

Institut Henri Poincaré
11 rue Pierre et Marie Curie, 75231 Paris cedex 05
String Theory in Greater Paris

Rencontres Théoriciennes
“Supergravité, théorie des cordes et théorie M”

Jeudi 6 Février 2020, 11:40

Jerome Gauntlett

Imperial College, London

Geometric Extremization for AdS-CFT and Black Hole Entropy

We consider supersymmetric AdS₃ × Y⁷ solutions of type IIB supergravity dual to N=(0,2) SCFTs in d=2, as well as AdS₂ × Y⁹ solutions of D=11 supergravity dual to N=2 supersymmetric quantum mechanics, some of which arise as the near horizon limit of supersymmetric, charged black hole solutions in AdS₄. The relevant geometry on Y(2n+1) was first identified in 2005-2007 and around that time infinite classes of explicit examples solutions were also found but, surprisingly, there was little progress in identifying the dual SCFTs.

We review new results which change the status quo. For the case of Y⁷, a variational principle allows one to calculate the central charge of the dual SCFT without knowing the explicit metric. This provides a geometric dual of c-extremization for d=2 N=(0,2) SCFTs analogous to the well known geometric duals of a-maximization of d=4 N=1 SCFTs and F-extremization of d=3 N=2 SCFTs in the context of Sasaki-Einstein geometry. In the case of Y⁹ a similar variational principle can be used to obtain properties of the dual N=2 quantum mechanics as well as the entropy of a class of supersymmetric black holes in AdS₄ thus providing a geometric dual of I-extremization.

Institut Henri Poincaré, salle 314, 3^{ème} étage

Retrouvez les activités de la communauté parisienne de théorie des cordes sur
<http://string.lpthe.jussieu.fr>
La liste de tous les séminaires en région parisienne est disponible sur
<http://string.lpthe.jussieu.fr/semparis>
