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QCD instability induced by a strong electromagnetic field in AdS/CFT

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Recently, both theoretical and experimental physicists have been interested in the pair creations of strongly correlated particles in a magnetic field at the heavy ion collisions in RHIC and LHC. It is well-known that a strong magnetic field occurs when each charged particle collides. It may be plausible that a quark antiquark pair creation occurs by the strong magnetic field.

AdS/CFT correspondence has developed as one of the most powerful methods to study a strongly coupled gauge theory as QCD. By using the AdS/CFT, we evaluate the imaginary part of D-brane action including a constant electromagnetic field, and obtain the creation rate of the quark antiquark pair in the strongly coupled gauge theory.

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