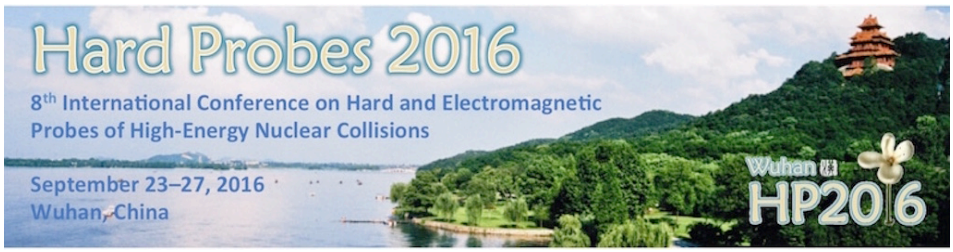

Contribution ID: **177** Type: **not specified**

Calculating the Jet quenching parameter in quenched SU(3) lattice gauge theory

Saturday, 24 September 2016 11:20 (20 minutes)

We investigate the jet quenching parameter $\hat{q}$ using quenched SU(3) lattice gauge theory at finite temperature. A first-principles calculation of the jet quenching parameter is performed by a combination of perturbative and
nonperturbative methods based on Ref.[1]. Focusing on the simplest process of jet broadening at leading order in the medium,
we carry out an operator product expansion of the nonperturbative operator product in the deep Euclidean region of momentum space and relate it to the expectation
of operators in the physical region though dispersion relations. The expectation value of the ensuing local operators is calculated on a quenched SU(3) lattice.
We will present results for both the leading term, and next-to-leading power corrections to the operator product that represents $\hat{q}$ as a function of temperature and lattice spacing.
We will also discuss the corrections to these which originate from higher derivative terms.

[1] A.Majumder, Phys. Rev. C87, 034905 (2013)

Summary

Presentation type

Oral

Primary author: NONAKA, Chiho (Nagoya University)

Presenter: NONAKA, Chiho (Nagoya University)

Session Classification: Parallel Session II: Jet Modification in A+A (II)