Noise Analysis Optomechanical Cavity

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Modeling Quantum Hardware: open dynamics and control
Universität Konstanz

Strong Measurement

Projective Measurement:

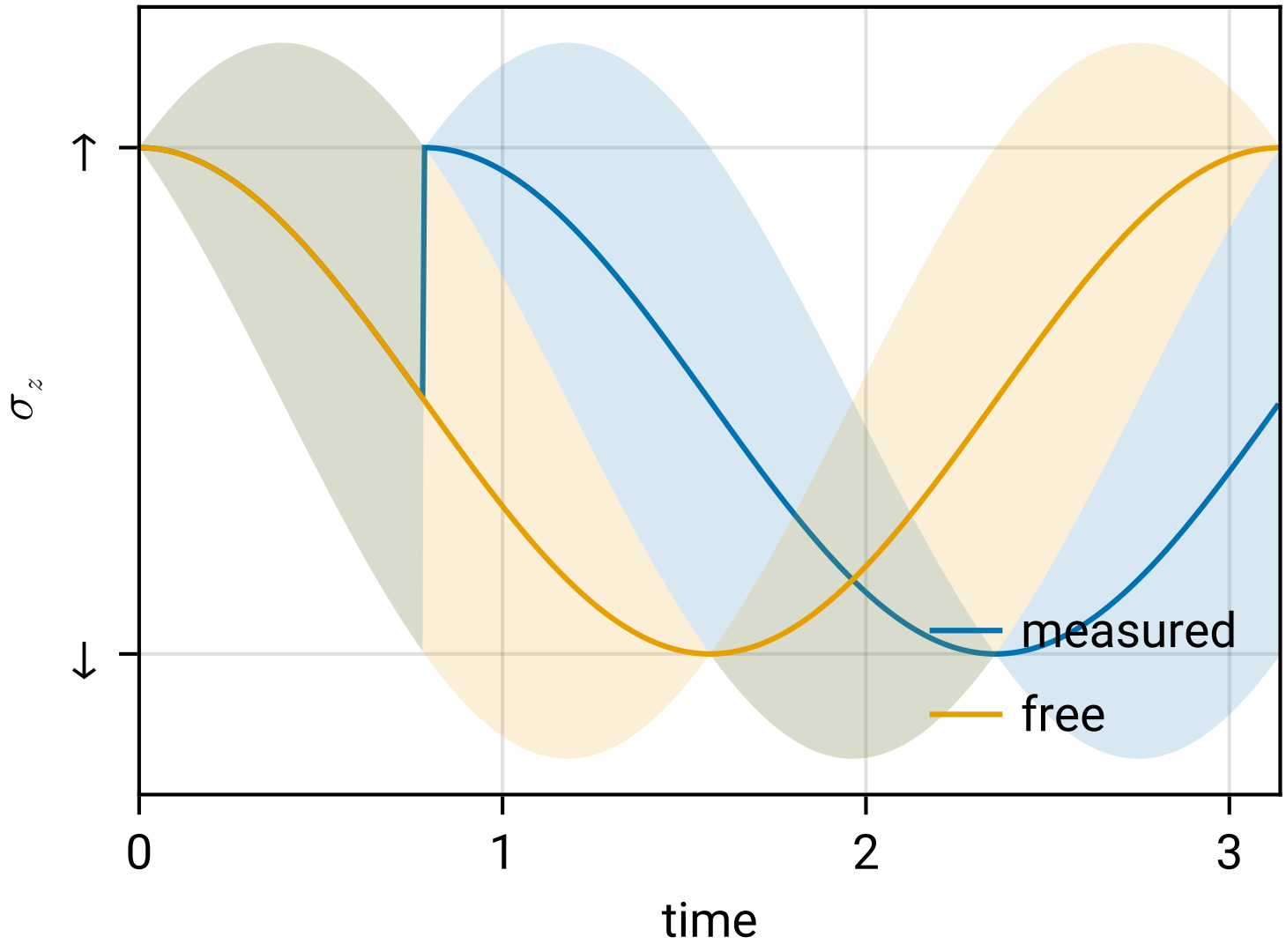
Quantum Computation and Quantum Information, M. A. Nielsen et al. 2010 (2.2.3)

Qbit System

$$H = \sigma_x$$

$$C = \sigma_z$$

Strong Measurement



Weak Measurement

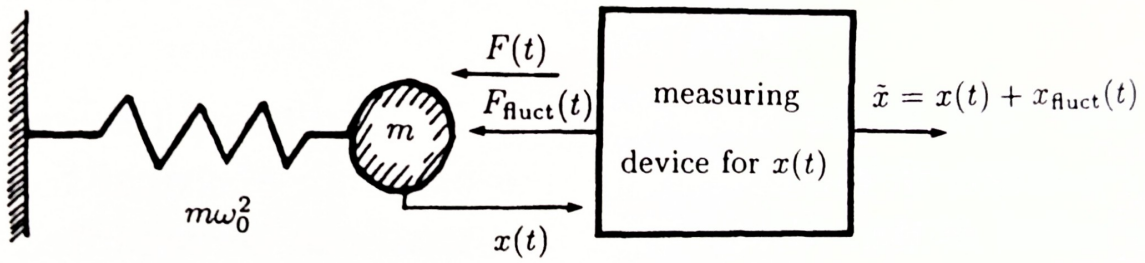
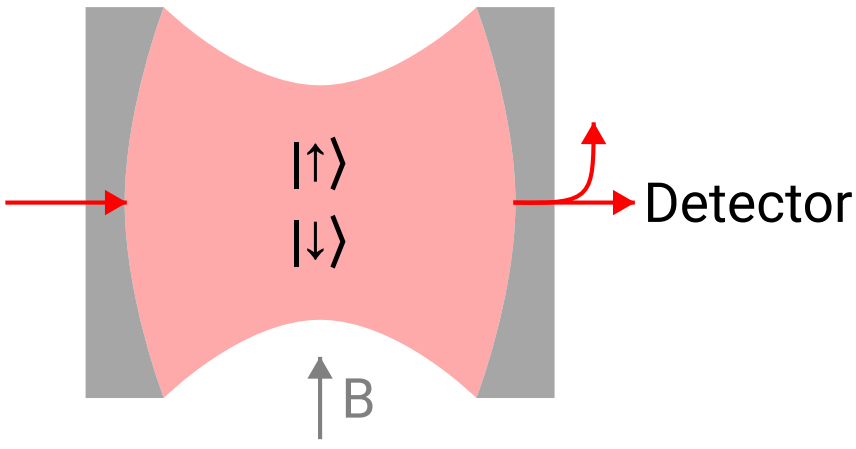


Fig. 8.4 Detection of a classical force by monitoring the coordinate of an oscillator on which it acts.

Rabi Oscillations Setup



$$H = g\,(a^\dagger a)(\sigma^+\sigma^-) + g_s\,(\sigma^+ + \sigma^-) - i\beta(a^\dagger - a)$$

Coupling
Magnetic
Optic

$$J = \kappa\, a$$

Dissipation

$$C = \sqrt{\kappa\eta}\, a$$

Measurement

"Stochastic master equation for a probed system in a cavity", A. E. B. Nielsen et al. 2008

Time evolution