

$$H = \sum_{n=1}^N |n\rangle\langle n| + \sum_{n=1}^{N-1} (|n\rangle\langle n+1| + |n+1\rangle\langle n|)$$

$$L_{\text{diss}}\rho = \sum_{n=1}^N \gamma_n [\sigma_n^- \rho \sigma_n^+ - 1/2 \{ \sigma_n^+ \sigma_n^-, \rho \}]$$

$$L_{\text{sink}}\rho = \gamma_s [\sigma_{N+1}^+ \sigma_N^- \rho \sigma_N^+ \sigma_{N+1}^- - 1/2 \{ \sigma_N^+ \sigma_{N+1}^- \sigma_{N+1}^+ \sigma_N^-, \rho \}]$$

$$\frac{\partial \rho}{\partial t} = i[\rho, H] + L_{\text{diss}}\rho + L_{\text{sink}}\rho.$$

and after solving the master equation for N=2, I want to calculate:

$$P_{\text{sink}} = \langle 3 | \rho(t) | 3 \rangle \text{ when } t \rightarrow \infty$$