



# GEOMETRY, TOPOLOGY, AND PHYSICS SEMINAR

## The black hole in 2+1 dimensions

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Room 6635 South Hall

**Abstract:** Gravity in 2+1 dimensions does not have any propagating degrees of freedom. However, it does contain black holes, namely the Banados-Teitelboim-Zanelli (BTZ) black holes. The BTZ black holes may be understood as quotients of  $AdS_3$  featuring a causal singularity hidden behind their event horizon. Using the Brown-Henneaux central charge of  $AdS_3$  gravity, the entropy of BTZ black holes may be obtained from an application of the Cardy formula in conformal field theory (CFT). This is the simplest example of the AdS/CFT duality.

This seminar is part of the NSF/UCSB 'Research Training Group' in Topology and Geometry. Information about future meetings can be found at <http://www.math.ucsb.edu/~drm/GTPseminar/>