ID de Contribution: **15**   Type: **Non spécifié**

The Parisi-Sourlas Uplift and Infinitely Many Solvable 4d CFTs

jeudi 20 juin 2024 15:30 (1 heure)

Parisi-Sourlas (PS) supersymmetry is known to emerge in some models with random field type of disorder. When PS SUSY is present the d-dimensional theory allows for a d−2-dimensional description. In this paper we investigate the reversed question and we provide new indications that any given CFT_{d−2} can be uplifted to a PS SUSY CFT_d. We show that any scalar four-point function of a CFT_{d−2} is mapped to a set of 43 four-point functions of the uplifted CFTd which are related to each other by SUSY and satisfy all necessary bootstrap axioms. As a byproduct we find 43 non trivial relations between conformal blocks across dimensions.

We test the uplift in generalized free field theory (GFF) and find that PS SUSY is a powerful tool to bootstrap an infinite class of previously unknown GFF observables. Some of this power is shown to persist in perturbation theory around GFF.

We explain why all diagonal minimal models admit an uplift and we show exact results for correlators and CFT data of the 4d uplift of the Ising model. Despite being strongly coupled 4d CFTs, the uplifted minimal models contain infinitely many conserved currents and are expected to be integrable.

Orateur: TREVISANI, Emilio (CNRS - Sorbonne Université)

Classification de Session: Formal theory