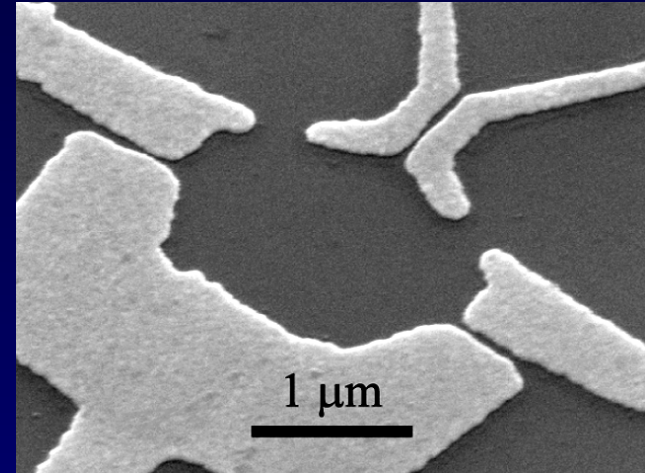


Quantum Particles in 3D Potentials

So far, we have considered quantum particles bound in one-dimensional potentials. This situation can be applicable to certain physical systems but it lacks some of the features of most real 3D quantum systems, such as atoms and artificial structures.

A real (2D) “quantum dot”



<http://pages.unibas.ch/phys-meso/Pictures/pictures.html>

One consequence of confining a quantum particle in two or three dimensions is “degeneracy” -- the existence of several quantum states at the same energy.

To illustrate this important point in a simple system, let's extend our favorite potential - the infinite square well - to three dimensions.