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Subleading harmonic flows in hydrodynamic simulations of heavy ion collisions ALEKSAS MAZELIAUSKAS, DEREK TEANEY, State Univ of NY- Stony Brook — We perform a Principal Component Analysis (PCA) of $v_3(p_T)$ in event-by-event hydrodynamic simulations of Pb+Pb collisions at the LHC. The PCA procedure identifies two dominant contributions to the two particle correlation function, which together capture 99.9% of the squared variance. We find that the subleading flow (which is the largest source of flow factorization breaking in hydrodynamics) is predominantly a response to the radial excitations of a third-order eccentricity. We present a systematic study of the hydrodynamic response to these radial excitations in 2+1D viscous hydrodynamics. Finally, we construct a good geometrical predictor for the orientation angle and magnitude of the leading and subleading flows using two Fourier modes of the initial geometry.

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