Beitrag ID: **95** Typ: **Poster**

Disentangle effects from the initial stage and the evolution stage in heavy ion collisions using EPOS and PHSD

Dienstag, 28. März 2023 18:15 (2 Stunden)

Keywords : Heavy-ion Collisions, Event generator, EPOS, PHSD, EPOSi+PHSDe, Quark-Gluon Plasma

Ultrarelativistic heavy-ion collisions at RHIC and the LHC provide a hot and ultra-dense form of matter composed of deconfined quarks and gluons, named QGP. Different models like EPOS and PHSD allow to study the space-time evolution of such heavy-ion collisions. Their dynamics is complicated; hence, various stages should be considered. The first is the primary scattering which defines to a large extent the matter distribution in the phase-space. The second stage concerns the evolution of the partonic system until the system is sufficiently dilute to hadronize. The EPOSi+PHSDe approach is introduced in this thesis, in which the EPOS model is used to determine the initial distribution of matter (partons/hadrons). This part is referred to as EPOSi. Then PHSD is employed to simulate the evolution of the matter in a non-equilibrium transport approach, referred to as PHSDe. The coupling of the two approaches is non-trivial and not straight-forward. Comparing the three models, EPOS, EPOSi+PHSDe, and PHSD, interesting results find concerning their respective space-time evolutions. The results demonstrate considerably different behavior in terms of radial expansion, especially asymmetric expansion, indicating that these three models will provide different results concerning key observables (pT/mT spectra, y/η distribution, v2/3/4) for Au-Au collisions at 200 GeV/A.

Experiment/Theory

Theory/Phenomenology

Affiliation

Subatech - Nantes University

Hauptautoren: Frau JAFARPOUR, Mahbobeh (Subatech); Prof. WERNER, Klaus (Subatech- Nantes University)

Vortragende(r): Frau JAFARPOUR, Mahbobeh (Subatech)

Sitzung Einordnung: Poster Session

Track Klassifizierung: Early time dynamics and nuclear PDFs