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Convexity of Charged Operators in CFTs and the Weak Gravity Conjecture

Wednesday 1 September 2021 16:30 (1 hour)

In this talk I will introduce a particular formulation of the Weak Gravity Conjecture in AdS space in terms of the self-binding energy of a particle. The holographic CFT dual of this formulation corresponds to a certain convex-like structure for operators charged under continuous global symmetries. Motivated by this, we proposed a conjecture that this convexity is a general property of all CFTs, not just those with weakly-curved gravitational duals. While we lack an understanding of why this may be true from the CFT side, it is possible to test it in simple CFTs. The conjecture passes all the tests performed so far.

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