The WGC in AdS space

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Abstract

The WGC has been an important conjecture in the Swampland program. It is motivated from EFT concerns and checked by top-down constructions. While intensely investigated in asymptotically flat spacetimes, the formulation of the WGC in an AdS background is less studied. In this talk, I will discuss how the WGC conjecture in AdS space can be derived from the black hole perspective. In particular, we argue that the AdS WGC bound should be obtained as the condition under which AdS extremal black holes can decay, which translates to a quantum condition on charge production by AdS black holes and a classical condition on black hole-particle force. This idea is further generalized to address the AdS WGC in cases with multiple U(1) gauge fields and with moduli fields (un)stablized.

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