

## Contribution submission to the conference SMuK 2021

**Symmetry plane correlations in Pb–Pb collisions at  $\sqrt{s_{\text{NN}}} = 2.76$  TeV with ALICE** — ●MARCEL LESCH for the ALICE-Collaboration — Technische Universität München, James-Franck-Straße 1, 85748 Garching bei München

The study of collective phenomena in ultra-relativistic heavy-ion collisions are nowadays to a great extent built on the so-called flow amplitudes  $v_n$  and symmetry planes  $\Psi_n$ . Both appear as two distinct degrees of freedom in the Fourier series expansion used to parametrize the distribution of azimuthal angles of produced particles. While analyses techniques for flow amplitudes  $v_n$  have advanced over the past years, observables used for measuring symmetry planes  $\Psi_n$  are often plagued by built-in biases. However, recent developments <sup>[1]</sup> in this direction introduced the so-called Gaussian Estimator (GE) which provides a new and more precise technique to measure symmetry plane correlations (SPC) in flow analyses.

In this talk, we present first experimental results of SPC measured with this newly developed GE using ALICE data for Pb–Pb at  $\sqrt{s_{\text{NN}}} = 2.76$  TeV (2010). The results are compared to theoretical predictions for the initial coordinate space provided by the MC-Glauber model and for the momentum space obtained with the state-of-the-art model iEBE-VISHNU.

### References:

1. A. Bilandzic, M. Lesch, S. F. Taghavi, "New estimator for symmetry plane correlations in anisotropic flow analyses", Phys. Rev. C 102, 024910 - 2020

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