

AdS/CFT SUPERCONDUCTORS AND NON-HERMITIAN HOLOGRAPHY

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AdS/CFT Introduction

AdS/CFT correspondence is a duality between a gravity theory in Anti-de Sitter (AdS) space and a conformal field theory (CFT) in the boundary. It is a realization of the holographic principle, which states that the information contained in a volume of space can be represented as information on the boundary of that space.

AdS geometry

AdS geometry is a spacetime with a constant negative curvature. It is a solution to the Einstein equations with a negative cosmological constant. The geometry is often represented as a hyperboloid in a higher-dimensional space.

QFT

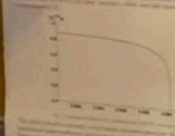
Quantum field theory (QFT) is a framework for describing the behavior of particles and fields. In the context of AdS/CFT, the QFT is a conformal field theory (CFT) living on the boundary of the AdS space.

The proposal of AdS/CFT: Calculating VEVs from a cluster of gravity in AdS

The proposal of AdS/CFT is that the expectation values (VEVs) of operators in the CFT can be calculated from the geometry of the AdS space. This is done by calculating the action of the gravity theory in the AdS space and then taking the appropriate limit.

Holographic Superconductors

Holographic superconductors are a class of CFTs that exhibit a phase transition to a state with a non-zero condensate. This is analogous to the transition to a superconducting state in a material.



Non-Hermitian holography

Non-Hermitian holography is a generalization of the AdS/CFT correspondence to non-Hermitian CFTs. This allows for the study of systems with gain and loss, such as open quantum systems and quantum optics.

