Nuclear Theory

Sensitivity of Azimuthal Jet Tomography to Early Time Energy-Loss at RHIC and LHC

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(Submitted on 22 Jun 2011 (v1), last revised 18 Jul 2011 (this version, v2))

We compute the jet path-length dependence of energy-loss for higher azimuthal harmonics of jet-fragments in a generalized model of energy-loss that can interpolate between pQCD and AdS/CFT limits and compare results with Glauber and CGC/KLN initial conditions. We find, however, that even the high-pT second moment is most sensitive to the poorly known early-time evolution during the first fm/c. Moreover, we demonstrate that quite generally the energy and density-dependence leads to an overquenching jet fragments relative to the first LHC R_{AA}-data, once the parameters of the energy-loss model are fixed from R_{AA}-data at RHIC.

Comments: 4 pages, 2 figures, version accepted for publication in J. Phys. G: Nucl. Part. Phys. as conference proceedings for Quark Matter 2011, May 23 - May 28, Annecy, France

Subjects: **Nuclear Theory (nucl-th)**; High Energy Physics - Phenomenology (hep-ph)

Cite as: **arXiv:1106.4564 [nucl-th]**

(or **arXiv:1106.4564v2 [nucl-th]** for this version)

Submission history

From: Barbara Betz [view email]

[v1] Wed, 22 Jun 2011 20:24:12 GMT (35kb)

[v2] Mon, 18 Jul 2011 12:18:19 GMT (35kb)

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