HK 30: Hauptvorträge III

Time: Wednesday 11:45–12:45 Location: HS1

Invited Talk HK 30.1 Wed 11:45 HS1

Transport simulations for heavy ion collisions and future perspectives — •Marcus Bleicher — Frankfurt Institute for Advanced Studies, Goethe Universität Frankfurt

We discuss recent developments in the area of hybrid approaches to the simulation of heavy ion reactions at relativistic energies. The focus will be on the exploration of different equations of state and potential signature of the QGP. The talk will also address some open questions for future developments, like multi-particle interactions and hadronisation.

Invited Talk HK 30.2 Wed 12:15 HS1

Exploring compressed nuclear matter with HADES* — •Tetyana Galatyuk for the HADES-Collaboration — Goethe-Universität, Frankfurt am Main, Germany — ExtreMe Matter Institute EMMI, Darmstadt, Germany

In the energy domain of $E_{kin} = 1 - 2$ GeV per nucleon, HADES has measured rare and penetrating probes in C+C, Ar+KCl, p+p, d+p and p+Nb collisions. Our results demonstrate that electron pair emission in C+C collisions can essentially be explained as a superposition of independent N+N collisions. A comparison of the N+N reference spectrum with the e^+e^- invariant-mass distribution measured in Ar+KCl collisions, however, shows a pronounced excess radiation, which can be attributed to emission from the dense phase of the collision zone. Moreover, for the first time at SIS energies, a clear ω signal was observed. Also in p+p interactions at 3.5 GeV the inclusive production cross sections for π^0, η, ρ and ω mesons are extracted for the first time. This result allows putting tight constraints on vector meson production in heavy-ion and elementary collisions at beam energies of a few GeV. Intriguing results where also obtained from the reconstruction of hadrons with open and hidden strangeness. While the measured hadron yields are well described assuming thermalization, the reconstructed double-strange baryon Ξ^- appears about ten times more abundant than expected. This result will be discussed in the context of the exploration of the nuclear matter phase diagram in the region of finite density.

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