the presence of a force Schrodinger
uation is : $\left(F = -\frac{dU}{dx} \right)$

$$-\frac{\hbar^2}{2m}\frac{\partial^2 \Psi(x,t)}{\partial x^2} + U(x)\Psi(x,t) = i\hbar\frac{\partial \Psi(x,t)}{\partial t}$$

tionary states are $\Psi(x,t) = \psi(x)\, e^{-i\omega t}$

time independent
wave function

chrodinger equation becomes

$$-\frac{\hbar^2}{2m}\frac{\partial^2 \psi(x)}{\partial x^2} + U(x)\psi(x) = E\,\psi(x)$$

This is the time independent schrodinger equation.

e that $|\Psi(x,t)|^2 = |\psi(x)|^2 \left(e^{i\omega t} \cdot e^{-i\omega t} \right)$
$= |\psi(x)|^2$

For stationary states the probabilities
lculated from $\Psi(x,t)$ are time independent !