

QFT_HEP

Monday, 13 February 2017 11:35 (10 minutes)

I will present the foreseen activity and the computational needs of Iniziativa Specifica QFT-HEP (LNF node, Maria Paola Lombardo). The research includes:

- 1) A quantitative study of the quark gluon plasma up to temperatures $\lesimeq 1$ GeV with a realistic matter content (two almost physical light flavors, and a strange and a charm quark). The main observables will be the Equation of State and topological susceptibility. The studies of topological susceptibilities with dynamical quarks are just starting, and the group has presented the first quantitative results with a dynamical charm and Wilson fermions.
- 2) New techniques, and their applications to the computation of spectral functions and transport coefficients. The analytic continuation from the imaginary time (used on the lattice), to the real time - or, equivalently, to the frequency space poses specific problems: the LNF activities will concentrate on the developments and checks of new methodologies for the analytic continuation, in interaction with the Bari group.
- 3) Continuity between a strongly interacting quark gluon plasma and the cold conformal window of QCD.

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