

## ICTS String Seminar

- Title** : Non-AdS holography from the worldsheet
- Speaker** : Soumangsu Chakraborty (Institute of Theoretical Physics, Saclay)
- Date** : Thursday, 8<sup>th</sup> August 2024
- Time** : 3:00 PM (IST)
- Abstract** : Holography in asymptotically non-AdS spacetime, in general, turns out to be a difficult problem to tackle systematically. Recent development in solvable irrelevant deformations (e.g. TTbar and JTbar deformation of CFT<sub>2</sub>) and its maps to solvable worldsheet AdS<sub>3</sub> deformations allows us to study a certain class of non-AdS holography in a controlled setup. In this talk, I'll introduce a certain class of integrable irrelevant deformation (often called single trace TTbar deformation) of a CFT<sub>2</sub> dual to string theory in AdS<sub>3</sub> with pure NS-NS flux. The dual geometry is no longer asymptotically AdS. It interpolates between AdS<sub>3</sub> in the IR (deep inside the bulk geometry) to flat spacetime with a linear dilaton in the UV (near the boundary). Such a setup can be shown to be holographic with full worldsheet control on the bulk side. The boundary field theory is "closely related" to the symmetric product of TTbar deformed CFT. The spectrum of a winding  $w$  long string can be computed from the worldsheet and can be shown to match exactly with the  $Z_w$  twisted sector of the symmetric product of TTbar deformed CFT. Next, I'll put a black hole in the interpolating geometry and talk about its thermodynamics and its resemblance with the thermodynamics of TTbar deformed CFT. As an application to non-AdS holography, I'll construct operators of the boundary theory, compute their correlation functions using worldsheet techniques, and show a match with those obtained by Cardy for TTbar deformed CFT. I'll also talk about certain entanglement properties of the boundary theory with a monotonically decreasing  $c$ -function.
- Venue** : Chern Lecture Hall
- Zoom Link: <https://icts-res-in.zoom.us/j/88092766911?pwd=R3ZrVk9yeW96ZmQ4ZG9KRzVhenRKZz09>  
Meeting ID: 880 9276 6911  
Passcode: 232322