

Abstract Submitted
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Is v_3 necessary or even informative in describing angular correlation data from RHIC and the LHC?¹ LANNY RAY, U. Texas at Austin, THOMAS TRAINOR, DUNCAN PRINDLE, U. Washington — One of the more interesting observations from the heavy-ion program at RHIC and now at the LHC are long-range correlations on relative pseudorapidity at small azimuth opening angles. In 2010 Alver and Roland [1] suggested that this so-called same-side ridge could be explained in terms of higher-order, azimuth cosine distributions generated by event-wise energy density fluctuations in the initial-state plus hydrodynamic flow. Applications of third- and higher-order harmonics in analysis of angular correlations from heavy-ion collisions have become ubiquitous in the literature. However, we question the introduction of “higher harmonics” to the 2D data description. Extending previous work we examine the necessity and utility of v_3 . We find that the net effect of v_3 is to accommodate minor non-Gaussian structure in the same-side 2D peak for p_t -integral correlations from RHIC. A single Gaussian hypothesis for those data is not falsified within statistics. Model ambiguities and instabilities resulting from v_3 are discussed and resolved. Lastly, we demonstrate that the 0-1% angular correlation data for 2.76 TeV Pb-Pb collisions from ATLAS [2] do not require a v_3 component.

[1] Phys. Rev. C81, 054905 (2010).

[2] ATLAS, Phys. Rev. C86, 014907 (2012).

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