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Strings and AdS/CFT at finite density

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Stellingen

behorende bij het proefschrift

Strings and AdS/CFT at finite density

1. Switching on a background magnetic field in the holographic probe brane model of strongly coupled fermions at finite density leads to the opening of a gap in the dispersion relation of the holographic zero-sound.
This thesis, Chapter 2.
2. The tachyon Dirac-Born-Infeld model at finite temperature and chemical potential suggests a phase transition to the phase with conformal symmetry in a holographically dual strongly coupled field theory.
This thesis, Chapter 3.
3. The tachyon Dirac-Born-Infeld model gives a holographic description of a walking technicolor model, exhibiting dynamical chiral symmetry breaking and electroweak symmetry breaking in a strongly coupled quantum field theory.
This thesis, Chapter 3.
4. World-sheet vertex operators of a graviton and a gauge field in the black brane background with a gauge field flux (obtained as a direct product of the two-dimensional charged black hole and a flat space) split into two decoupled systems.
This thesis, Chapter 4.
5. Heterotic string theory in a black brane background describes the hydrodynamics of field theory with finite number of degrees of freedom.
6. Assuming that the holographic dual of a two-charge black hole is a Landau Fermi liquid one has to add a Gauss-Bonnet term to the supergravity action to make the quasiparticle life-time finite.
R.A. Davison, M. Goykhman, A. Parnachev: *AdS/CFT and Landau Fermi liquid*, [arXiv:1312.0463 [hep-th]].
7. There are no Einstein-Podolsky-Rosen bridges of the Maldacena-Susskind type between quarks inside a baryon.
8. In the realm of fundamental Planck-scale physics, theories are to be tested by their agreement with string theory, instead of agreement with experiment.

Mikhail Goykhman
Leiden, June 24, 2014