A possible explanation of asymptotic freedom and quark confinement

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Abstract
In strong interaction, asymptotic freedom and quark confinement are still two unsolved puzzles. Here I propose that color charge field is like magnetic field to have zero divergence. Thus, no single colored charge can be isolated just like we cannot isolate magnetic monopole. In addition, the closer the two or three quarks, there won't be more interaction force like electric force or gravity. Thus, this can explain the two phenomena: asymptotic freedom and quark confinement.

Main text

In QCD, there are two puzzling phenomena: quark confinement and asymptotic freedom. Only white color can be made in strong interaction including red quark, blue quark, and green quark. Or, a green quark and an anti-green anti-quark to make a white color. No single colored quark can be isolated. This is called quark confinement. In addition, when two or three quarks become closer, the interaction between them won't be stronger. This is not like electric force or gravity interaction that the force increases with closer distance. This phenomenon in strong force is called asymptotic freedom.

Here, I will propose a mechanism to solve the two puzzles. I propose the color charge field divergence is equal to zero. This is mimicking magnetic field. There is no magnetic monopole. When there is magnetic north pole, there is always magnetic south pole. That is the same with strong interaction. There should be existing red, green, blue color for each quark or colored with anti-colored quark to make a white color in strong interaction. This solves quark confinement. We cannot isolate magnetic monopole. And, we cannot isolate single color quark.

This can also solve asymptotic freedom. Because the divergence of electric field and gravity field is not zero, the closer the objects, the stronger the interaction force. However, if the field of colored charge divergence is zero, then the interaction won't be stronger if the two color charged quarks become closer to each other. This solves the asymptotic freedom in strong interaction. Strong interaction is just like magnetic

force. Because its divergence is zero, we should expect its curl is not zero. Thus, field of glueballs with quarks and gluons should have curl. We can use three dimensional rotations to solve this problem. For example: +X is red, -X is anti-red, +Y is blue, -Y is anti-blue, +Z is green, and -Z is anti-green. This might also solve proton spin crisis.

Another thought of free neutron decay is below. Beta decay will release W- boson which can finally become electron and neutrino. W- boson can also decay into quark anti-quark pair such as anti-up quark and down-quark pair that is equal to a pion-. Pion- mediates attractive force between nucleons. Thus, we can view there is a pion- hidden in neutron that mediate the force between proton and neutron inside the atomic nucleus. This is a SU(2) quantum hadrodynamics. We know neutron has magnetic moment which can be also explained by the hidden pion-, and there is magnetic attraction between neutron and proton. Because magnetic field has no divergence, this is the reason for SU(2) asymptotic freedom.