

Consider a spin-1/2 system system prepared in the state:

$$|\psi_{in}\rangle = \frac{2}{3} |+\rangle + \frac{\sqrt{5}}{3} |-\rangle$$

What is the probability that when you measure the z-component of spin angular momentum you'll get  $\frac{\hbar}{2}$ ?  $-\frac{\hbar}{2}$ ?

Consider a spin-1/2 system system prepared in the state:

$$|\psi_{in}\rangle = \frac{\sqrt{3}}{2} |+\rangle + \frac{i}{2} |-\rangle$$

What is the probability that when you measure the z-component of spin angular momentum you'll get  $\frac{\hbar}{2}$ ?  $-\frac{\hbar}{2}$ ?

Consider a spin-1/2 system system prepared in the state:

$$|\psi_{in}\rangle = ae^{i\alpha} |+\rangle + be^{i\beta} |-\rangle$$

What is the probability that when you measure the z-component of spin angular momentum you'll get  $\frac{\hbar}{2}$ ?  $-\frac{\hbar}{2}$ ?