Jet energy loss in a dynamical QCD medium[1] MAGDALENA DJORDJEVIC, Arkansas State University — We calculate, to first order in the number of scattering centers, the energy loss of a heavy quark traveling through a finite size QCD medium consisting of dynamical constituents. Our results suggest a simple general mapping between energy loss expressions for static and dynamical QCD media. Numerically, we show that the result for a dynamical medium is significantly larger compared to a medium consisting of randomly distributed static scattering centers. Therefore, an accurate description of jet suppression in RHIC and LHC experiments must correctly account for the dynamics of the medium's constituents. Finally, we show that finite size effects induce a non-linear path length dependence of the energy loss, which effectively reproduces the effects of destructive Landau-Pomeranchuk-Migdal interference in the ultrarelativistic limit.

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