ICTS | INTERNATIONAL CENTRE for THEORETICAL SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS String Seminar

Title : Tauberian Theorems and High Energy Modular Bootstrap

Speaker : Sridip Pal (California Institute of Technology)

Date : Wednesday, 29th November 2023

Time : 03:00 PM (IST)

Abstract : In this talk, I will apply Tauberian technique, a tool from analytic number theory, to analyze the granularity in \textit{averaged} asymptotic data of 2D CFT and learn about the asymptotic spacing of Virasoro primaries. In particular, we show that for a unitary modular invariant 2D CFT with fixed central charge $c>1$, having a nonzero twist gap in the spectrum of Virasoro primaries, for sufficiently large spin J, there always exist $\exp\left[2\pi \sqrt{\frac{(c-1) J}{6}}\right]$ number of spin J operators with twist falling in a vanishingly small interval $\left(\frac{c-1}{12} - \varepsilon , \frac{c-1}{12} + \varepsilon \right)$ with $\varepsilon=O(J^{-1/2}\log J)$. A similar result is proven for a family of holographic CFTs with appropriate conditions, in the regime $J>\!\!>c^3>\!\!>1$ having implication on the validity regime of Schwarzian approximation in describing the near-extremal rotating BTZ black holes. I will mention potential extension of the results to CFTs with conserved currents. The talk will mostly be based on 2307.02587, 2212.04893 with Jiaxin Qiao and Slava Rychkov and earlier work 2003.14316, 1905.12636 with Baur Mukhametzhanov and Shouvik Ganguly.

Venue : Offline: Madhava Lecture Hall

Online: Please click on the below link to join the seminar

https://icts-res-in.zoom.us/j/88092766911?pwd=R3ZrVk9yeW96ZmQ4ZG9KRzVhenRKZz09

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