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**Quantifying dynamical QCD plasma through jet energy loss<sup>1</sup>**

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In order to make reliable quantitative predictions for jet quenching in ultra-relativistic heavy ion collisions, it is necessary to have accurate calculations of energy loss. However, all currently available radiative heavy flavor energy loss studies suffer from a crucial drawback, which is an assumption that a medium is composed of static scattering centers. Since in reality the constituents of the medium are dynamical, it is necessary to include effects of dynamically screened QCD medium in order to obtain reliable theoretical predictions for jet quenching. We calculate, to first order in the number of scattering centers, the energy loss of a heavy quark traveling through a QCD medium consisting of dynamical constituents. We show that the result for a dynamical medium is significantly larger compared to a medium consisting of randomly distributed static scattering centers. Therefore, a quantitative description of jet suppression in RHIC and LHC experiments must correctly account for the dynamics of the medium's constituents.

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