

Scuola Superiore di Catania

*Corso Specialistico
Classe delle Scienze Sperimentali
Ambito Scienze e Tecnologie
a.a. 2020-2021*

Teoria dei campi nonperturbativa: Gruppo di rinormalizzazione e aspetti dell'interazione forte

*Nonperturbative quantum field theory:
Renormalization Group and Aspects of Strong Interaction*

Perturbative and non-perturbative quantum field theory. Renormalization group equations: different aspects, formulations, and applications.

Finite temperature field theory, Matsubara frequencies, chiral phase transition, deconfinement.

Nambu-Jona-Lasinio model. Strongly interacting Hot QCD matter, Non perturbative ground-state of QCD, Hard thermal loop expansion.

Quantum field theory on lattice, non perturbative solutions on lattice.

Imaginary and real time solutions. Fermion field on lattice, Wilson loop, Polyakov loop, limit to the continuous of QFT on lattice. Phase diagram of Strong Interaction. QCD phase diagram and Early Universe Expansion.