

Twist-4 trajectories and missing local operators

Monday, 19 February 2024 11:00 (45 minutes)

In this talk, I will discuss the structure of spinning operators in CFTs. Specifically, there is a tension between the idea that all spinning operators belong to Regge trajectories with data analytic in spin, and the fact that the number of local operators below a given twist grows with spin. This means that Regge trajectories, suitably defined through light-ray operators, must decouple from all local correlation functions at the spins where local operators are missing, requiring infinitely many conditions for a single trajectory. I will explain how to resolve this tension by demonstrating that the vanishing conditions in all correlators follow from a single condition related to the normalisation of the light-ray operator. This will be illustrated by considering the Wilson-Fisher fixed point, where we can explicitly construct the light-ray operators of twist-4 trajectories at complex spin, and directly observe the vanishing conditions at low integer spin.

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