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## Scaling of high momentum harmonics: constraining energy loss models, and looking for opacity changes

*Thursday, August 16, 2012 4:00 PM (2 hours)*

In this talk we show that azimuthal harmonics of hard particles, thought to be generated via parton energy loss, should scale differently w.r.t. multiplicity and system size to azimuthal harmonics of soft particles, thought to be generated by hydrodynamic response.

By scanning harmonics in both energy and system size, we obtain a way of determining the domain of validity of the

“hydrodynamic” vs. the “tomographic” regime at different energies.

Such scaling studies would further help to isolate the energy-loss regime relevant for RHIC and LHC energies (Bethe-Heitler, LPM, AdS/CFT)

and to isolate changes in the intensive properties of the system, such as opacity and entropy density, using “hard” observables.

In particular, a scaling breaking could be instrumental in finding changes in such intensive quantities, and would provide a direct link between jet suppression and the onset of partonic degrees of freedom.

Based on ongoing work with the model described in  
<http://arxiv.org/abs/1102.5416>

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