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Directed flow at midrapidity at the LHC

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We present the first extraction of the recently-proposed rapidity-even directed flow observable v_1 , obtained from an analysis of published two-particle correlation data from the ALICE Collaboration. An accounting of the correlation due to the conservation of transverse momentum restores the factorization seen in all other Fourier harmonics and thus indicates that the remaining correlation gives a reliable measurement of directed flow. We also present results from the first viscous hydrodynamic calculation of directed flow, and show that it is less sensitive to viscosity than higher harmonics. This allows for a direct extraction of the dipole asymmetry of the initial state, providing a strict constraint on the non-equilibrium dynamics of the early-time system. (Reference: arXiv:1203.0931)

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