$|\Psi_0\rangle = |\Psi_H(0)\rangle = |\Psi_I(0)\rangle = U(0,\pm\infty)|\bar{\Phi}_0\rangle$

$O_I = U(0,t)\, O_H\, U(t,0)$

$$\frac{\langle\Psi_0|O_H|\Psi_0\rangle}{\langle\Psi_0|\Psi_0\rangle} = \lim_{\epsilon\to 0} \frac{\langle\bar{\Phi}_0|U_\epsilon(-\infty,0)\,U_\epsilon(0,t)\,O_I\,U_\epsilon(t,0)\,U(0,+\infty)|\bar{\Phi}_0\rangle}{\langle\bar{\Phi}_0|U(-\infty,\infty)|\bar{\Phi}_0\rangle}$$