XIII Mexican School of Particles and Fields



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Effective gluon propagator from a trigonometric quark confinemet potential

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Abstract content

Summary

The Cornell potential predicted by Lattice QCD has been shown very recently [1] to allow for an exactly solvable extension toward a trigonometric quark confinement (TQC) potential. The spectrum of the TQC potential has been shown to fit with an amazing completeness the spectra of the non-strange baryons in the quark-diquark approximation of internal structure. In the present work we exploit the Born approximation and generate Fourier transform of the TQC potential and design in this manner effective gluon propagator. It is a task for future research to test along the line of ref. [2] as to what extent such a propagator is capable in producing confinement. [1] C.B.Compean, M. Kirchbach Eur. Phys. J. A Vol. 33, pp. 1-4, 2007 (Letter). [2] F. T. Hawes, C. D. Roberts, and A. G. Williams, Phys. Rev. D 49, 4683 (1994).

Primary author(s) :COMPEAN JASSO, Cliffor Benjamin (IF-UASLP)Presenter(s) :COMPEAN JASSO, Cliffor Benjamin (IF-UASLP)Session Classification :Posters