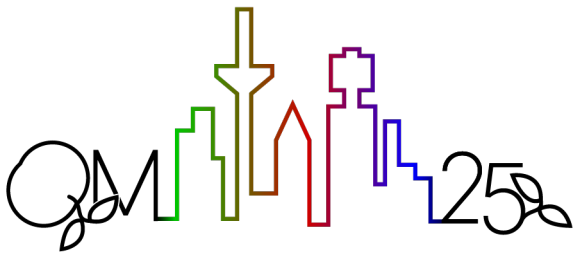

Contribution ID: **721** Type: **Oral**

Exploring baryon-rich QCD matter with CBM at FAIR: status and prospects

The Compressed Baryonic Matter (CBM) experiment is under construction at the Facility for Antiproton and Ion Research (FAIR) in Darmstadt, Germany. It aims to explore the phase structure and microscopic properties of strong interaction (QCD) matter at large net-baryon densities and moderate temperatures using heavy-ion collisions in the energy range √sNN = 2.9 - 4.9 GeV.

CBM is a fixed-target experiment, equipped with fast and radiation hard detector systems and an advanced triggerless data acquisition scheme. It will collect data at unprecedented interaction rates by performing online reconstruction and event selection, thus allowing measurements of rare probes not accessible so far in this energy range. These include: multi-strange hadron production and their flow, higher-order cumulants, dileptons, as well as double-strange hypernuclei.

This contribution will provide an overview of the CBM physics performance and objectives, as well as the detector technologies being developed for the experiment. The status of preparations for CBM's commissioning in 2028, including performance evaluations of CBM components at FAIR Phase-0 experiments, will also be presented.

Category

Experiment

Collaboration (if applicable)

CBM Collaboration

Primary author: Prof. SCHMIDT, Hans Rudolf (Eberhards Karls University Tubingen (DE))

Presenter: Prof. SCHMIDT, Hans Rudolf (Eberhards Karls University Tubingen (DE))

Track Classification: Detectors & future experiments