TATA-INFOSYS LECTURE SERIES:

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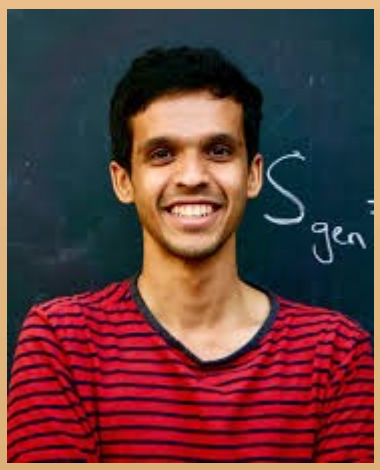

Lecture 1 (Mon, 9 Feb, 11:00am - 1:00pm, A 304)

Lecture 2 (Tue, 10 Feb, 11:00am - 1:00pm, AG 304

Lecture 3 (Fri, 13 Feb, 11:30am - 1:00pm, A 304)

Closed Universes vs AdS/CFT

In these lectures, I will focus on a puzzle pointed out in arXiv:2408.02720 (with Antonini) that highlights ambiguities in the AdS/CFT dictionary in the presence of closed universes. I will discuss various constructions of closed universes in AdS/CFT and explain the general formalism laid out by Marolf-Maxfield to understand the Hilbert space of closed universes. The tension in the puzzle is closely related to the presence of a one-dimensional Hilbert space in the absence of ensemble averaging in the CFT. I will explain how the same physics appears in the black hole information paradox and entanglement islands that explain the Page curve of black hole evaporation. Finally, I will discuss various ideas in the literature that try to resolve this puzzle.

(Click here for the zoom link)