宇田方程式：

$$\frac{i\hbar}{\alpha}\cdot\frac{\partial\Phi[\chi(\square-\varepsilon)]}{\partial\varepsilon}\bigg|_{\varepsilon=0}=\frac{1}{2m}\int_{-\infty}^{\infty}dt\left[\frac{-i\hbar}{\alpha}\cdot\frac{\delta}{\delta\chi(t)}\right]^2\Phi[\chi]$$

$$\chi(\square-\varepsilon):\ t\rightarrow\chi(t-\varepsilon)$$

離散化：

$$\chi\ \rightarrow\ (\cdot\cdot\cdot,\chi_{-2},\chi_{-1},\chi_0,\chi_1,\chi_2,\cdot\cdot\cdot)$$

$$\chi_k\equiv\chi(k/\alpha)$$

$$\Phi[\chi]\ \rightarrow\ \Phi(\cdot\cdot\cdot,\chi_{-2},\chi_{-1},\chi_0,\chi_1,\chi_2,\cdot\cdot\cdot)$$

$$\frac{\partial\Phi[\chi(\square-\varepsilon)]}{\partial\varepsilon}\bigg|_{\varepsilon=0}\rightarrow\frac{\Phi[\chi(\square-1/\alpha)]-\Phi[\chi]}{1/\alpha}$$

$$=\frac{\Phi(\chi_{\square-1})-\Phi(\chi)}{1/\alpha}$$

$$=\sum_{k=-\infty}^{\infty}\frac{\chi_{k-1}-\chi_k}{1/\alpha}\cdot\frac{\partial\Phi(\chi)}{\partial\chi_k}$$

$$\int_{-\infty}^{\infty}dt\left[\frac{-i\hbar}{\alpha}\cdot\frac{\delta}{\delta\chi(t)}\right]^2\Phi(\chi)\ \rightarrow\ \frac{1}{\alpha}\sum_{k=-\infty}^{\infty}\left(-i\hbar\frac{\partial}{\partial\chi_k}\right)^2\Phi(\chi)$$