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## Chiral gap effect in QCD in curved space

*Monday 8 September 2014 18:00 (30 minutes)*

We discuss the effect of curved spacetime on QCD phase transitions. We point out a common feature that fermions are always gapped with a curvature in a way consistent with chiral symmetry, which we call the chiral gap effect. We can have intuitive understanding of the behavior of the chiral condensate as a function of positive and negative curvatures. We also address the decoupling of the gluonic sector from dynamical quarks because of the mass gap. This suggests that QCD would become closer to the pure Yang-Mills theory under strong gravitational fields. We mention on a speculative scenario on the QCD surroundings near the black holes.

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