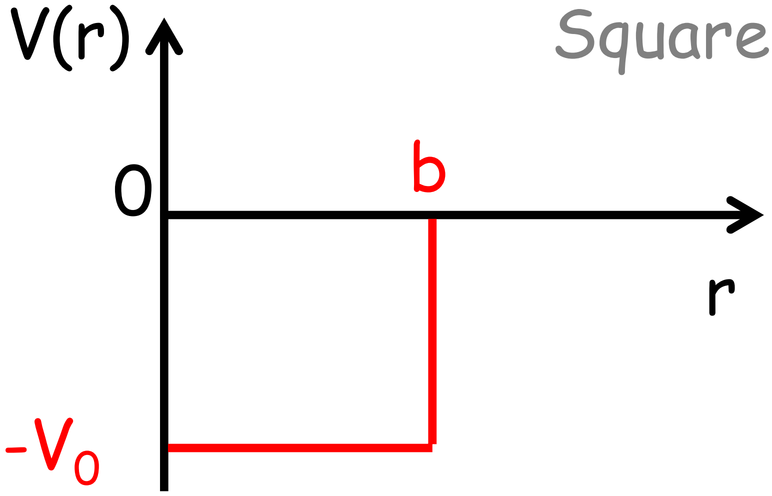
Assume simple V(r)



Consider radial Schrödingers equation (ℓ=0):

$$\left[\frac{-\hbar^2}{2M}\frac{d^2}{dr^2} + V(r)\right]u(r) = Eu(r) \qquad u(r) = rR(r)$$

where $M = \textbf{reduced mass} = \dfrac{m_p m_n}{m_p + m_n}$

Let $u(r) = rR(r)$ r = internucleon distance

Probability particle between r and r+dr=

$$r^2|R(r)|^2 dr = |u(r)|^2 dr$$

For bound state E < 0
= -Binding energy