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sPHENIX Jet Physics

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First thought to be a gas of nearly non-interacting particles, the Quark-Gluon Plasma (QGP) was unexpectedly found to behave as a near perfect fluid. How the small viscosity of the QGP arises from the microscopic system of quarks and gluons is not yet known and requires a greater understanding of the state's microscopic description. Fast partons are useful probes of that structure and are best studied via full reconstruction of jet showers.

The PHENIX collaboration is pursuing a series of aggressive upgrades aimed at enhanced jet reconstruction capabilities to make use of the full enhanced luminosity at RHIC and complement those being made at the LHC. With increased coverage and the addition of hadronic calorimetry, we will demonstrate that the sPHENIX upgrade will be well positioned to provide a broad and exciting program of jet probe measurements and will be combined with a flexible accelerator facility capable of providing a wide range of collision systems and beam energies.

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