Abstract Submitted
for the DNP08 Meeting of
The American Physical Society

Hump-backed distribution without jet reconstruction in direct-γ-hadron correlations[1] MICHAEL TANNENBAUM, Brookhaven National Laboratory — Borghini and Wiedemann proposed using the hump-backed or $\xi = \ln(1/z)$ distribution of jet fragments, which is a signature of QCD coherence for small values of particle momentum fraction, $z = p/E_{\rm jet}$, to explore the medium-modification of jets in heavy ion collisions. The use of the ξ variable would emphasize the increase in the emission of fragments at small z due to the medium induced depletion of the number of fragments at large z. It was presumed that full jet reconstruction would be required. However, one of the original measurements of the ξ distribution in e^+e^- collisions on the Z^0 resonance at LEP was made using the inclusive distribution of π^0, which could be plotted in either the z or the ξ variable since the energy of the jets for di-jet events was known. A similar state of affairs exists for direct-γ-hadron correlations in p-p and A+A collisions since, modulo any k_T effect, the jet recoiling from a direct-γ has equal and opposite transverse momentum to the precisely measured γ. Thus, the x_E or z_T distribution of the away-side hadrons from a direct-γ represents the away-jet fragmentation function, as suggested by Wang, Huang and Sarcevic, so that $dN/d\xi = z\,dN/dz$ can be derived. Examples from RHIC measurements will be given and compared to previous results.

[1]Supported by U.S. Department of Energy, DE-AC02-98CH10886.

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Date submitted: 01 Jul 2008 Electronic form version 1.4