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Stellingen

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“The holographic glass bead game: from superconductivity to time machines”

I. The conventional holographic dictionary for correlation functions requires modifications if the dual bulk fields are coupled.

This thesis, Chapter 2.

II. The simplest holographic model of BCS-like superconductivity has $p + ip$ symmetry of pairing due to a bulk analogue of the Rashba splitting inherent for holographic fermionic theories at finite density.

This thesis, Chapter 2.

III. At a finite chemical potential in the colliding shock waves model of relativistic heavy ions the energetic threshold of the deconfinement phase transition is increased.

This thesis, Chapter 3.

IV. In certain cases evolution of a non-causal field theory can be self-consistent and controllable without any need to impose additional constraints.

This thesis, Chapter 4.

V. A hard wall termination of the geometry makes little sense when Einstein’s equations are involved, so a geometric infrared regulator is needed.


VI. In holographic Bose-Fermi systems scalar condensates can cause Fermi surfaces to smear out.


VII. The thermalization time of the medium decreases when the chemical potential is increased.


VIII. Precisely the same entanglement exists between the fields within the future and past light cone as between the left and right Rindler wedges.


IX. The main goal of science is to search for new languages that would naturally make complicated open problems trivial rather than just to solve the problems.