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Holographic complexity

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My name is Ayoub Mounim. I am a Phd student in Naples and I am currently working on Holographic complexity.

The idea is that this should be a new entry in the holographic dictionary. In the bulk side we define a new gravitational observable given by the value of the on-shell action computed in a bounded subregion of Ads space known as “Wheeler-DeWitt patch”. This particular region is bounded by null boundaries and this brings some subtleties in the calculations. This quantity is then conjectured to be the holographic dual of the “complexity” of the corresponding quantum field theory state that lives on the boundary of the space. What do we mean by complexity of a quantum field theory is still to be defined. We know how to define the computational complexity of a quantum state form quantum information theory, what we are doing is trying to adapt this concept to quantum field theories and better explore this conjecture.

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