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Interplay between bulk medium evolution and (D)GLV energy loss

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The PHENIX Collaboration has argued that azimuthal angle dependent pi0 suppression in Au+Au at RHIC poses a challenge for perturbative QCD energy loss models. However, recent work by Betz and Gyulassy claims simultaneous reproduction of this set of observables with simple pQCD-motivated energy loss formulas. We study and contrast different bulk medium evolution models (based on hydrodynamics and covariant transport) combined with different implementations of Djordjevic-Gyulassy-Levai-Vitev radiative energy loss to investigate whether, and if yes then how the nuclear-suppression vs elliptic flow puzzle could be resolved in the DGLV framework for light partons and heavy quarks. This is especially interesting in view of our earlier results that showed that realistic transverse expansion of the bulk medium reduces high-pT elliptic flow from GLV energy loss by nearly half compared to transversely frozen evolution scenarios.

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