Seminar, Department of Physical Sciences, Bose Institute, Kolkata

Higher-spin Massive String Interactions

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Abstract: The study of massive string scattering amplitudes have recently gained renewed interest, partially because of their possible applications to the study of black hole scattering processes motivated by their correspondence with black hole microstates (a proposal due to Horowitz, Polchinski '97). I shall start with a brief pedagogical introduction to the DDF approach (due to Di Vechhia, Del Giudice and Fubini) for describing arbitrary massive string vertex operators and compare with the usual covariant and lightcone approaches. In the process, I will also introduce the recently proposed *Framed* DDF approach which provides a geometric generalisation in terms of local frames. In the second part of the talk, I will describe the Sciuto-Della Selva-Saito approach (1970) for the construction of the covariant N-Reggeon on and show a similar approach for obtaining the DDF N-Reggeon (which is a generating functional for arbitrary string correlators of N external states). We shall also look at some recent results involving 'chaos' in the scattering of highly excited string states. Finally, in the third part of the talk, I will show in some detail, the appearance of some local conformal maps (Mandelstam maps) within the DDF Reggeon, which relate the DDF correlators on the upper half-plane to the lightcone correlators described by Mandelstam diagrams (Riemann surfaces which are conformal to an upper half-plane with cuts).

- **Date/time: April 08, 2026 (Wednesday) at 12:00 Noon**
- **Venue: Room 204, Physics Seminar Room, (Second floor, UAC, BI)**