

Abstract Submitted  
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**Holographic Randall-Sundrum Braneworld from charged Black Hole Microstates**<sup>1</sup> STEFANO ANTONINI, BRIAN SWINGLE, University of Maryland, College Park — In the context of AdS/BCFT correspondence, certain high-energy holographic CFT states correspond to AdS black hole microstates with a geometrical behind-the-horizon region, modeled by a portion of a second asymptotic region terminating at a dynamical end-of-the-world (ETW) brane. The ETW boundary geometry takes the form of a closed FLRW spacetime. Under the right conditions, gravity is locally localized on the ETW brane similarly to the Randall-Sundrum II scenario for cosmology. In this case, the effective description of the brane physics is that of an expanding and contracting cosmological universe of the same dimensionality as the CFT, and the black hole microstate would give a precise, microscopic description of this cosmology. We show that such a braneworld scenario can be realized in a simple bottom up model consisting of a constant tension brane coupled to Einstein-Maxwell theory. If the bulk AdS-Reissner-Nordström black hole is near-extremal and the brane is near-critical, gravity can be locally localized on the brane and the bulk spacetime admits a holographic dual description. This result opens the door to a new description of cosmology in AdS/CFT correspondence.

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