

## Extended Quark Potential Model from Random Phase Approximation

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(Received: 2002-2-28; Revised: )

Abstract: The quark potential model is extended to include the sea quark excitation using the random phase approximation. The effective quark interaction preserves the important QCD properties — chiral symmetry and confinement simultaneously. A primary qualitative analysis shows that the  $\pi$  meson as a well-known typical Goldstone boson and the other mesons made up of valence  $q\bar{q}$  quark pair such as the  $\rho$  meson can also be described in this extended quark potential model.

PACS: 12.39.Pn, 14.40.Aq

Key words: quark model, random phase approximation, chiral symmetry

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