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## Hydrodynamic results of a Principal Component Analysis at $\sqrt{s_{NN}} = 2.76$ TeV

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We perform a principal component analysis (PCA) of  $v_n(p_T)$  in event-by-event hydrodynamic simulations of Pb+Pb collisions at the Large Hadron Collider. PCA is a statistical technique for extracting the dominant components in fluctuating data. It was suggested to apply it to relativistic collisions [1] in order to extract the information from event-by-event fluctuations from the two-particle correlation matrix. A generalization was proposed in [2]. Its connection to initial geometry was studied in [3,4]. Here we make a comparison with the data recently presented by the CMS collaboration [5] for elliptic and triangular flows as well as multiplicity fluctuations.

### References:

- [1] Rajeev S. Bhalerao, Jean-Yves Ollitrault, Subrata Pal, Derek Teaney, Phys. Rev. Lett. 114, 152301 (2015), arXiv:1410.7739
- [2] P. Bozek, arXiv:1711.07773
- [3] Aleksas Mazeliauskas and Derek Teaney, Phys. Rev. C 91, 044902 (2015)
- [4] Aleksas Mazeliauskas and Derek Teaney, Phys. Rev. C 93, 024913 (2016)
- [5] CMS Collaboration, arXiv:1708.07133

### Content type

Theory

### Collaboration

### Centralised submission by Collaboration

Presenter name already specified

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