

Online reconstruction of multi-strange hyperons at CBM experiment

The Compressed Baryonic Matter (CBM) experiment at the future facility FAIR in Darmstadt is a dedicated heavy ion experiment which will operate in fixed target mode at beam energies up to 11A GeV for ions delivered by the SIS100 accelerator.

In order to explore the QCD phase diagram at high net-baryon densities, CBM holds a wide and rich physics program. One of the main experimental challenges is the measurement of very rare probes, which requires an interaction rate of up to 10 MHz. In this poster, we study the production of multi-strange (anti)hyperons as one of the earliest proposed signatures of the formation of a deconfined QGP.

The reconstruction of multi-strange hyperons in CBM is based on their characteristic weak decay topology, characterized by one or more displaced vertices, and reaches a high reconstruction efficiency of about 20% for Λ , 8% for Ξ and 5% for Ω .

An online event selection of multi-strange hyperons is developed. In this poster, we discuss its performance, studied with simulated data of Au+Au collisions at various SIS100 energies.

Preferred Track

QCD in small systems

Collaboration

Other

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Session Classification: Poster Session