$$\left|\Psi_{\vec{\eta}+\delta\cdot\dot{\vec{\eta}}}(t+\delta)\right\rangle \quad \leftrightarrow \quad e^{-i\mathcal{H}\delta}\left|\Psi_{\vec{\eta}}(t)\right\rangle$$

$$\vec{\eta}(t+\delta) = \vec{\eta}(t) + \delta \cdot \dot{\vec{\eta}}(t)$$

$$O_k(N) = \frac{\partial \ln \Psi_{N,\vec{\eta}}(t)}{\partial \eta_k} = \frac{\partial \ln}{\partial \eta_k} e^{\mathcal{H}_{\text{eff}}(N,\vec{\eta},t)+\ln \Psi_N}$$

$$E_{\mathrm{loc}}(N) = \frac{\left\langle N \middle| \mathcal{H} \middle| \Psi_{\vec{\eta}}(t) \right\rangle}{\left\langle N \middle| \Psi_{\vec{\eta}}(t) \right\rangle}$$

$$\overleftrightarrow{S}_{k,k'} = \left\langle O_k^* O_{k'} \right\rangle_{(\vec{\eta})} - \left\langle O_k^* \right\rangle_{(\vec{\eta})} \cdot \left\langle O_{k'} \right\rangle_{(\vec{\eta})}$$

$$\vec{F}_k = \left\langle E_{\mathrm{loc}} O_k^* \right\rangle_{(\vec{\eta})} - \left\langle E_{\mathrm{loc}} \right\rangle_{(\vec{\eta})} \cdot \left\langle O_k^* \right\rangle_{(\vec{\eta})}$$

$$\sum_{k'} \overleftrightarrow{S}_{k,k'} \dot{\vec{\eta}}_{k'} = -i\vec{F}_k$$

$$\dot{\vec{\eta}} = -i\overleftrightarrow{S}^{-1}\vec{F}$$