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Status of the CBM experiment at FAIR and its Silicon Tracking System

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The Compressed Baryonic Matter (CBM) experiment at the FACILITY for Antiproton and Ion Research (FAIR) will explore the phase diagram of strongly interacting matter in the regions of highest net-baryonic densities and moderate temperatures. The high beam intensities that will be delivered from FAIR's SIS-100 heavy-ion synchrotron and possible upgrades will enable addressing several physics cases: The equation-of-state at neutron star core densities, the onset of chiral symmetry restoration at high μ_B, the identification of a deconfinement phase transition at high μ_B, the search for new phases of strongly-interacting matter, and the investigation of strange matter. The related observables include collective flow of hadrons, particle production at threshold energies, in-medium modifications of hadrons, and the production of dileptons, strangeness and charm.

The experiment will be based on detector systems capable of the high interaction and charged-particle rates that are pre-requisites of the programme, and include silicon tracking and micro-vertex detection, electron and muon measurement, hadron identification, and electromagnetic and zero-degree calorimentry. As most of the observables require full detector read-out for trigger decisions, the CBM experiment is based on delivering streamed detector data to a computing farm where on-line event reconstruction is performed based on time-stamped detector information.

The presentation will overview the physics cases of the CBM experiment and the detector concept chosen. The status of the technical developments and the timeline for the experiment to take shape will be discussed. The Silicon Tracking System will be addressed in somewhat more detail as the development and construction of this detector is done in close collaboration of GSI and JINR.

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