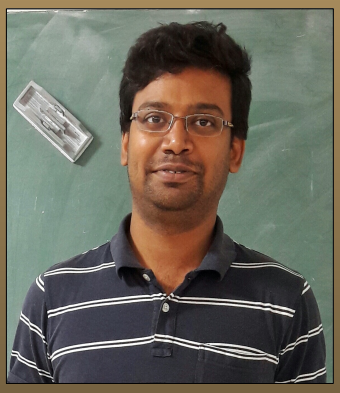
tifr

Department of Theoretical Physics

THE QUANTUM SPACETIME SEMINAR SERIES

Holography Second Law and Higher Curvature Gravity

Sudipta Sarkar
(IIT Gandhinagar)



Date: Aug 08, 2016
Time: 11.30 am
Venue: A-304, TIFR

(Duration and Location are subject to irreducible jitter)

Gravity being the manifestation of the curvature of spacetime can create regions which are inaccessible to a class of observers. An example of such a region is the event horizon of black objects which acts as an one way causal boundary. Interestingly, it is possible to assign thermodynamic properties like temperature, entropy etc. to the event horizon. Horizon thermodynamics is believed to be a crucial input to understand the quantum dynamics of gravity. The basis of this thermodynamic analogy is the second law of black hole mechanics which asserts that the area of the event horizon can not decrease in any classical process. General theory of relativity could be an effective theory and the classical action for gravity may also contain higher curvature terms. Then a natural question is whether the thermodynamic properties of space time horizons can be generalized beyond general relativity. This talk will focus on the ``second law'' of black hole thermodynamics and discuss various possible generalizations to higher curvature gravity and how the second law connects black hole entropy with the notion of holographic entanglement entropy in AdS/CFT.