

Università degli Studi di Trieste

Dipartimento di Fisica

Seminario

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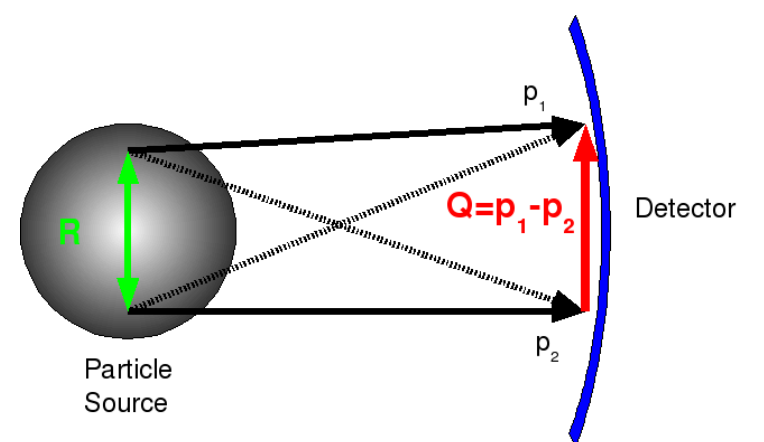
Nov 20, 9.30 PM - Lecture room B, F building, Dip. di Fisica – via Valerio 2 – Trieste

Femtoscscopy in small colliding systems: a new tool to study the hyperon-nucleon and kaon-nucleon interaction.



In the last years, the hyperon-nucleon interaction became the focus of attention by an astrophysical measurement of a quite heavy neutron star of two solar masses. Model calculations, which try to describe such a heavy star usually fail, because of the appearance of hyperons in the model predictions which lead to a too strong softening of the equation of state. Because the models need input from the experimental side this motivates to study the interaction of hyperons with ordinary matter because the experimental data on this topic is quite scarce.

With the High Acceptance Di-Electron Spectrometer (HADES) located at GSI in Darmstadt (Germany) the reaction $p+Nb$ with a kinetic beam energy of 3.5 GeV was measured. We explore the two-particle correlation function of protons to explore the system size, where these di-hadron pairs were emitted from. This information is useful to pin down the source size of another pair namely of Lambda-Proton. This opens the possibility to focus only on the investigation of the final state interaction of the Lambda-Proton pair. We will present this strategy and results of a comparison of different model predictions with the experimental data. Beyond this study, we also are going to employ a similar technique in the analysis of proton-proton collisions in the TeV energy range as measurable by ALICE at the LHC. The first steps of the analysis are also going to be discussed and perspectives presented.



Organizzazione a cura di: Prof. R. Rui, Dr. S. Piano Dr. E. Vesselli