

# Theory Seminar

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## NUCLEAR FORCE FROM LATTICE QCD

Nucleon-nucleon (NN) potential is studied by lattice QCD simulations in the quenched approximation. An NN potential  $V_{\text{NN}}(r)$  is defined from the equal-time Bethe-Salpeter amplitude with a local interpolating operator for the nucleon. By studying the NN interaction in the  $^1S_0$  and  $^3S_1$  channels, we show that the central part of  $V_{\text{NN}}(r)$  has a strong repulsive core of a few hundred MeV at short distances ( $r \lesssim 0.5$  fm) surrounded by an attractive well at medium and long distances. These features are consistent with the known phenomenological features of the nuclear force. More recent progresses are also discussed.

