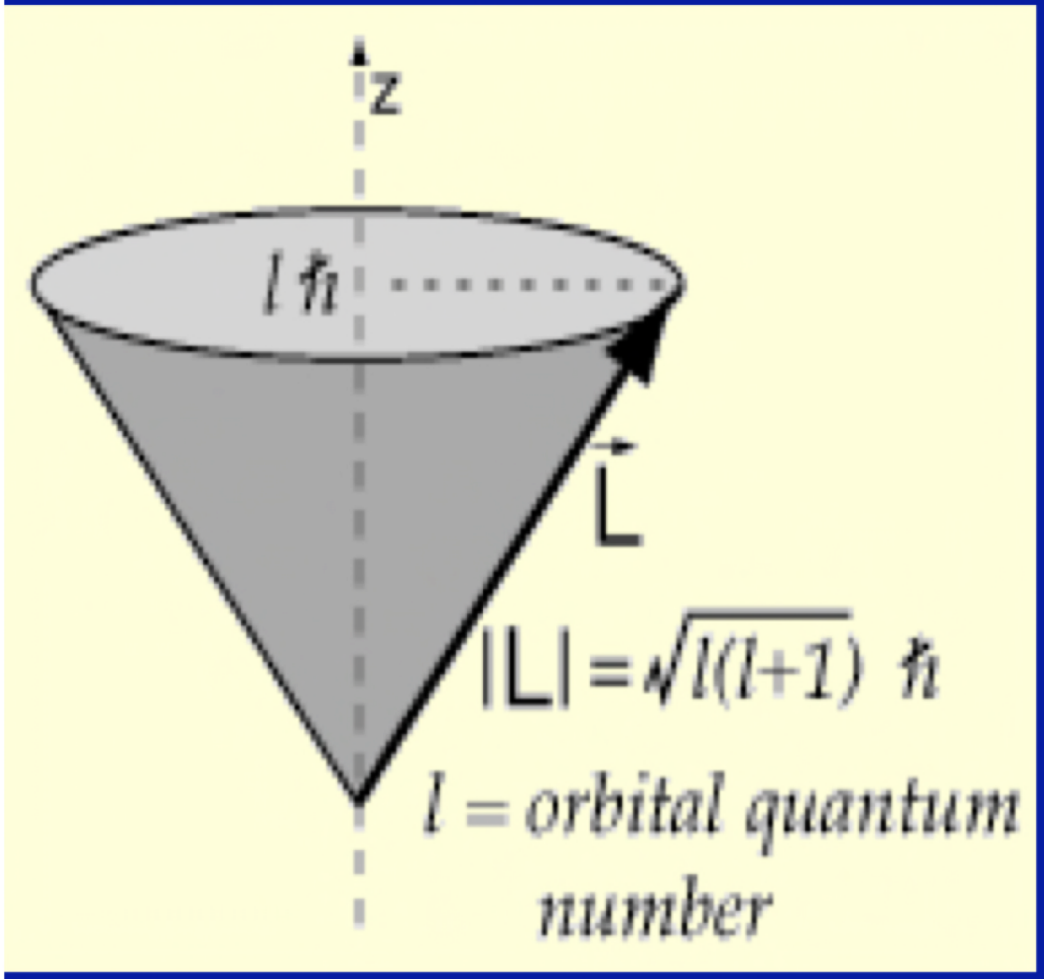
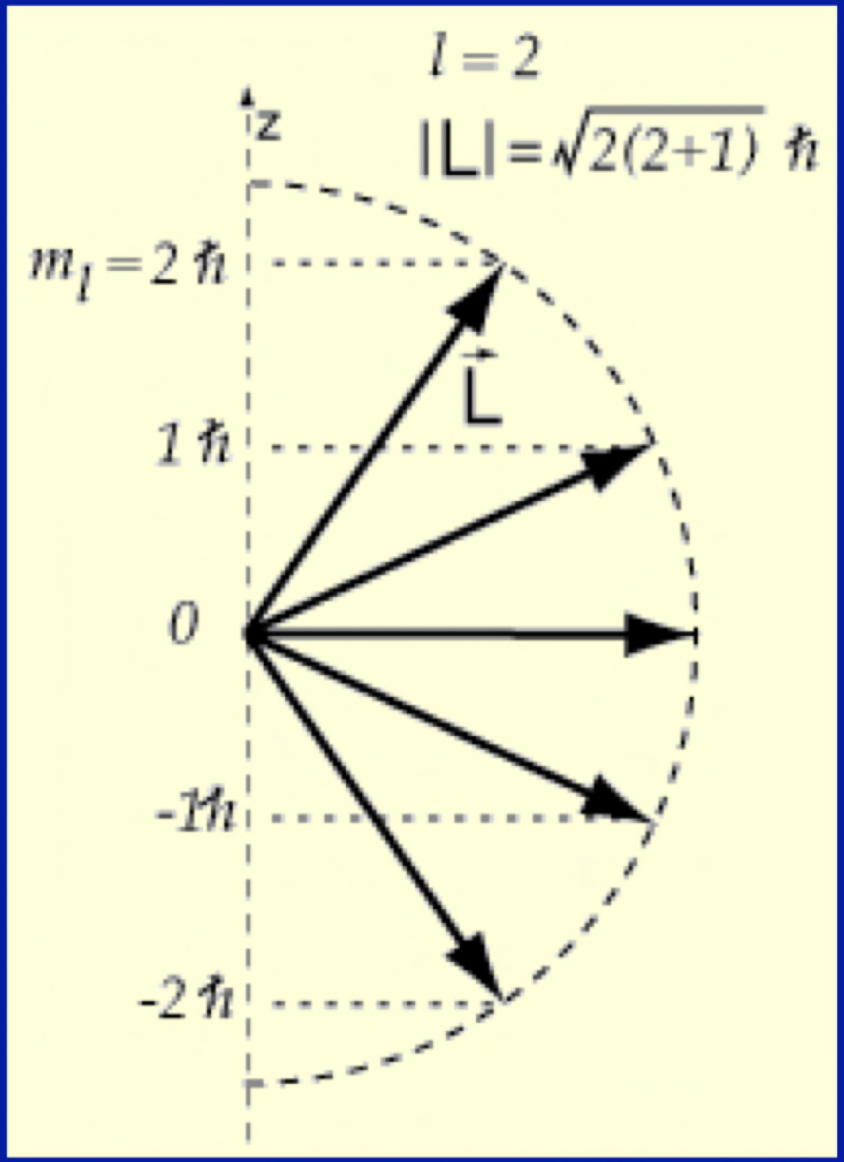
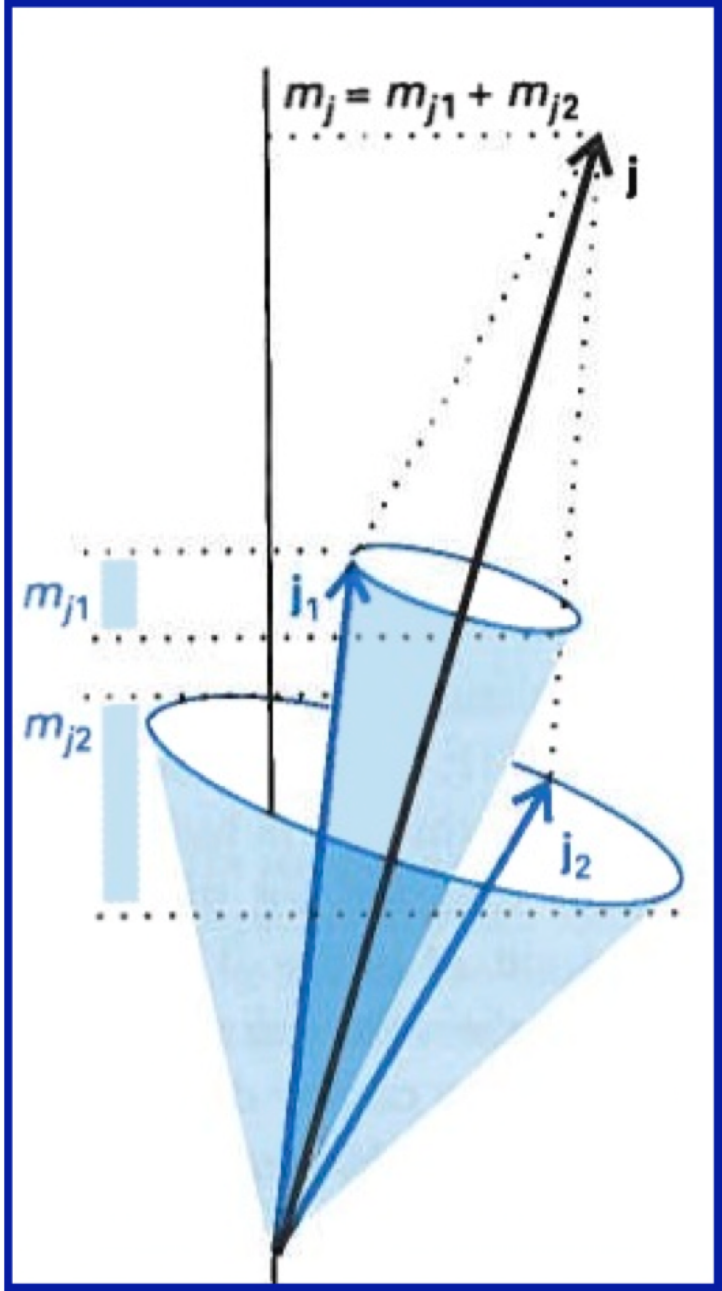
Quantization of Angular Momentum





A precessing vector with quantized length and quantized projections on the space axis

Coupling Quantized Angular Momenta



$$\vec{J} = \vec{J}_1 + \vec{J}_2$$

$$|\vec{J}| = J = J_1 + J_2, J_1 + J_2 - 1, \ldots, |J_1 - J_2|$$

- The length of the total angular momentum $j = [j(j+1)]^{1/2}$
- The j vector lies at an indeterminate angle on a cone about the z space axis
- $j_1 = [j_1(j_1+1)]^{1/2}$ and
- $j_2 = [j_2(j_2+1)]^{1/2}$
- The projections of j_1 and j_2 onto z are indefinite but $m_{j1} + m_{j2} = m_j$