

Mass spectra of the light and heavy mesons and the glueball

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It is shown that the conventional mesons and the lowest glueball states can be reasonably described within a simple relativistic quantum-field model of interacting quarks and gluons under the analytic confinement by using a path-integral approach. The ladder Bethe-Salpeter equation is solved for the meson ($\bar{q}_{f_1} q_{f_2}$) and glueball (gg) spectra. A minimal set of parameters (the quark masses m_f , the coupling constant α_s and the confinement scale Λ) is used to fit the latest experimental data. In spite of the simplicity, the model provides a reasonable framework to estimate the decay constants f_π and f_K as well as the non-exotic meson and glueball masses in a wide range of energy up to 10 GeV.