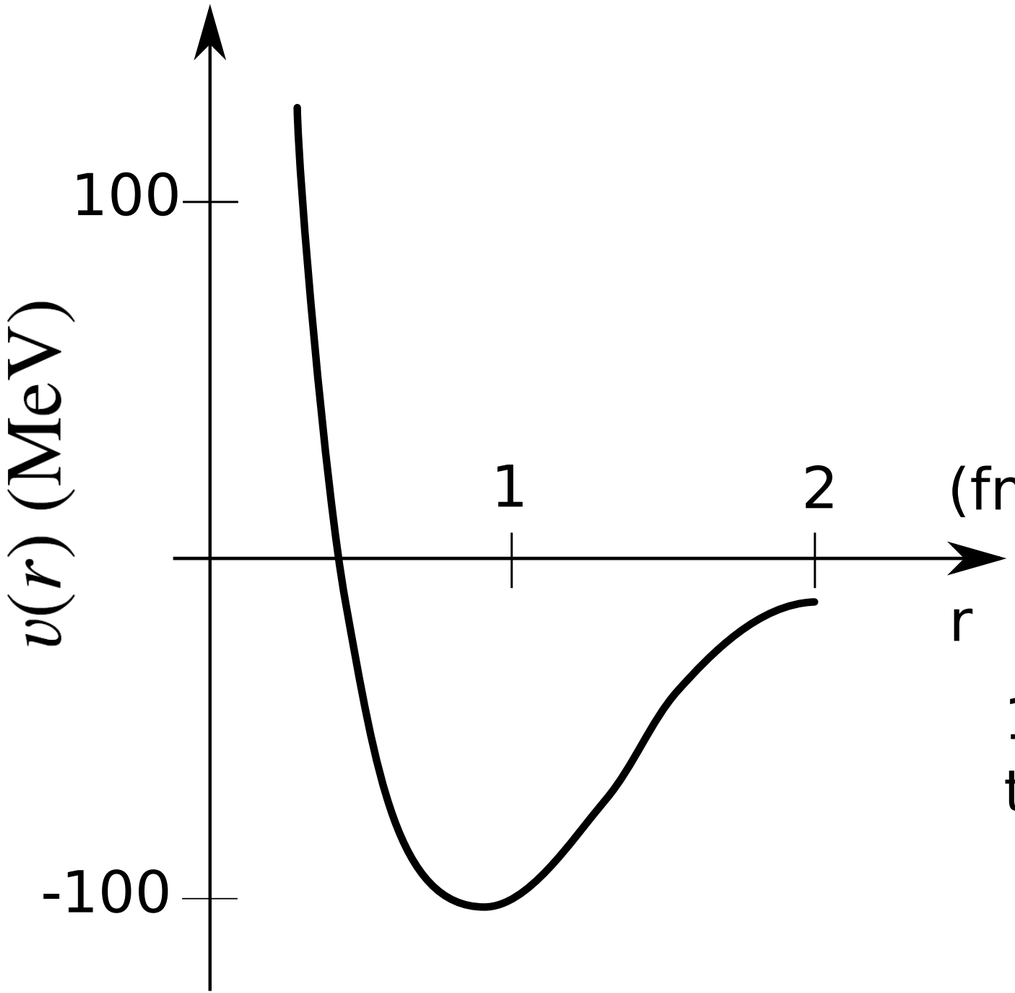
$^1S_0$ interaction



$$q = \frac{\hbar^2}{M_n a^2}\frac{1}{|v_0|}; \qquad M_n = 0.939\,\mathrm{GeV}/c^2$$

$$a \approx 0.9\,\mathrm{fm}\ \text{(range)}$$

$$v_0 \approx -100\mathrm{MeV}\ \text{(depth)}$$

1S0: interaction between two nucleons in states of time reversal with S=L=0, and thus in a singlet state.

(QM: ZPF ($\Delta p_x \Delta_x \geq \hbar$))