

## Strangeness in Quark Matter 2019



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# Studying the effect of the hadronic phase in nuclear collisions with PYTHIA and UrQMD

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The extreme conditions reached in ultra-relativistic heavy-ion collisions at the LHC are expected to produce a state of matter in which quarks and gluons are deconfined, the quark-gluon plasma (QGP). As a consequence, several features, such as elliptic flow and chemically equilibrated particle production, are expected and observed in these collision systems. However, it has to be noted that, once hadronization takes place, inelastic and elastic interactions may still take place. A proper disentanglement of the effects of this final hadronic phase and any features emerging from previous stages of the system evolution is fundamental to the understanding of heavy-ion collisions.

In this work, we couple Pb-Pb events generated with PYTHIA Angantyr at  $\sqrt{s_{NN}} = 2.76$  and 5.02 TeV with the hadronic cascade simulator UrQMD to study the effect of the hadronic phase on observables such as charged-particle multiplicity densities, transverse momentum spectra and identified particle ratios, giving special emphasis to short-lived resonances. As a perturbative QCD-inspired event generator, PYTHIA does not consider any QGP phase in its system evolution, and therefore these results are not only relevant to understand the effect of the hadronic phase but also provide a crucial baseline for hybrid models that include a QGP phase.

## Collaboration name

## Track

Hadron Resonances

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