Clase 3

Manuel Garcia.

February 15, 2024

1

$$|J_1 m_1\rangle \quad \rightarrow \quad [J_{1i}, J_{1j}] = i\hbar\epsilon_{ijk}J_{ik} \quad \rightarrow \quad J_1^2 |J_1 m_1\rangle = \hbar^2 J_1(J_1+1)|J_1 m_1\rangle$$
$$\rightarrow \quad J_{1z}|J_1 m_1\rangle = \hbar m_1 |J_1 m_1\rangle$$

$$|J_1 m_1\rangle \otimes |J_2 m_2\rangle = |J_1 J_2 m_1 m_2\rangle = |m_1 m_2\rangle$$

$$[\vec{J_1}, \vec{J_2}] = 0$$
$$[J_1^2, J_2^2] = 0$$
$$[J_{1z}, J_2^2] = 0$$

$$J^2|jm\rangle = \hbar^2 j(j+1)|jm\rangle$$
$$J_z|jm\rangle = \hbar m|jm\rangle$$

$\{J^2, J_z, J_1^2, J_2^2\}$ contuman entre sí.

$$|jm\rangle = \sum_{m_1=-1/2}^{1/2}\sum_{m_2=-1/2}^{1/2} |m_1 m_2\rangle\langle m_2 m_1|J_m\rangle$$
$$|m_1 m_2\rangle = \sum_{j=J_{min}}^{J_{max}}\sum_{m_j=-j}^{j} |jm\rangle\langle jm|m_1 m_2\rangle$$

$$\delta_{jj'}\delta_{mm'} = \sum_{m_1}\sum_{m_2}\langle j'm'|m_1 m_2\rangle\langle m_1 m_2|jm\rangle$$