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Event by event di-hadron correlations in Pb-Pb 2.76 TeV collisions from the ALICE experiment

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The large multiplicities at the LHC permit flow harmonics to be determined on an event by event basis in Pb+Pb collisions. We extract these harmonics from inclusive event by event di-hadron correlations, where the minimum track p_T is larger than 0.15 GeV. Within a fine centrality bin, we find the correlation function varies substantially on an event by event basis, indicating large fluctuations in the initial conditions for a given impact parameter. Such large fluctuations lead to some events being highly triangular or highly elliptical, where the angular correlation function is completely dominated by the respective $\cos(2\Delta\phi)$ and $\cos(3\Delta\phi)$ terms. We will show the 2D inclusive correlation function for such events, and access the covariance between different harmonics. Finally, we will present first measurements of the full v_2 distribution for various centralities, and report the higher moments. Implications for our understanding of the initial conditions will be discussed.

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