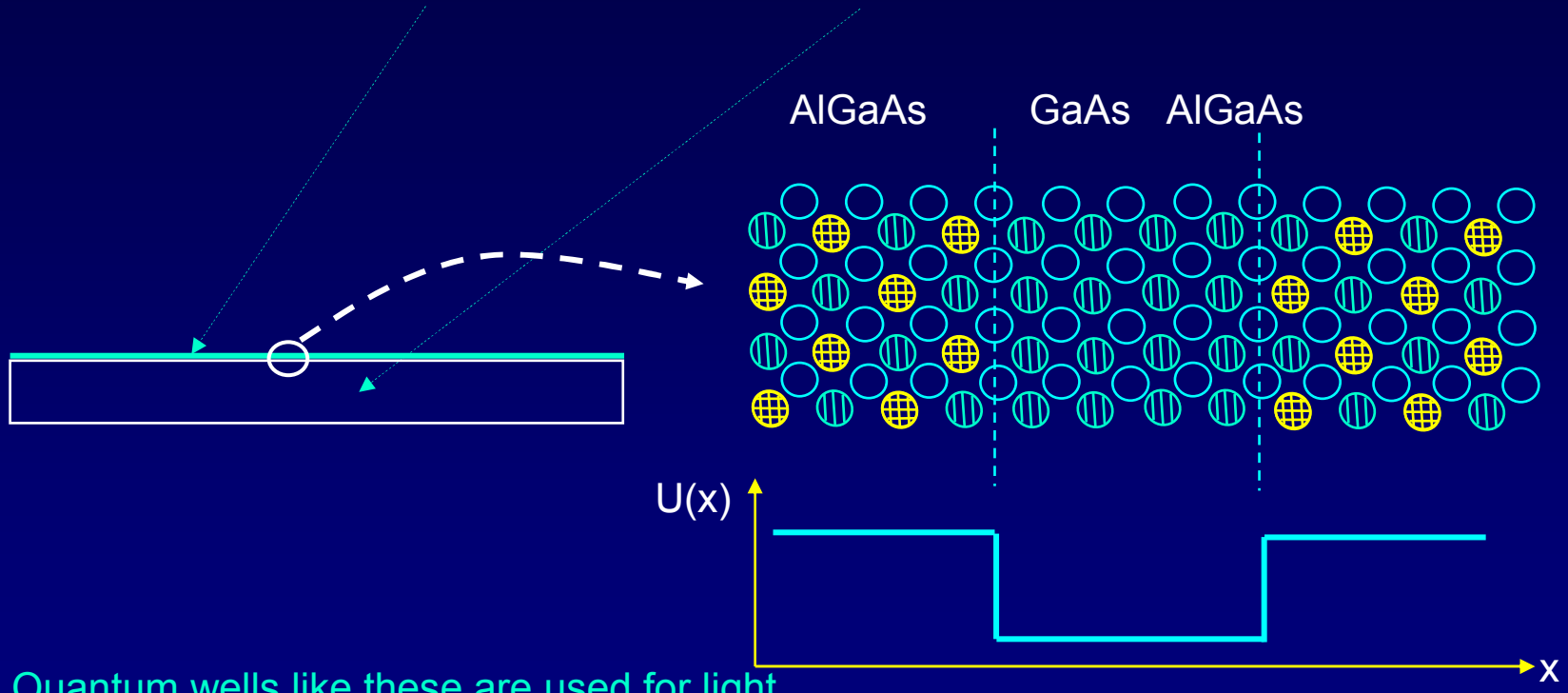
Example of a microscopic potential well -- a semiconductor "quantum well"

Deposit different layers of atoms on a substrate crystal:



Quantum wells like these are used for light emitting diodes and laser diodes, such as the ones in your CD player.

The quantum-well laser was invented by Charles Henry, PhD UIUC '65.

This and the visible LED were developed at UIUC by Nick Holonyak.

An electron has lower energy in GaAs than in AlGaAs. It may be trapped in the well – but it "leaks" into the surrounding region to some extent