

ICTS String Seminar

- Title** : Positive geometry, corolla polynomial, and the gauge theory amplitudes.
- Speaker** : Amit Suthar (Institute of Mathematical Sciences, Chennai)
- Date** : Wednesday, 07th August 2024
- Time** : 03:00 PM (IST)
- Abstract** : I shall discuss the connection of pure Yang-Mills amplitudes with the positive geometry program, based on the work [2405.10601]. Arkani-Hamed, Bai, He, and Yan (ABHY) discovered a convex realization of the associahedron whose combinatorial and geometric structure generates scalar tree-level amplitudes. I shall talk about how the S-matrix of Yang-Mills theory can be obtained by contracting the canonical form of the ABHY associahedron (and polytopes corresponding to higher-loops) with a multi-vector field (MVF) in the kinematic space. Components of this MVF are determined by the combinatorial structures of the associahedron and the Corolla polynomial which was introduced by Kreimer, Sars, and van Suijlekom (KSVS). I shall also discuss how the Corolla differential operators can be used to "spin up" the recently discovered curve integral formulae for scalar amplitudes to give us gluon amplitudes.
- Venue** : Madhava Lecture Hall
- Zoom Link: <https://icts-resin.zoom.us/j/88092766911?pwd=R3ZrVk9yeW96ZmQ4ZG9KRzVhenRKZz09>
Meeting ID: 880 9276 6911
Passcode: 232322