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## Studying Lambda-Hadron correlations in Pb-Pb collisions using the ALICE detector

Heavy-ion collisions at the LHC provide a fascinating testing ground for studying fundamental physical effects in Quantum Chromodynamics (QCD), such as the production of conserved charges at a microscopic level. The goal of this analysis is to study the production mechanisms for strangeness and baryon number, as well as how these mechanisms affect each other, in a QCD-dominated environment. Using the ALICE detector, data from Run 3 Pb-Pb collisions at 5.36 TeV are used to construct two-particle balance functions, which show where particles carrying a conserved charge are most likely to be formed relative to each other. For this analysis specifically,  $\Lambda$  - K and  $\Lambda$  - p balance functions are used to study strangeness and baryon number production, respectively. These balance functions are complemented by  $\Lambda$  -  $\pi$  balance functions, which lack both strangeness and baryon number correlations and serve as a baseline.

### Category

Experiment

### Collaboration (if applicable)

ALICE Collaboration

**Author:** STAA, Joey (Lund University (SE))

**Presenter:** STAA, Joey (Lund University (SE))

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