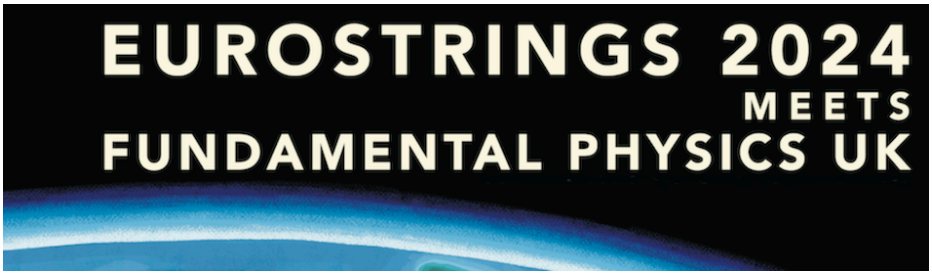

Contribution ID: **91** Type: **Talk in parallel session**

Butterflies revisited for asymptotically Lifshitz black hole

Thursday 5 September 2024 14:50 (20 minutes)

We explore connections between two salient chaotic features, namely Lyapunov exponent and butterfly velocity, for the class of asymptotically Lifshitz black hole background with arbitrary critical exponent by implementing three different holographic approaches, namely, entanglement wedge method, out of time-ordered correlators (OTOC) and pole-skipping. We present a comparative study where all of the above methods yield exactly similar results for the butterfly velocity and Lyapunov exponent. This establishes equivalence between all three methods for probing chaos in the chosen gravity background. Explicit non-trivial dependencies of OTOC on the arbitrary critical exponent has also been studied. We further derive the eikonal phase approximation and Lyapunov exponent at the turning point of the null geodesic of the background geometry using the classical approach. These are found as functions of critical exponent. Eventually we uncover different scattering scenarios in the near-horizon and near-boundary regimes.

Link to publication (if applicable)

https://arxiv.org/abs/2406.18319

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