Lectures II and III
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The Efimov Effect Two particles that are just shy of binding may develop an infinite number of shallow bound states when a third particle is added. This quantum mechanical result was first predicted by Efimov for identical bosons (or nucleons in a symmetric spatial state) interacting with a short range pair-wise potential. The Efimov effect persists even for nonidentical particles, provided atleast two of the three bonds are almost bound. This effect has recntly been verified experimentally using ultra-cold atoms. Experiments have also been proposed in nuclear physics. We shall explore the origin of this effect using only elementary quantum mechanics. Experimental evidence will also be reviewed.

Topics covered in lectures II and III
1) The three-body problem and the Efimov spectrum.
2) The inverse square potential : the same signature ! 3) Back to the
two-body problem : separable potential.
4) Derivation for a system with two heavy and one light particle using
  pair-wise separable potential and the adiabatic approximation.
5) Experimental Evidence : three-body recombination loss.
6) Outlook in nuclear/ atomic physics.