



ICTS String Seminar (HYBRID)

Title : The free energy of the large- N fermionic Chern–Simons theory in the 'temporal' gauge

Speaker : Vatsal (IIT Bombay)

Date : Wednesday, 27th September, 2023

Time : 02:00 PM (IST)

Abstract : Most thermal free energy computations for the fermionic $U(N)$ Chern—Simons theory in the large- N limit have been computed using the light-cone gauge. We present our calculation in the 'temporal' gauge and demonstrate perfect agreement with the light-cone gauge results on \mathbb{R}^2 at large N [arXiv:2307.11020]. This provides a key consistency check and paves the way for the computation of the thermal free energy on a genus- g Riemann surface, particularly a finite-sized sphere, which is awkward in the light-cone gauge but more natural in the 'temporal' gauge. We can now investigate the conjectured duality between fermions coupled to $U(N)$ Chern—Simons theories and bosons coupled to level-rank dual Chern—Simons theories in 3D on general manifolds and possibly at the leading order in $1/N$. This is a part of the ongoing work.

Venue : **Offline:** Feynman Lecture Hall (ICTS)

Online: Please click the below link to join the seminar

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