

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



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## Measurements of $pp, p\Lambda, p\Xi^-$ Correlation Functions at 3 GeV Au+Au Collisions at RHIC-STAR

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Two particle correlation function in heavy ion collisions mainly depends on the phase space of the emitting source, and the final-state interactions. So it is widely used to investigate the source size after collision, and also provide an effective experimental approach to study the nucleon-nucleon and hyperon-nucleon interactions, which are crucial to understand the inner structure of compact stars.

In this work, we will present the results of baryon correlation functions for the pairs of  $pp$ ,  $p\Lambda$ ,  $p\Xi^-$  in Au+Au collisions at  $\sqrt{s_{NN}} = 3$  GeV recorded by the fixed target program at STAR. The correlation functions are obtained after corrections for purity and feed-down effects and considering momentum resolution, track merging and splitting effects. The source size  $r_G$  of different pairs for different centrality and strong interaction parameters scattering length  $f_0$  and effective range  $d_0$  of the pairs are extracted. UrQMD and CRAB models are used to calculate the correlation function theoretically to compare with the experimental result.

**Primary author:** QIN, Zhi (Tsinghua University)

**Co-author:** COLLABORATION, STAR

**Presenter:** QIN, Zhi (Tsinghua University)

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