Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 21 Septembre 2023, 10:00

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IPhT

Conformal measure spaces

The conformal bootstrap equations in any dimension are an infinite set of coupled non-linear equations in infinitely many variables. According to the lore, the solutions of the full set of equations correspond to physical CFTs. At the same time, the only solutions truly known to exist above two dimensions are mean field theories. In this talk, I will discuss conformal measure spaces, which are objects guaranteed to produce solutions of the conformal bootstrap in any dimension. I will review why hyperbolic manifolds give rise to a particular class of conformal measure spaces, and thus to solutions of the complete set of the conformal bootstrap equations. I will then use the bootstrap equations to prove new bounds on the Laplace spectra of hyperbolic manifolds in two and three dimensions. Finally, I will discuss the similarities and differences between these solutions, and those that are believed to arise in physical CFTs.

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