



Contribution ID: 51

Type: **not specified**

## Deciphering the Charge Production Dynamics with General Charge Balance Functions at ALICE

*Saturday 17 September 2016 16:30 (20 minutes)*

The two-wave quark production scenario, proposed by Scott Pratt in 2012 as a signature of the production of quark-gluon plasma in high energy heavy ion collisions, can be studied with balance functions of identified particle pairs. We present measurements of such balance functions based on an analysis of data acquired at the Large Hadron Collider (LHC) by the ALICE detector. Balance functions have been measured for identified charged-pion pairs and for identified charged-kaon pairs in Pb-Pb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV. These balance functions are presented in relative rapidity  $\Delta y$  and relative azimuthal angle  $\Delta\phi$ . We observe that the relative rapidity width of the charged-pion balance functions exhibits a strong dependence on the Pb-Pb collision centrality, while the balance functions for charged kaons show little centrality dependence. These findings are consistent with the effects of delayed hadronization and radial flow, as well as the two-wave scenario, but further analyses of the data, including a measurement of proton balance functions and detailed model comparisons are required to draw more significant conclusions.

### Summary

**Author:** PAN, Jinjin (Wayne State University (US))

**Co-authors:** PRUNEAU, Claude Andre (Wayne State University (US)); PUJAHARI, Prabhat Ranjan (Wayne State University (US))

**Presenter:** PAN, Jinjin (Wayne State University (US))

**Session Classification:** Saturday afternoon