
HK 78: Plenary IX

Time: Friday 9:00–10:30

Location: Audi-Max

Invited Talk HK 78.1 Fr 9:00 Audi-Max
The Strongly Coupled Quark Gluon Plasma Produced at RHIC (exchanged with HK 2.1) — ●AXEL DREES — Stony Brook University, Stony Brook, New York

Matter created in collisions of heavy ion at high energy is opaque, strongly interacting and surprisingly close to a perfect fluid. Data has now been accumulated for almost a decade of experiments at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory (BNL) and the conclusions emerge more and more clearly: (i) initial energy densities reached in the collisions are at least 10 to 100 times nuclear matter density, (ii) the matter created is opaque to probes with color charge, even to heavy flavor, (iii) the matter behaves collectively very much like a fluid with minimal viscosity. In my talk I will review the relevant experimental observations and discuss their consequences.

Invited Talk HK 78.2 Fr 9:30 Audi-Max
Field Theory in Hadron Physics — ●MARC VANDERHAEGHEN — Institut fuer Kernphysik, Univ. Mainz, Germany

This talk gives an overview of recent progress in hadron structure from

a field theoretic perspective.

Recent experimental data in elastic electron-nucleon scattering both at low and large momentum transfers will be discussed. The current precision measurements on the nucleon electromagnetic form factors will be used to map out the transverse charge densities in proton and neutron. The framework will be extended to map out charge densities in higher spin systems, such as the deuteron and nucleon resonances. It will be shown how a field theoretic consistent picture emerges both of densities and of the shape of a relativistic many body system.

Subsequently, a comprehensive framework for describing the quark and gluon structure of hadrons, based on the concept of Generalized Parton Distributions (GPDs), will be reviewed. It will be discussed how the GPDs describe correlations between the momentum and spatial distributions of quarks, which are revealed in exclusive processes at large momentum transfers, such as the deeply virtual Compton scattering process. The first dedicated experiments in the field of hard exclusive processes, performed over the past few years, will be reviewed and the theoretical progress and experimental perspectives will be discussed.

Poster Prize