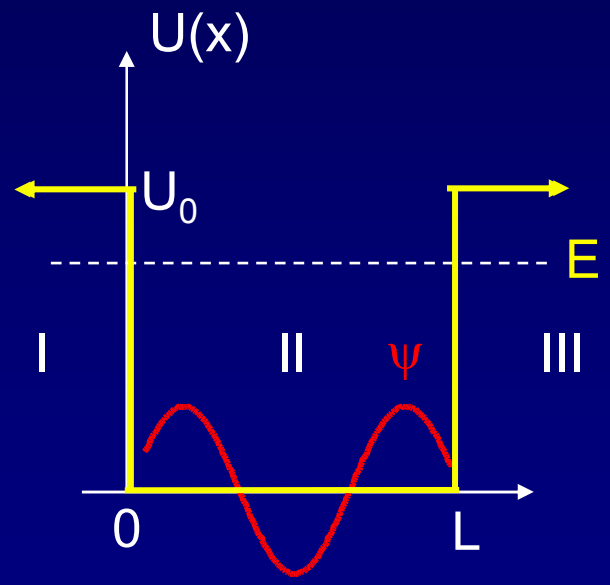
Particle in a Finite Well (1)

What if the walls of our "box" aren't infinitely high?

We will consider finite U_0, with $E < U_0$, so the particle is still trapped.

This situation introduces the very important concept of "barrier penetration".

As before, solve the SEQ in the three regions.



Region II:

U = 0, so the solution is the same as before:

$$\psi_{II}(x) = B_1 \sin kx + B_2 \cos kx$$

We do not impose the infinite well boundary conditions, because they are not the same here. We will find that B_2 is no longer zero.

Before we consider boundary conditions, we must first determine the solutions in regions I and III.