

# WPCF 2023 - XVI Workshop on Particle Correlations and Femtoscopy & IV Resonance Workshop 2023



ID contributo: 19

Tipo: **Invited**

## Timing the hadronic rescattering phase with non-identical particle femtoscopy

*mercoledì 8 novembre 2023 11:10 (25 minuti)*

Femtoscopy is traditionally used to determine the size of the particle emitting region in heavy-ion collisions. The non-identical particle femtoscopy is additionally able to measure the difference in average emission points (so-called emission asymmetry) between two types of particles. This asymmetry is sensitive to details of the dynamics of the system created in the collision, and depends on the interplay of collective flow, thermal velocity and details of hadronic resonance production, propagation and decay. The sensitivity of the technique to those phenomena will be presented.

In particular the correlations between charged pions and kaons have been measured recently by ALICE. The emission asymmetry in this case is influenced by their mutual interaction via the  $K^*$  resonance, which has a lifetime comparable to the duration of the hadronic rescattering phase. We will show how non-identical femtoscopy for pion-kaon pairs can be used to directly estimate the duration of this phase, in a way that is independent and complementary to other methods of accessing this observable, such as measuring the yields of hadronic resonances. We will discuss the interpretation of the ALICE results via comparison of data to predictions from models with varying approach to modelling the hadronic rescattering phase.

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**Classifica Sessioni:** Day 3 - Morning