



States of a chiral 2d CFT

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We study the dual description of the self-dual orbifold, a locally AdS₃ spacetime which is a circle fibration over AdS₂ and arises as the near-horizon limit of the extreme BTZ black hole. The geometry has two boundaries; we argue that this should correspond to a saddle-point for two copies of a chiral CFT living on these two boundaries in an entangled state. This picture arises naturally in the near-horizon limit, but there is a potential inconsistency with the bulk physics because of causal connections between the boundaries. We discuss a possible resolution of this puzzle. We also construct geometries which asymptotically approach the self-dual orbifold on a single boundary. These geometries (which contain mild singularities) enable us to explore other states of the dual chiral CFT. One of the geometries corresponds to the ground state of this CFT and can be obtained as a particular near-horizon limit of the BTZ M=0 black hole. The self-dual orbifold is a finite temperature version of this geometry.

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