



Contribution ID: 221

Type: Oral Presentation

Elliptic azimuthal anisotropy of charged hadrons and neutral pions in PbPb collisions at 2.76 TeV with CMS

Friday, 17 August 2012 14:20 (20 minutes)

The elliptic flow anisotropies of charged particles and neutral pions (π^0 s) have been measured by the CMS collaboration for PbPb collisions at a nucleon-nucleon center-of-mass energy of 2.76 TeV. The second Fourier components of the anisotropic azimuthal distribution are obtained using an event-plane technique for π^0 s and four different analysis techniques for charged particles: event plane, two- and four-particle cumulants, and Lee-Yang Zeros. These techniques have different sensitivities to non-flow and flow fluctuation effects and their comparison helps disentangle hydrodynamic flow, initial state fluctuations and non-flow correlations. The results are presented as a function of p_T , pseudorapidity, and centrality. A comparison of the CMS measurements of $v_2(p_T)$ from π^0 mesons and inclusive charged particles reveals a systematic difference in the range of $p_T = 2.5 \sim 5$ GeV/c, with the neutral pion anisotropies being weaker than those observed for inclusive charged particles. This difference indicates a particle-species dependence in the azimuthal anisotropy at the LHC. New measurements of correlations associated with mixed harmonics for charged particles are explored and discussed in terms of participant fluctuations. A systematic comparison of the LHC results to lower energy observations will also be presented.

Primary author: CMS, Collaboration (CERN)

Presenter: APPELT, Eric Andrew (Vanderbilt University (US))

Session Classification: Parallel 6D: Correlations & Fluctuations (Chair O. Evdokimov)

Track Classification: Correlations and fluctuations