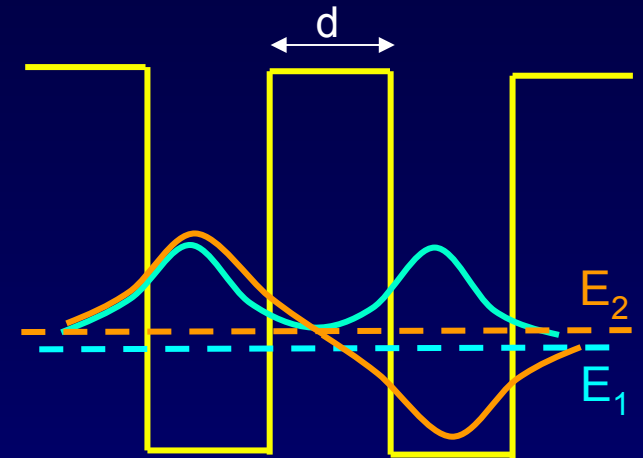


Energy Splitting in a Double Well

Suppose the particle starts out in the left well.
What is the time dependence of the probability?
From the graphs of ψ , we can see that, initially,
 $\psi = \psi_1 + \psi_2$ (to get cancellation on the right).
As discussed last lecture, the particle oscillates
between the wells with an oscillation period,
 $T = h/(E_2 - E_1)$.



Therefore, $\Delta E = E_2 - E_1$ depends on the tunneling rate.

A double well with a high or wide barrier will have a smaller ΔE than one with a low or narrow barrier.

Also, ΔE will become larger as the energy increases (*i.e.*, as $U_0 - E$ decreases).