

Maldacena, Juan; Strominger, Andrew**AdS₃ black holes and a stringy exclusion principle.** (English) Zbl 0951.83019

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Summary: The duality relating near-horizon microstates of black holes obtained as orbifolds of a subset of AdS₃ to the states of a conformal field theory is analyzed in detail. The $SL(2, \mathbb{R})_L \otimes SL(2, \mathbb{R})_R$ invariant vacuum on AdS₃ corresponds to the NS-NS vacuum of the conformal field theory. The effect of the orbifolding is to produce a density matrix, the temperature and entropy of which coincide with the black hole. For string theory examples the spectrum of chiral primaries agrees with the spectrum of multi-particle BPS states for particle numbers less than the order of the central charge. An upper bound on the BPS particle number follows from the upper bound on the $U(1)$ charge of chiral primaries. This is a stringy exclusion principle which cannot be seen in perturbation theory about AdS₃.

MSC:**83C57** Black holes**81T30** String and superstring theories; other extended objects (e.g., branes) in quantum field theory**83E30** String and superstring theories in gravitational theoryCited in **149** Documents**Keywords:**

orbifolds; density matrix

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