

Complexity for CFTs in General Dimensions

Thursday, 18 March 2021 17:30 (1 hour)

In this talk I will discuss circuit complexity in the setting of higher dimensional conformal field theories. I will consider unitary gates built from a representation of the conformal group, two different circuit cost functions defined using either the Fubini-Study metric or the one-norm, and paths that start from an initial spinless primary state. We will see that the resulting Fubini-Study metric is the metric on a particular coadjoint orbit of the conformal group, while the one-norm computes the geometric action associated to this orbit. This generalizes recent results in 2d connecting the one-norm to a Virasoro geometric action, and also shows that coadjoint orbits provide a unified geometric framework that applies to different choices of cost functions. I will end with some comments about symmetry groups other than the conformal group, using group theoretic generalizations of coherent states. This is based on a work with Nicolas Chagnet, Jan de Boer and Claire Zukowski.

45' talk + 15' discussion

Presenter: CHAPMAN, Shira