Abstract Submitted
for the DNP11 Meeting of
The American Physical Society

Study of flow factorization with two particle azimuthal correlation DANIEL KIKOLA, FUQIANG WANG, Purdue University — Elliptic flow (v_2) provides information about initial expansion of the medium created in non-central heavy ion collisions. However non-flow effects, such as jet correlation, can contribute significantly to the measured v_2. In this talk we investigate the possibility of separating flow and non-flow components of v_2 (v_n in general) measured via two particle azimuthal correlations. If the observed azimuthal anisotropy is due to global flow, then coefficients $v_{n,n}(p_{\mathrm{T}}^a, p_{\mathrm{T}}^b)$ in Fourier decomposition of two particle correlation function $dN/d\Delta\phi$ factorize into product of single particle flow coefficients: $v_{n,n}(p_{\mathrm{T}}^a, p_{\mathrm{T}}^b)) = v_n(p_{\mathrm{T}}^a)v_n(p_{\mathrm{T}}^b)$. Deviation from $v_{n,n}$ factorization indicates a significant non-flow contribution. We investigate the flow and non-flow contributions to two particle azimuthal correlations with model of heavy ions dynamics which includes particles from hydro medium (with a given anisotropic flow) and jet correlations simulated with Pythia. We discuss the feasibility of separation of flow and nonflow in the real data based on the hypothesis of $v_{n,n}$ factorization for a global flow.

Daniel Kikola
Purdue University

Date submitted: 01 Jul 2011 Electronic form version 1.4