The 22nd International Conference on
Strangeness in Quark Matter
22-27 March, 2026, Los Angeles, CA

Contribution ID: **46** Type: **Poster Presentation**

Probing collectivity and quantum number conservation with strange baryon balance function with ALICE at LHC energies

Tuesday, 24 March 2026 18:32 (1 minute)

Balance function (BF) of strange baryons is sensitive to the production and transport of strange quarks and their hadronization to strange baryons during the evolution of the system formed in nuclear collisions. It is also sensitive to quark diffusion in the hot and dense QCD matter as well as to the strangeness and baryon susceptibilities.

In this work, measurements of the Λ balance function in different multiplicity classes of pp collisions at $\sqrt{s} = 13.6$ TeV with the ALICE detector at the LHC are presented. The longitudinal and azimuthal widths, as well as the integral of the BF, are studied. These observables provide information on the time of hadronization, collective expansion, and possible formation of baryon junctions in the system, while their evolution with multiplicity offers insight into how these processes change from dilute to dense collision environments.

Comparisons with Monte Carlo event generators provide further understanding of the correlated production of strange–antistrange baryons and help constrain the relevant parameters of these models. The results demonstrate that the Λ balance function is an excellent tool to probe the simultaneous production of strangeness and baryon number in different density scenarios of high-energy nucleon–nucleon collisions.

Authors: ALICE COLLABORATION; PATLEY, Yash (IIT Mumbai)

Presenter: PATLEY, Yash (IIT Mumbai)

Session Classification: Poster Session