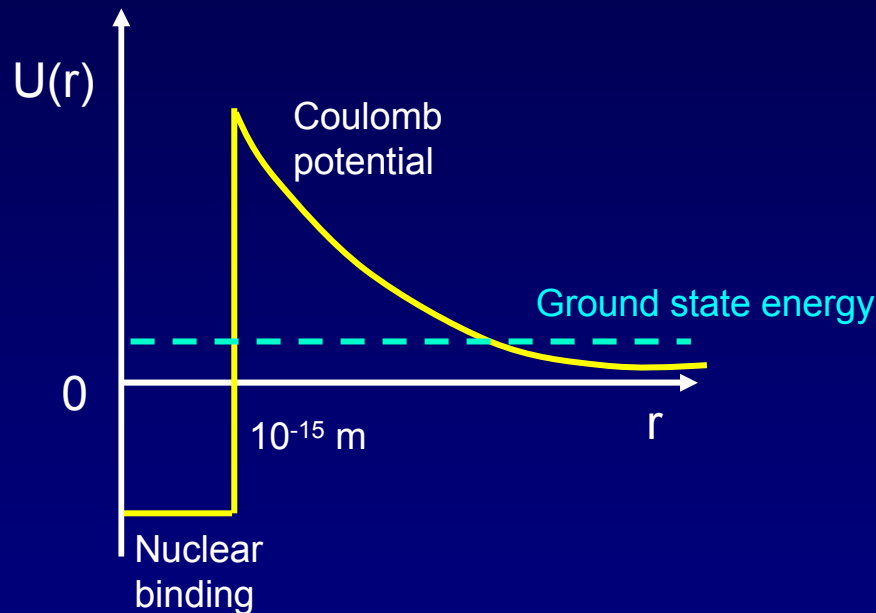


FYI: Why aren't all atoms radioactive?

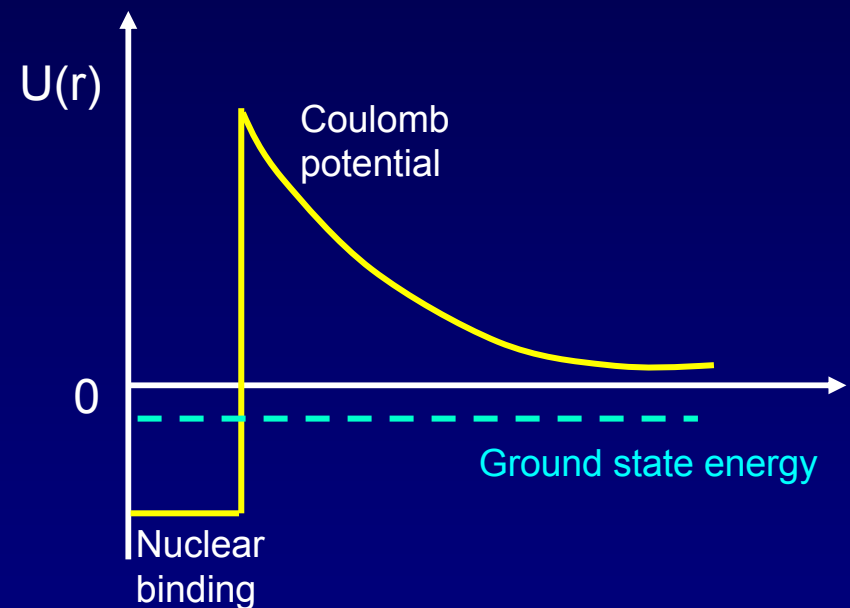
Why do only some atoms undergo radioactive decay?

It depends on whether they would have less energy in the decayed state than they do in the undecayed state.

Consider the following two possible potentials:



Here the α -particle can tunnel to an allowed region, and gain KE (used for power, cancer treatment, bombs, etc.)



Here the α -particle has NO allowed region to tunnel to, so the nucleus is stable against radioactive α -decay.