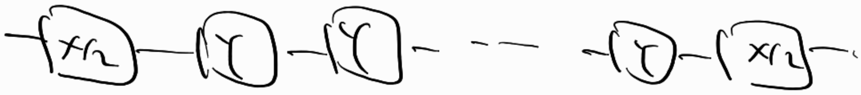
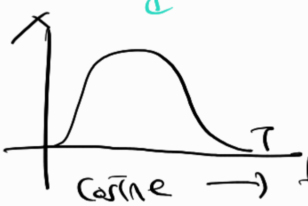
qubit 들 분석 (not readout)

dynamical decoupling.

1. CPMG / CP.





cosine → $f(t) = A\frac{1-\cos(\frac{2\pi t}{\tau})}{2}$

$$\Rightarrow f(t)\cos(\omega_d t+\phi)\sigma_x = f(t)\frac{e^{i(\omega_d t+\phi)}+e^{-i(\omega_d t+\phi)}}{2}(\sigma_+ + \sigma_-)$$

Rotating Frame → $\frac{f(t)}{2}(\sigma_+ e^{-i\phi} + \sigma_- e^{i\phi})$

$\phi = 0 \Rightarrow X.$

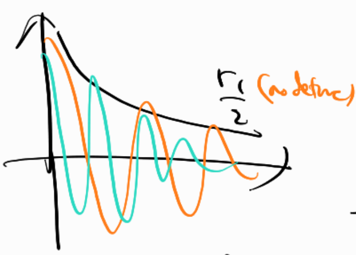
$\phi = \frac{\pi}{2} \Rightarrow Y.$

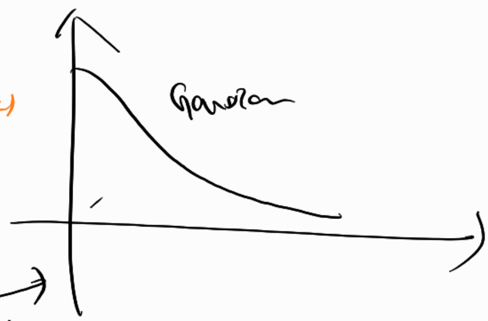
2. dephasing.

noise trace $n(t)\sigma_z$.

Markovian noise $\sqrt{\frac{\Gamma_\phi}{2}}\sigma_z$.

Ramsey





각각 다른 noise trace 들을 ensemble

noise trace 만들기

n(t)

classical noise 만들기...?

Electronic Noise Ch2,3,4 Ambrozy 1/f noise.