

# 10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



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## Jet charge modification in dense QCD matter

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Jet production and jet substructure modification in heavy-ion collisions have played an essential role in revealing the in-medium evolution of parton showers and the determination of the properties of strongly-interacting matter under extreme conditions. It is imperative to extend these studies to include flavor tagging and to devise observables that are sensitive to the partonic origin of jets. The average jet charge, defined as the momentum-weighted sum of the electric charges of particles inside the jet, is a proxy of the electric charge of the quark or gluon that initiates the jet. We demonstrate how the factorization framework of soft-collinear effective theory can be generalized to evaluate the jet charge in a dense strongly-interacting matter environment, such as the one produced in nuclear reactions at collider energies. Observables that can separate the contribution of in-medium branching from the trivial isospin effects are identified and their connection to established jet quenching effects is elucidated. We present predictions for the transverse momentum dependence of the jet charge distribution in nucleus-nucleus collisions and its modification relative to the proton case.

### Collaboration (if applicable)

### Track

Jets and High Momentum Hadrons

### Contribution type

Contributed Talk

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