Contribution ID: **457** Type: **Oral**

# Pinning down the origin of collectivity in small systems with ALICE (remote)

*Tuesday, 5 September 2023 15:10 (20 minutes)*

While the formation of the quark–gluon plasma (QGP) in heavy-ion collisions has been confirmed by characteristic patterns of flow measurements, it remains unclear what is the smallest possible collision system that can generate a similar medium exhibiting partonic collectivity. In this talk, we will present the new preliminary results of anisotropic flow in pp, p–Pb, and Pb–Pb collisions that, for the first time, encompass all the data collected by ALICE. The highlights include the flow of charged and identified particles ($\pi^{\pm}$, $\mathrm{K}^{\pm}$, p ($\overline{\mathrm{p}}$), $\mathrm{K}^{0}_{S}$, $\Lambda$ ($\overline{\Lambda}$), $\varphi$), correlations and fluctuations of flow vectors and correlations between the mean transverse momentum and flow coefficients, $\rho(v_n^2, [p_{\mathrm{T}}])$. Multiparticle cumulants with the subevent method, ultra-long-range azimuthal correlations with the template fit method, and a novel jet veto approach have been implemented to effectively suppress short-range non-flow contamination. We compare our results to state-of-the-art theoretical models, which will allow us to study contributions from initial momentum anisotropies to final anisotropic flow, and to understand how anisotropic flow in small collision systems developed from the initial geometry through the dynamic evolution including the understanding of the role of mass and constituent-quark numbers.

## Category

Experiment

## Collaboration (if applicable)

ALICE

**Primary author:** ZHAO, Mingrui (China Institute of Atomic Energy (CN))

**Presenter:** ZHAO, Mingrui (China Institute of Atomic Energy (CN))

**Session Classification:** Small Systems

**Track Classification:** Small systems