

Meeting PRIN "String Theory as a bridge between Gauge Theories and Quantum Gravity"



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Analytic bootstrap for the $O(3)$ magnetic impurity

Friday, 23 February 2024 11:00 (15 minutes)

“Extended operators such as defects are of fundamental importance in conformal field theories, with applications both in high energy theory and in condensed matter systems at criticality. Recently, analytic bootstrap techniques have been successfully applied to study these objects.

In this talk we will focus on the $O(3)$ magnetic impurity, which at the fixed point is described by a defect conformal field theory.

First, Ward identities arising from the symmetries of the bulk theory and their modification by the presence of the defect are considered. In the case of a free bulk, the inconsistency of these identities implies that in $d=3$ dimensions there is no non-trivial defect with the assumed symmetries.

Then, in the interacting bulk scenario, the light defect spectrum of the model in the $4-\epsilon$ expansion is analyzed. Once the defect spectrum is known, analytic bootstrap techniques are applied to bulk two-point functions to extract an infinite amount of new dCFT data.”

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