ICTS Postdoc Seminar

Title : The holographic storage of quantum information in flat spacetime

Speaker : Siddharth G Prabhu (International Centre for Theoretical Science - TIFR, Bangalore)

Date : Saturday, 5 September 2020

Time : 03:00 pm (IST)

Abstract : We have learnt a great deal about quantum gravity in the last couple of decades, particularly about its holographic nature in asymptotically AdS spacetimes. Here, we explore this idea in asymptotically flat spacetimes with the following question: Can an observer on the boundary of the spacetime distinguish between two states that are deemed distinguishable by an observer in the bulk? We argue that semiclassical gravity is an effective tool to answer this question, and extrapolate its results to make a few reasonable assumptions regarding the low energy structure of any complete theory of quantum gravity. Using these, we argue that an asymptotic observer indeed has access to all the information about massless bulk excitations, provided they are at the past boundary of future null infinity. We also show that information available in any cut of future null infinity is also available in any later cut, but the converse doesn't hold. Similar results hold for past null infinity. These results have striking implications for the black hole information paradox, and suggest revisiting the long held expectation of resolving it by deriving a Page curve for the entropy.

Reference: https://arxiv.org/abs/2002.02448

Online Seminar : Please click on the below link to join the meeting

https://zoom.us/j/93023085983?pwd=bGV1L1dBRTVaTDZON1V0TWExejd3Zz09

Meeting ID: 930 2308 5983
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