**tifr**

Department of
Theoretical Physics

# THE QUANTUM SPACETIME SEMINAR SERIES

# Pure states and eigenstate thermalization in the Schwarzian theory

**Pranjal Nayak**

(University of Geneva)

**Date:** September 3, 2019

**Time:** 11.30 am

**Venue:** A-304, TIFR

In this talk I will obtain the one-dimensional Schwarzian theory by dimensionally reducing two-dimensional Liouville theory on an open string. Different boundary conditions at the ends of the open string give rise to different states in the one-dimensional Schwarzian theory. I will discuss the construction of these states and study the correlation functions of bilocal operators in these states to study thermalisation. When the pure states are energy eigenstates, expectation values of non-extensive operators are thermal. On the other hand, in coherent pure states, these same operators can exhibit ergodic or non-ergodic behavior, which is characterized by elliptic, parabolic or hyperbolic monodromy of an auxiliary equation; or equivalently, which coadjoint Virasoro orbit the state lies on. This provides a renewed understanding of the role of coadjoint orbits in the low dimensional holography.

Infosys