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# Perspectives on (multi-strange) hypernuclei physics with the CBM experiment at FAIR

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The CBM experiment at FAIR aims to explore dense nuclear matter near the predicted quark-gluon plasma phase transition. Studying the production and decay of (multi-strange) hypernuclei in this extreme environment offers unique insights into hyperon-nucleon and hyperon-hyperon interactions, crucial for understanding the nuclear equation of state at high densities and the structure of neutron stars.
CBM's unprecedented world-record interaction rate, combined with high-precision tracking and particle identification, enables comprehensive measurements of rare hypernuclei. This capability extends to two and three-body decays with neutral daughters, significantly expanding the accessible decay modes and providing novel constraints on theoretical models.
Feasibility studies demonstrate CBM's ability to measure single and double hypernuclei with high precision. Sophisticated analyses of these data reveal valuable insights into hyperon-hyperon interactions. These studies pave the way for a comprehensive investigation of hypernuclei at FAIR, providing crucial data to unravel the properties of dense nuclear matter.

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