

Examining the evidence for constituent gluons and implications for the spectrum of hybrids.

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Spectrum of hybrid mesons is expected to be dominated by gluonic excitations [1]. Recent lattice analysis of gluon spectrum in the presence of static quark-antiquark sources reveal a rich structure and place important constraints on models of low energy gluonic degrees of freedom. We analyze the gluon spectrum in the framework of Coulomb gauge QCD [2]. We will show how, for separation between the sources less than a few fm the gluonic ground state of the static quark-anti-quark system can be well described in terms of a mean field wave functional and that the excited states can be described in terms of single quasi-particle excitation of the gluon field [3]. We also discuss the role of many particle excitations relevant at large separation between sources and implications for spectroscopy of hybrids.

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