



Contribution ID: 556

Type: **Poster**

Event shape dependent same charge pion femtoscopy in pp collisions at 7 TeV with the ALICE detector

Tuesday 29 September 2015 16:30 (2 hours)

Particle interferometry in high-energy collisions is a powerful tool for investigating spatio-temporal characteristics of the created system. In femtoscopy, measuring homogeneity radii as a function of pair k_T is of fundamental importance. From numerous investigations it is known that the accessible range in k_T is highly limited in small collision systems due to a steady rise in background correlations, which are associated to the mini-jet collimation effect. In this analysis we propose a novel method of event shape dependent two-particle interferometry with the aim of removing a large portion of the jet-background. By categorizing events by their transverse sphericity (S_T) we identify two classes of events, which significantly differ in hardness. Spherical event ($S_T > 0.7$) show a strong reduction in background correlations while jet-like ($S_T < 0.3$) carry all the characteristics of previously observed background. Here we present extracted homogeneity radii for both categories of events and offer several interpretations for their difference.

On behalf of collaboration:

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Session Classification: Poster Session

Track Classification: Correlations and Fluctuations