



The Galileo Galilei Institute for Theoretical Physics
Arcetri, Florence

Supersymmetric Quantum Field Theories in the Non-perturbative Regime

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Supersymmetric quantum field theories are an interesting theoretical laboratory for studying QFTs; they are central to contemporary mathematical physics and have deep connections to string theory. They allow to check standard expectations in such different fields as High Energy Physics, Statistical Mechanics and Condensed Matter Physics against closed, analytic formulae obtained including perturbative and non-perturbative contributions.

The aim of the proponents is to focus on these ideas and to further enlarge the techniques to explore the non-perturbative sector of gauge theories by gathering experts in various aspects of this field and put them together in a stimulating environment to promote collaborations among the participants.

Topics:

Holographic duality, the technique of localization, the AGT proposal, developments in the mathematical theory of the Donaldson invariants on different classes of manifolds, SUSY gauge theories on the four sphere, the relation to the topological string, $N=4$ quiver theories in lower dimensional models, advances in integrable models.

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