



Contribution ID: 943

Type: Poster

## ATLAS measurement of the two-particle correlation sensitivity to jets in $pp$ collisions

*Wednesday, 6 April 2022 18:42 (4 minutes)*

Measurements of two-particle correlations in  $pp$  collisions show the presence of long-range correlations along  $\Delta\eta$  that are strikingly similar to those seen in heavy-ion collisions.

In larger systems, the long-range correlations are known to arise from the collective dynamics of the produced quark-gluon plasma (QGP). The similarity between the  $pp$  and heavy-ion measurements raises the possibility that a tiny droplet of the QGP is produced even in  $pp$ . However, models that attribute the correlation in  $pp$  collisions to semi-hard processes can qualitatively reproduce the measurements. Thus performing the  $pp$  measurements with distinguishing particles associated with semi-hard processes, such as low- $p_T$  jets, can further elucidate the origin of the long-range correlations. This talk presents a new measurements of two-particle correlations in  $pp$  collisions at  $\sqrt{s} = 13$  TeV with two different particle pair selections. In the first case, tracks associated with jets are excluded from the correlation analysis. This case results in a minor influence on the magnitude of the long-range correlation. In the second case, the two-particle correlations are measured between jet constituents and the underlying-event tracks. In this case, the correlations show no ridge-like structure.

**Primary author:** ATLAS COLLABORATION

**Presenter:** YIN, Pengqi (Columbia University (US))

**Session Classification:** Poster Session 2 T07\_2

**Track Classification:** Correlations and fluctuations