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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, $z = p/E_{\text{jet}}$, 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.

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