Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 14 Mars 2024, 10:00

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DESY

The conformal bootstrap reaches higher points

The conformal bootstrap is a robust tool for the non-perturbative study of conformal field theories (CFTs) making use unitarity and crossing of simple four-point correlation functions. However, not all observables are accessible in this setup and it is not clear whether a theory can be determined uniquely through these constraints. Higher-point correlation functions of simple operators contain information about an infinite number of four-point correlators with complicated operators, and can potentially address the aforementioned problems. In this talk, I will discuss recent progress in generalizing the bootstrap program to higher-point functions, with emphasis on a positive semi-definite numerical setup for the six- point crossing equation in one dimension. Despite the drastic simplifications with respect to higher dimensions, the problem retains its infinite nature, which we are able to address, obtaining non-trivial bounds on scaling dimensions and four-point functions at fixed kinematics.

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