

Exploring the hadronic phase of Pb-Pb collisions with resonances

In heavy-ion collisions, measurements of short-lived hadronic resonances can constrain properties of the late hadronic phase, including its lifetime. Along with stable hadrons, resonances are also used to study the flavor dependence of parton energy loss at high transverse momentum and anomalous baryon-to-meson ratios at intermediate momentum. The ALICE detector, which provides excellent tracking and particle identification capabilities, is uniquely suited for reconstructing various resonances in the high-multiplicity environment produced in central heavy-ion collisions at the LHC energies.

The most recent ALICE results on the production of $\rho(770)^0$ and $\Lambda(1520)$ in heavy-ion collisions complement a comprehensive set of resonance measurements including $K^*(892)^0$, $\phi(1020)$ production rates. These results include a detailed study of the p_T spectra, yields, mean transverse momenta and nuclear modification factors of all resonances measured in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV. These data are also used to address the issue of the suppression of short-lived resonances in central Pb-Pb collisions and to set limits on the duration of the hadronic phase. The first results on resonance production in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV from run 2 of the LHC will also be presented. Results are discussed and compared to model predictions and earlier measurements at lower collision energies.

Preferred Track

Collective Dynamics

Collaboration

ALICE

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