



ICTS Ph.D Thesis Defense Seminar (HYBRID)

Title : On Gauge-String Dualities and String Amplitudes

Speaker : Pronobesh Maity (ICTS – TIFR, Bengaluru)

Date : Thursday, 19th October, 2023

Time : 02:30 PM (IST)

Abstract : String theory has been a powerful enterprise in theoretical physics, which, apart from proposing a theory of everything, provides us a handful of dualities. One of the most surprising of them is the Gauge-String duality. But questions remain unanswered on the underlying mechanism and generality (e.g applicability to non-supersymmetric gauge theory) of this correspondence.

In the first part of my talk, I will take some initial steps toward these aspects, in particular, I will demonstrate an explicit realization of the underlying mechanism of gauge-string duality for tensionless limit of AdS_3/CFT_2 and (a particular sector of) AdS_5/CFT_4 correspondence. I will then move on to put forward a string theory dual to large N (non-supersymmetric) pure two-dimensional Yang-Mills theory.

In the second part, I will probe into independent questions of the consistency of string theory itself. In particular, I will comment on the positivity of the coefficients of string amplitudes when expanded into the partial waves at the massive poles in $D=4$. This positivity is demanded by unitarity. I will comment on the similar positivity of the Coon amplitude in $D=4$, the latter being an amplitude interpolating between a string amplitude and a scalar particle amplitude.

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

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

<https://icts-res-in.zoom.us/j/83027923821?pwd=EF6KkSGKbBEB7hSHnifemlv4ywA3Wa.1>