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Measurement of dipole flow associated with initial geometry fluctuations in Pb-Pb collisions with the ATLAS detector

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A study of the dipole flow (v_1) associated with initial geometry fluctuations is presented using the 2010 Pb-Pb data. This analysis involves a systematic decomposition of the first order Fourier coefficient of the two-particle correlation into a dipole flow component and a global momentum conservation component. The dipolar flow is extracted as function of p_T (0.5-10 GeV), centrality (0-50%) and pseudorapidity ($|\eta| < 2.5$). The magnitude of the extracted global momentum conservation component is used to estimate the effective size of the system that conserve momentum as a function of centrality. These results are compared with recent model calculations and their implications on the initial dipole asymmetry are discussed.

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