

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 22 Mai 2025, 10:00

Pierre Heidmann

brane-Antibrane Bound States and the Microstructure of Nonextremal Black Holes

I will present a new class of brane-antibrane bound states in type IIB string theory. These configurations appear as regular bound states of two Strominger- Vafa black holes, one BPS and one anti-BPS, held apart by a regular topological structure. In the neutral, asymptotically flat case, I will show that these solutions capture atypical microstates of the Schwarzschild black hole, accounting for half of its entropy. This provides a concrete microscopic realization of Schwarzschild entropy in terms of branes and antibranes. I will then consider the AdS3 embedding, where these bound states form a large, discrete family of non-BPS states with a quantized energy spectrum determined entirely by the number of antibranes and antimomenta. I will show that regular solutions exist with energy below the CFT mass gap and discuss their physical properties and implications.

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

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