



UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

<http://smfi.unipr.it>

SEMINARIO

Dott. **Stefano Negro**, New York University

The relevance of being irrelevant

Martedì 22 marzo 2022, ore 14:00

Aula Maxwell, Plesso di Fisica

Abstract: In the last few years, 2-dimensional Quantum Field Theories deformed by irrelevant operators have been receiving a steadily growing amount of attention from the Theoretical Physics community. The main reason for this interest lies in the unexpected amount of control that it is possible to exert on the high-energy properties of a vast family of these deformations. These, often referred to as “solvable irrelevant deformations”, in spite of being by standard arguments non-renormalizable, allow us to follow the irrelevant flow all the way to the UV and to obtain exact results on the high-energy physics. The latter are remarkable: the finite-size density of states grows exponentially at high energies, in a Hagedorn fashion reminiscent of String Theories. These deformed theories are not compatible with Wilson’s paradigm of local QFTs and cannot be considered conventional UV-complete theories. However, thanks to their robust features, they represent a sensible extension of the Wilsonian notion of a local QFT.

I will recall the main features of the \overline{TT} deformations, the poster child of solvable irrelevant deformations, in an introductory manner. If time permits I will then describe the more recent developments for a vast class of irrelevant deformations of 2D Integrable QFTs, paying particular attention to their interpretation as factorised scattering theories. This perspective reveals the importance of these theories in the task undertaken by the Bootstrap community of mapping out the space of consistent scattering matrices.

Tutti gli interessati sono invitati a partecipare.

Organizzatore: Prof. Luca Griguolo