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Using PYTHIA as an initial condition generator for hydrodynamics

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A colliding system of ultra-relativistic heavy-ions is commonly simulated with phenomenological models, which include relativistic hydrodynamics and a hadronic cascade afterburner. Typically, any model of heavy-ion collisions must include some estimate of the initial conditions, whose properties are a subject of intense research. Also, many of the common approaches used in the field have no clear connection to the hard scatterings that must have occurred at the very beginning of a heavy-ion collision. In this work, we aim to remedy that by using PYTHIA Angantyr as an initial condition model to a hydrodynamics simulation chain. Those will then be evolved as a fluid using a hybrid model that employs the MUSIC hydrodynamic simulator, and the UrQMD package to emulate the hadronic phase. The resulting simulation outputs will then be compared with available experimental data from the ALICE collaboration.

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