

## **Insight into particle production mechanisms via angular correlations of identified particles measured with ALICE in pp collisions at $\sqrt{s} = 7$ TeV**

*Thursday, 13 July 2017 10:50 (20 minutes)*

Two-particle correlations as a function of  $\Delta\eta$  and  $\Delta\varphi$  are used in all collision systems to study a wide range of physical phenomena. Examples include the collective behaviour of the QGP medium, jets, quantum statistics or Coulomb effects, conservation laws, and resonance decays.

In this talk, we report measurements of the correlations of identified particles and their antiparticles (for pions, kaons, protons, and lambdas) at low transverse momenta in pp collisions at  $\sqrt{s} = 7$  TeV, recently submitted for publication by the ALICE Collaboration [arXiv:1612.08975]. The analysis of identified particles in pp collisions reveals differences in particle production between baryons and mesons, which reflect the specific conservation laws for these quantum numbers. The correlation functions for mesons exhibit the expected peak dominated by effects of mini-jet fragmentation and are reproduced well by general purpose Monte Carlo generators. For baryon pairs where both particles have the same baryon number, a near-side anti-correlation structure is observed instead of a peak. Such effects have usually been connected to conservation laws in  $e^+e^-$  collisions and were thought to be under theoretical control; however, our results present a challenge to the contemporary models (PYTHIA, PHOJET). This effect is further interpreted in the context of baryon production mechanisms in the fragmentation process.

### **List of tracks**

Small systems (pA)

**Presenters:** FOKA, Yiota (GSI - Helmholtzzentrum für Schwerionenforschung GmbH (DE)); JANIK, Malgorzata Anna (Warsaw University of Technology (PL))

**Session Classification:** Parallel Small systems

**Track Classification:** Small systems (pA)