

Si se vuelve a medir B.

$$P_{\text{prob}}(b) = \| P_b |\Psi'(t)\rangle \|^2$$

$$\begin{aligned} P_b |\Psi'(t)\rangle &= |u_3\rangle \langle u_3 | \Psi'(t)\rangle \\ &\quad + \frac{1}{\sqrt{2}} (|u_1\rangle + |u_2\rangle) \frac{1}{\sqrt{2}} (\langle u_1 | + \langle u_2 |) |\Psi'(t)\rangle \\ &= |u_3\rangle \frac{e^{-2i\omega_0 t}}{N} \\ &\quad + \frac{1}{\sqrt{2}} (|u_1\rangle + |u_2\rangle) \left(1 + \frac{1}{\sqrt{2}} \right) \frac{1}{2N} \left(e^{-i\omega_0 t} + e^{-2i\omega_0 t} \right) \end{aligned}$$

$$\begin{aligned} P_b |\Psi'(t)\rangle &= \frac{1}{N} e^{-\frac{3i\omega_0 t}{2}} \left[|u_3\rangle e^{-\frac{i\omega_0 t}{2}} \right. \\ &\quad \left. + \frac{1}{\sqrt{2}} (|u_1\rangle + |u_2\rangle) \left(1 + \frac{1}{\sqrt{2}} \right) \cos\left(\frac{\omega_0 t}{2}\right) \right] \end{aligned}$$

$$P_{\text{prob}}(b) = \frac{1}{N^2} \left[1 + \left(1 + \frac{1}{\sqrt{2}} \right)^2 \cos^2\left(\frac{\omega_0 t}{2}\right) \right]$$

$$P_{\text{prob}}(b) = \frac{\left[1 + \left(1 + \frac{1}{\sqrt{2}} \right)^2 \cos^2\left(\frac{\omega_0 t}{2}\right) \right]}{1 + \left(1 + \frac{1}{\sqrt{2}} \right)^2} \leq 1$$