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## Measurement of the pT-integrated flow harmonics $v_2$ - $v_5$ and the elliptic flow of $K_S^0$ in Pb+Pb collisions at $\sqrt{s_{NN}}=2.76$ TeV with the ATLAS detector

*Tuesday 29 September 2015 16:30 (2 hours)*

The measurement of centrality and pseudorapidity dependence of the pT-integrated flow harmonics,  $v_2$  up to  $v_5$ , in Pb+Pb collisions at  $\sqrt{s_{NN}}=2.76$  TeV is presented. The flow harmonics are measured with the standard event plane method and compared to the scalar product method. The measurement is focused on the pT-integrated observables dominated by particles with low transverse momenta ( $p_T < 2$  GeV) and thus sensitive to the hydrodynamic response of the medium to the fluctuating initial conditions. The full potential of the ATLAS detector inner tracker is exploited, including charged particle track reconstruction at very low transverse momentum ( $p_T > 100$  MeV). To reduce uncertainties due to low efficiency and high fake rate, affecting especially particles with lowest transverse momenta, a unique data set of Pb+Pb collisions recorded with the solenoid magnet switched off is also used. A simplified tracking is performed to reconstruct two-point pixel tracklets with estimated minimum pT as low as 70 MeV. The event plane and scalar product methods are also used to measure  $v_2$  of  $K_S^0$ . The topological reconstruction of the  $K_S^0 \rightarrow \pi^+\pi^-$  decay in the ATLAS inner detector is used to measure  $K_S^0$  elliptic flow in a wide range of transverse momentum and in the central rapidity region ( $|y| < 1$ ) as a function of collision centrality.

### On behalf of collaboration:

ATLAS

**Session Classification:** Poster Session

**Track Classification:** Correlations and Fluctuations