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Short- and long-range very-high- p_T triggered dihadron correlations in PbPb collisions at 2.76 TeV with CMS

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New precision measurements of dihadron correlations triggered by a very high- p_T particle in 2.76 TeV PbPb collisions over a broad range of pseudorapidity and the full range of azimuthal angle will be presented. Utilizing a novel and unique high- p_T single-track high-level trigger, the analysis explores the full 2011 PbPb data set corresponding to an integrated luminosity of 150/ub collected by CMS. For the first time, a long-range correlation structure up to $|\Delta\eta|^4$ at small $\Delta\phi$ (near side) is observed for such very high- p_T (e.g., $p_T \sim 20$ GeV/c) trigger particles correlated with low- p_T (a few GeV/c) associated particles. The observed long-range correlations in $|\Delta\eta|$ on the near side are consistent with the single-particle azimuthal anisotropy (characterized by the Fourier harmonics, v_n) of high- p_T trigger particles measured relative to the event-plane angle determined with the forward hadronic calorimeters. After subtracting the v_n harmonics component, the shape and yield on the near ($|\Delta\phi| < 1$) and away ($|\Delta\phi| > 1$) side of the residual dihadron correlations have been studied systematically over a wide kinematic range in trigger ($12 < p_T[\text{trig}] < 50$ GeV/c) and associated ($0.5 \text{ GeV/c} < p_T[\text{assoc}] < p_T[\text{trig}]$) particle p_T , as a function of pseudorapidity and collision centrality. The results are compared to those in pp collisions at the same energy.

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