



ID contributo: 1200

Tipo: Parallel Talk

## Non-perturbative QCD up to high temperatures: the case of mesonic screening masses

*sabato 9 luglio 2022 17:00 (15 minuti)*

We discuss a strategy to study non-perturbatively QCD up to very high temperatures by Monte Carlo simulations on the lattice. It allows to investigate not only the thermodynamic properties of the theory but also other interesting thermal features. As a first concrete application, we compute the flavour non-singlet meson screening masses and we present the results of Monte Carlo simulations at 12 temperatures covering the range from  $T \sim 1$  GeV up to  $\sim 160$  GeV in the theory with three massless quarks. On the one side, chiral symmetry restoration manifests itself in our results through the degeneracy of the vector and the axial vector channels and of the scalar and the pseudoscalar ones, and, on the other side, we observe a clear splitting between the vector and the pseudoscalar screening masses up to the highest investigated temperature. A comparison with the high-temperature effective theory shows that the known 1-loop order in the perturbative expansion does not provide a satisfactory description of the non-perturbative data up to the highest temperature considered.

### In-person participation

No

**Autori principali:** Dr. DALLA BRIDA, Mattia (CERN (Switzerland)); Prof. GIUSTI, Leonardo (University of Milano-Bicocca (Italy)); Dr. HARRIS, Tim (University of Edinburgh (UK)); Sig. LAUDICINA, Davide (University of Milano-Bicocca (Italy)); Dr. PEPE, Michele (INFN - Sezione Milano Bicocca (Italy))

**Relatore:** Dr. PEPE, Michele (INFN - Sezione Milano Bicocca (Italy))

**Classifica Sessioni:** Strong interactions and Hadron Physics

**Classificazione della track:** Strong interactions and Hadron Physics