

Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



Contribution ID: 263

Type: **Poster Presentation**

Beyond scattering and hypernuclei experiments: $p - \Lambda$ and $p - \Sigma^0$ correlation studies at ALICE

Monday, 4 November 2019 17:40 (20 minutes)

Recent ALICE results have demonstrated that femtoscopic measurements in pp and p-Pb collisions provide an unprecedented opportunity to study the short range part of the strong interaction.

Femtoscopy is a technique to extract information on the emission source and interaction potential from correlations between particles with low relative momentum. In this talk we will use femtосcopy to study the $p - \Lambda$ and $p - \Sigma^0$ interactions on the scale of the particle emitting source, which is 1 fm or smaller.

Existing data on the $p - \Lambda$ interaction from scattering experiments only probe large energies, and are not sensitive to the opening of the $N - \Sigma$ channel. In this talk we will show that ALICE data from high-multiplicity pp collisions allows us to measure the $p - \Lambda$ correlation function with exceptional precision at low momentum and at the $N - \Sigma$ threshold, and are thus capable of providing quantitative constraints to existing theoretical models, such as chiral effective theory calculations.

Furthermore, no $p - \Sigma^0$ scattering data exist, and as a result the theoretical models are poorly constrained. The ALICE data allow us to perform the first ever measurement of the $p - \Sigma^0$ correlation function and make comparisons to state-of-the-art theoretical models.

Primary author: FABBIIETTI, Laura (Technische Universitaet Muenchen (DE))

Presenter: FABBIIETTI, Laura (Technische Universitaet Muenchen (DE))

Session Classification: Poster Session

Track Classification: Quark matter and nuclear astrophysics