

Pauli Z basis  $\{|0\rangle, |1\rangle\}$

$$\begin{aligned}\text{Prob}\{+1\} &= |\langle 0|\psi\rangle|^2 \\ &= |\alpha|^2\end{aligned}$$

$$\begin{aligned}\text{Prob}\{-1\} &= |\langle 1|\psi\rangle|^2 \\ &= |\beta|^2\end{aligned}$$