

## Measurement of the rare probes in the CBM experiment at FAIR

The main goal of the CBM experiment at FAIR is to study the behavior of nuclear matter at very high baryonic density in which the transition to a deconfined and chirally restored phase is expected to happen. The promising signatures of this new state are the enhanced production of multi-strange particles, production of hypernuclei and dibaryons. Theoretical models predict that single and double hypernuclei, and heavy multi-strange short-lived objects are produced via coalescence in heavy-ion collisions with the maximum yield in the region of SIS100 energies. The discovery and investigation of new hypernuclei and of hyper-matter will shed light on the hyperon-nucleon and hyperon-hyperon interactions. The key CBM observables include particles containing hidden charm, open charm and low-mass vector mesons decaying into leptons. Particularly demanding is the measurement of open charm particles with very low multiplicities, which is based on the real time selection of displaced vertices with an accuracy of about 50  $\mu\text{m}$ . Results of feasibility studies of the key CBM observables in the CBM experiment are discussed.

### Preferred Track

Future Experimental Facilities, Upgrades, and Instrumentation

### Collaboration

Other

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