Gluon recombination in high parton density QCD: inclusive π-meson production YANG LI, Iowa State University, KIRILL TUCHIN, Iowa State Univ & RIKEN/BNL Research Center — We argue that the collinear factorization of the fragmentation functions in high energy hadron and nuclei collisions breaks down at transverse momenta $k_T \lesssim Q_s/g$ due to high parton densities in the colliding hadrons and/or nuclei. We calculate, at next-to-leading order in projectile parton density and to all orders in target parton density, the double-inclusive cross section for production of a pair of gluons in the scalar $J = 0^{++}$ channel. Using the low energy theorems of QCD we find the inclusive cross section for π-mesons production.

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