Interaction picture

$$|\psi(t)\rangle_I = e^{iH_0 t}|\psi(t)\rangle_S$$
$$\mathcal{O}_I(\vec{x},t) = e^{iH_0 t}\mathcal{O}_S(\vec{x})e^{-iH_0 t}$$
$$i\frac{d|\psi\rangle_I}{dt} = H_I(\vec{x},t)|\psi\rangle_I$$