Behaviors of Early Time Gluon Fields in High Energy Nuclear Collisions GUANGYAO CHEN, Cyclotron Insitute, Texas A&M University, RAINER FRIES[1], Cyclotron Insitute, Texas A&M University & RIKEN BNL Research Center, Brookhaven National Laboratory — We discuss the properties of the early time gluon fields in ultra-relativistic heavy ion collisions in a quasi-classical approximation. Using recursive solutions of the Yang-Mills equations for two intersecting color currents on the light cone, we describe the classical gluon field and its energy momentum tensor at small proper times τ after the collision of two nuclei. We explicitly check energy momentum conservation up to forth order. We compute multi-gluon correlation functions in the McLerran-Venugopalan model which are necessary to calculate the expectation value of the energy momentum tensor. An interpolation with linear gluon fields at large times provides a good approximation of the full time evolution. Our results can also be used to create an event-by- event sample of early time gluon fields.

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