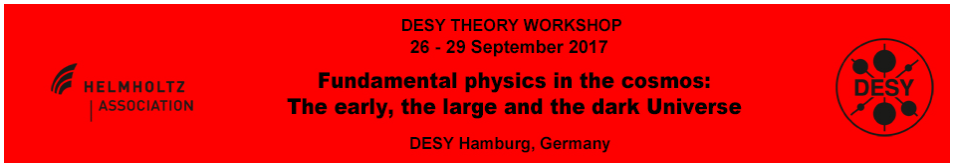

Contribution ID: **113** Type: **not specified**

Circuit complexity in QFT

Thursday 28 September 2017 16:45 (20 minutes)

Motivated by recent studies of holographic complexity, we examine the question of circuit complexity in quantum field theory. We provide a quantum circuit model for the preparation of Gaussian states, in particular the ground state, in a free scalar field theory for general dimensions. Applying the geometric approach of Nielsen to this quantum circuit model, the complexity of the state becomes the length of the shortest geodesic in the space of circuits. We compare the complexity of the ground state of the free scalar field to the analogous results from holographic complexity, and find some surprising similarities.

Primary author: JEFFERSON, Ro (AEI Golm)

Presenter: JEFFERSON, Ro (AEI Golm)

Session Classification: Parallel Session: String & Mathematical Physics

Track Classification: String & Mathematical Physics