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Parton Energy Loss and Jet Tomography: Probing the “Perfect Liquid” at RHIC

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Experimental evidence from RHIC strongly suggests that matter having an energy density far in excess of the value required for the creation of a deconfined phase is produced in ultrarelativistic Au+Au collisions at $\sqrt{s_{\text{NN}}}=200$ GeV. This matter thermalizes rapidly, is strongly interacting, and displays hydrodynamic properties akin to a fluid with very low viscosity. Studies of the interaction of hard scattered partons with this matter provide an important probe of its properties.