

# XXIV International Workshop on Deep-Inelastic Scattering and Related Subjects (DIS16)



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## The Compressed Baryonic Matter experiment at FAIR

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The CBM experiment will investigate highly compressed baryonic matter created in A+A collisions at the new FAIR accelerator. With a beam energy range up to 11 AGeV for the heaviest nuclei at the SIS 100 accelerator, CBM will investigate the QCD phase diagram in the intermediate range, i.e. at moderate temperatures but high net-baryon densities. This research program is thus complementary to the studies performed at the high-energy accelerators LHC and RHIC which focus on strongly interacting matter at high temperatures and essentially zero net-baryon density. The intermediate range of the QCD phase diagram is of particular interest because, compared to the high energy case, the strongly interacting matter created here is expected to have very different characteristics due to the high net-baryon densities. Different to the crossover between partonic and hadronic matter seen at low net-baryon densities, a first order phase transition ending in a critical point and possibly new high-density phases of strongly interacting matter are expected.

In this range of the QCD phase diagram only exploratory measurements have been performed so far. CBM, as a second generation, high-luminosity experiment, will substantially improve our knowledge of matter created in this region of the QCD phase diagram and characterize its properties by measuring rare probes such as multi-strange hyperons, dileptons or charm, but also with event-by-event fluctuations of conserved quantities, and collective flow of identified particles. Due to the unprecedented reaction rates CBM has a high discovery potential. The experimental preparations in terms of detector development, feasibility studies and fast track reconstruction are progressing well such that CBM will be ready with the FAIR start.

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