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**Effects of Fluctuations in the Fireball on Jet Quenching Observables at RHIC** RICARDO RODRIGUEZ-PEDRAZA, Cyclotron Institute Texas A&M, RAINER FRIES, Cyclotron Institute and Department of Physics Texas A&M, ENRIQUE RAMIREZ-HOMS, University of Texas at El Paso — In high energy nuclear collisions, jet energy loss is usually modeled with smooth, homogeneous backgrounds. We study the effect of realistic, inhomogeneous backgrounds by implementing Glauber profiles with fluctuations. We observe how the extraction of the energy loss parameter is affected by these fluctuations and we calculate their effect on observables like single hadron spectra, nuclear modification factor, azimuthal asymmetry, back-to-back correlations and triggered fragmentation functions.

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