Laboratoire de Physique Théorique et Hautes Energies

Unité Mixte de Recherche (UMR 7589) de Sorbonne Université et du CNRS

SEMINAIRE du LPTHE

Vendredi 7 Fevrier 2020, 11:00

Stefano Negro

Stony Brook

On irrelevant deformations of integrable field theories : CDD factors and generalized Gibbs ensemble

The study of irrelevant perturbations has profound implications on our understanding of the space of QFTs and possesses important applications in Statistical and Condensed Matter Physics – e.g. the control on sub-leading corrections to the scaling limits of lattice models. In 1+1 D a partial map of the above mentioned space can be traced out thanks to the existence of integrable systems, which grant us a high degree of control on certain renormalization flows trajectories. In this talk I will present some results from a recent work concerning a large class of irrelevant perturbations that, in the framework of factorized scattering, can be described by generic deformations of the S-matrix by a CDD factor. I will show how these deformations can be described as certain field-dependent twists in the boundary conditions of the fields – a natural generalization of the geometric interpretation of the $T\bar{T}$ *deformation – and that there exists a relation amongst CDD deformations and the thermodynamics of the Generalized Gibbs Ensemble. Exploiting the integrability of the models, I will derive a general flow equation for the finite size spectrum and, for the particular case of the sinh-Gordon model, will present a connection with the fermionic basis description of finite-size one-point functions.*

Bibliothèque du LPTHE, tour 13/14, 4ème étage

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