

Last Week

Time-independent Schrodinger's Equation (SEQ):

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

- It describes a particle that has a definite energy, E .
- The solutions, $\psi(x)$, are time independent (stationary states).

We considered three potentials, $U(x)$:

Infinite square well

- Boundary conditions \rightarrow only certain allowed energies (and corresponding “energy eigenstates”)

Finite-depth square well

- Particle can “leak” into forbidden region.
- Comparison with infinite-depth well.

Harmonic oscillator

- Energy levels are equally spaced.
- A good approximation in many problems.