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”

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Alessandro Tomasiello

U. of Milano Bicocca

De Sitter Solutions from Ten Dimensions

Finding de Sitter compactifications of string theory has long been a challenge. They are known to require quantum corrections, or orientifold planes, or both. Most existing models rely on effective four-dimensional actions, or work with the ten-dimensional action but involve 'smearing' the internal O-planes. After a brief review of such efforts, we present some new numerical solutions with localized and back-reacted O8-planes. While the solution is singular and strongly-coupled near one of the O8s, it exhibits the same behavior observed for such objects in flat space and in a variety of AdS solutions in various dimensions, with solid holographic cross-checks. Away from the O8s the solution can be made parametrically weakly-coupled thanks to some moduli, whose nature might however be changed by string theory corrections.

Institut Henri Poincaré, salle 314, 3ème étage