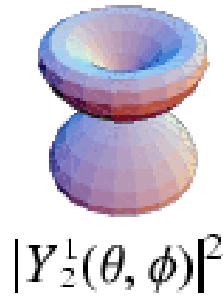
Some Spherical Harmonics



$$Y_\ell^m(\theta, \phi) = \sqrt{\frac{2\ell + 1}{4\pi} \frac{(\ell - m)!}{(\ell + m)!}} P_\ell^m(\cos \theta) e^{im\phi}$$

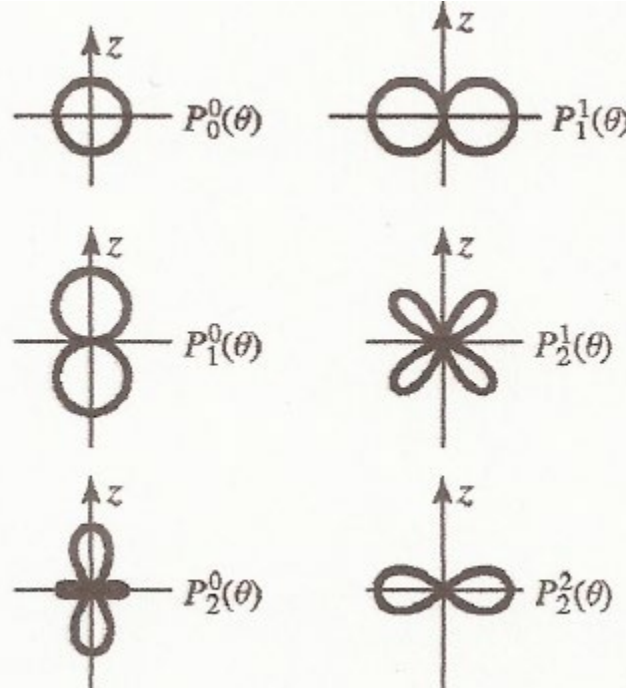


Note that $|Y_\ell^m(\theta, \phi)|^2$ is independent of angle ϕ

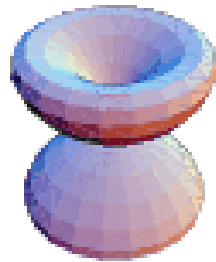


$$Y_{\ell}^m(\theta, \phi) = \sqrt{\frac{2\ell + 1}{4\pi} \frac{(\ell - m)!}{(\ell + m)!}} P_{\ell}^m(\cos \theta) e^{im\phi}$$

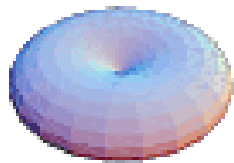
$P_0^0 = 1$	$P_2^0 = \frac{1}{2}(3 \cos^2 \theta - 1)$
$P_1^1 = \sin \theta$	$P_3^3 = -15 \sin \theta (1 - \cos^2 \theta)$
$P_1^0 = \cos \theta$	$P_2^2 = 15 \sin^2 \theta \cos \theta$
$P_2^2 = 3 \sin^2 \theta$	$P_3^1 = \frac{3}{2} \sin \theta (5 \cos^2 \theta - 1)$
$P_2^1 = 3 \sin \theta \cos \theta$	$P_3^0 = \frac{1}{2} (5 \cos^3 \theta - 3 \cos \theta)$



$$|Y_2^0(\theta, \phi)|^2$$



$$|Y_2^1(\theta, \phi)|^2$$



$$|Y_2^2(\theta, \phi)|^2$$