

$$\frac{i\pi}{\alpha} \lim_{\varepsilon \rightarrow 0} \frac{\Phi[\chi(\square - \varepsilon)] - \Phi[\chi]}{\varepsilon}$$

$$= \left\{ V[\chi] + \frac{1}{2m} \int_0^T dt \left[ -\frac{i\pi}{\alpha} \frac{\delta}{\delta \chi(t)} \right]^2 \right\} \Phi[\chi]$$

$$\Phi[\chi] = \exp \left[ \frac{i}{\hbar} \int_0^T dt \left\{ \frac{m}{2} [\dot{\chi}(t)]^2 - \frac{k}{2} [\chi(t)]^2 \right\} \right]$$

$$= \exp \left\{ \frac{i}{\hbar} S[\chi] \right\}$$