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Calculating Jet Transport Coefficients in Lattice Gauge Theory

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The in-medium modification of a hard jet is reformulated to consider the process of a hard parton propagating through a finite sized QCD medium, held at a fixed high temperature and vanishing chemical potential. The process is factorized into a hard part representing the propagation and scattering of the parton, and a soft part representing the non-perturbative color field experienced by the jet in the medium. A series of such non-perturbative, soft, transport coefficients are identified, and formulated in terms of well defined operator products. These operator products are then expanded in a series of power suppressed local operators, which are then evaluated non-perturbatively using quenched lattice gauge theory.

Primary author: Dr MAJUMDER, Abhijit (Wayne State University)

Presenter: Dr MAJUMDER, Abhijit (Wayne State University)

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