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Probing hadron formation at the LHC through the study of strange particles in different collision systems and energies with ALICE at the LHC

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Strange hadrons constitute a unique tool for studying hadronization. While their production yield was first proposed as a clean signature of quark–qluon plasma formation in heavy-ion collisions, today the role of strangeness production in large and small collision systems is pivotal in understanding how a colored system streams into the observed gas of mesons and baryons. This started when the ALICE Collaboration made the groundbreaking observation that strange hadron yields increase with charged-particle multiplicity density, regardless of the collision system or the center-of-mass energy, and that transverse momentum spectra in elementary interactions are affected by partonic collectivity even when only few particles are produced at midrapidity.

In this contribution, a complete overview of the latest findings in the study of strange hadron production at the LHC will be presented, with special attention on discussing present and future perspectives of this field in view of the LHC Run 3 data taking campaign.

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