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Structure of QCD string near Casimir Surface

The confinement problem still remains an important topic in quantum chromodynamics (QCD). At the moment, there is no acceptable way to describe the low-energy limit of QCD, at which non-perturbative effects appear, except for lattice modeling. In my work, using lattice QCD methods, I considered flux tubes connecting a quark - antiquark pair, with additional boundary conditions in the form of a Casimir plate. The behavior of the flux tube was studied near the plate, at different distances between quarks, and the components of the force tensor of the field were calculated. Based on the results of the work, one can conclude that the coupling between quarks weakens at close distances to the plate and its bending, which hypothetically may indicate the possibility of observing a quarkiton.

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