

Séminaire de matrices, cordes et géométries aléatoires

Mercredi 26/04/2017, 14h15-15h15

Orme des Merisiers Salle Claude Itzykson, Bât. 774

**Black hole microstates in AdS_4 and AdS_5 from
supersymmetric partition functions**

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This talk addresses the problem of counting the microstates of supersymmetric asymptotically AdS black holes in terms of a holographically dual field theory. We focus on a particular BPS class of $AdS_2 \times S^2$ near-horizon geometry in N=2 gauged supergravity relevant both for AdS_4 and AdS_5 black holes. We consider in the large N limit the topologically twisted index of the ABJM theory and the partition function of N=4 SYM and show that they correctly reproduce the Bekenstein-Hawking entropy of the AdS_4 and AdS_5 black holes, respectively. An extremization of the partition functions with respect to a set of chemical potentials is required. We interpret it as the selection of the exact R-symmetry of the superconformal quantum mechanics describing the horizon of the black holes.
