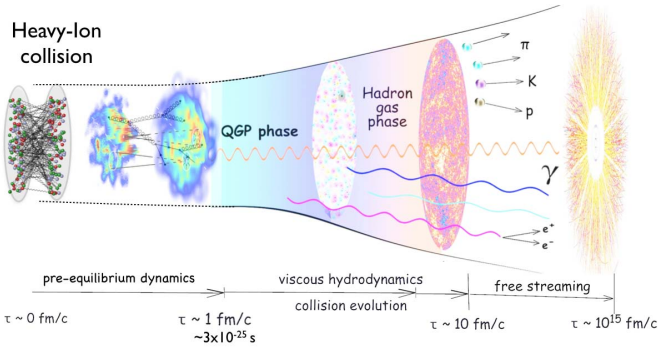
Universität Bielefeld | Fakultät für Physik

Physikalisches Kolloquium / Antrittsvorlesung

JProf. Dr. Sören Schlichting

Universität Bielefeld

Exploring Strong-Interaction Matter with high-energy Heavy-Ion Collisions — Creation dynamics of a Quark-Gluon plasma



High-energy Heavy-Ion Collisions provide a unique laboratory to study strong-interaction matter under extreme conditions. Over the past decades, experiments at the Relativistic Heavy-Ion Collider (RHIC) and the Large Hadron Collider (LHC) have collected an overwhelming amount of evidence of the formation of a de-confined Quark-Gluon Plasma (QGP), and established a standard picture of the space-time evolution of the QGP fireball produced in the collisions of heavy-nuclei. In this lecture, I will discuss the theoretical description of such systems, focusing on the question how an almost equilibrated Quark-Gluon plasma is created during the early stages of high-energy collisions. I will discuss how a consistent theoretical description of the early time dynamics can be achieved based on a combination of non-equilibrium methods and how these studies provide new insights into the range of applicability of dissipative fluid dynamics and the emergence of universal properties in out-of-equilibrium systems. I will also give an outlook on future directions in the study of strong interaction matter out-of-equilibrium and how the creation dynamics of the QGP can be further explored within present and future experiments.

Montag, 14.01.2019, 16:15 Uhr
Ort: Hörsaal 6

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