Contribution ID: **41** Type: **Poster**

A holographic study of the characteristics of chaos and correlation in the presence of backreaction

We perform a holographic study to estimate the effect of backreaction on the correlation between two subsystems forming the thermofield double (TFD) state. Each of these subsystems is described as a strongly coupled large-Nc thermal field theory, and the backreaction imparted to it is sourced by the presence of a uniform distribution of heavy static quarks. The TFD state we consider here holographically corresponds to an entangled state of two AdS blackholes, each of which is deformed by a uniform distribution of static strings. In order to make a holographic estimation of correlation between two entangled boundary field theories in presence of backreaction we compute the holographic mutual information in the backreacted eternal blackhole. The late time exponential growth of an early perturbation is a signature of chaos in the boundary thermal field theory. Using the shock wave analysis in the dual bulk theory, we characterize this chaotic behaviour by computing the holographic butterfly velocity. We find that there is a reduction in the butterfly velocity due to a correction term that depends on the backreaction parameter. The late time exponential growth of an early perturbation destroys the two-sided correlation, whereas the backreaction always acts in favour of it. Finally we compute the entanglement velocity that essentially encodes the rate of disruption of correlation between two boundary theories.

Email

2018phz0012@iitrpr.ac.in

Affiliation

Indian Institute of Technology Ropar

Author: PANT, Sanjay (IIT ROPAR)

Presenter: PANT, Sanjay (IIT ROPAR)

Session Classification: Classical & Quantum Gravity

Track Classification: Classical & Quantum Gravity