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Azimuthally differential pion femtoscopy relative to the second and third harmonic event planes in Pb-Pb 2.76 TeV collisions from ALICE MOHAMMAD SALEH, Wayne State Univ, ALICE COLLABORATION COLLABORATION — Azimuthally differential femtoscopic measurements, being sensitive to spatio-temporal characteristics of the source as well as to the collective velocity fields at freeze-out, provide very important information on the nature and dynamics of the system evolution. While the HBT radii modulations with respect to the second harmonic event plane reflect mostly the spatial geometry of the source, the third harmonic results are mostly defined by the system dynamics. In this talk, we present azimuthally differential pion femtoscopy with respect to second and third harmonic event planes as a function of the pion transverse momentum for different collision centralities. Our results on the dependence of the side-, out-, and long-radii on the pion emission angle with respect to the second harmonic event plane qualitatively agree with theoretical calculations, but the details show significant deviations. The final-state source eccentricity is found to be significantly smaller than the initial state source eccentricity. While the final-state source eccentricity for the second harmonic event plane remains positive in all centralities, the third harmonic event plane eccentricity becomes negative. All these results are compared to existing models.

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