MP 16: Strongly Interacting Quantum Field Theory

Time: Thursday 15:00–15:50   Location: H6

MP 16.1   Thu 15:00   H6

Non-perturbative contribution to the collisional broadening and medium induced radiation in QCD plasmas — Guy D. Moore[1], Soeren Schlichting[2], Niels Schlusser[1,3], and •Ismail Soudi[2] — [1]Institut fur Kernphysik, Technische Universitat Darmstadt — [2]Fakultat fur Physik, Universitat Bielefeld — [3]Department of Physics & Helsinki Institute of Physics

Due to the famous infrared problem of finite temperature QCD, perturbative calculation of transport phenomena can receive large non-perturbative contributions.

Here, we investigate the impact of non-perturbative contributions to jet-medium interactions, by incorporating non-perturbative contributions to the collisional broadening kernel $C(b_\perp)$, which determines the rate of medium induced radiation.

We construct the collision kernel $C(b_\perp)$ non-perturbatively, by matching lattice EQCD calculations [1] with the correct ultraviolet behavior of QCD.

By comparing the results for medium induced radiation in infinite and finite QCD plasmas [2] to leading order and next to leading order calculations, we assess the importance of non-perturbative aspects of momentum broadening for jet quenching calculations.

[1] - G. D. Moore and N. Schlusser, Phys. Rev. D101, 014505(2020), [Erratum: Phys.Rev.D 101, 059903 (2020)], arXiv:1911.13127 [hep-lat]

[2]- G. D. Moore, S. Schlichting, N. Schlusser and I. Soudi [arXiv: 2105.01679]

MP 16.2   Thu 15:25   H6

Lattice approximation of conformal symmetry — •Alexander Stottmeister — Leibniz Universität Hannover

We will discuss the application of the recently introduced framework of operator-algebraic renormalization to fermionic lattice systems. Focussing on the 1+1-dimensional case, we will illustrate how the scaling limit of the massless free fermion can be obtained. Moreover, we will show how conformal symmetry is recovered by a formula due to Koo and Saleur. This is joint work with T. J. Osborne.