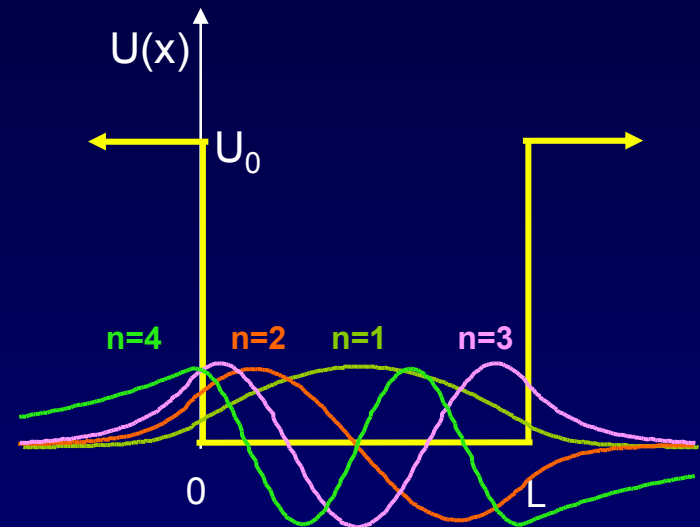


# Particle in a Finite Well (6)

What do the wave functions for a particle in the finite square well potential look like?

They look very similar to those for the infinite well, except ...

The particle has a finite probability to “leak out” of the well !!



Some general features of finite wells:

- Due to leakage, the wavelength of  $\psi_n$  is longer for the finite well. Therefore  $E_n$  is lower than for the infinite well.
- $K$  depends on  $U_0 - E$ . For higher  $E$  states,  $e^{-Kx}$  decreases more slowly. Therefore, their  $\psi$  penetrates farther into the forbidden region.
- A finite well has only a finite number of bound states. If  $E > U_0$ , the particle is no longer bound.

Very nice Java applet:  
<http://www.falstad.com/qm1d/>