

Finding the needle in the haystack: a charmonium trigger for the CBM experiment

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Charmonium is one of the most interesting, yet most challenging observables for the CBM experiment. CBM will try to measure

charmonium in the di-muon decay channel in heavy-ion collisions close to or even below the kinematic threshold for elementary interactions. The expected signal yield is consequently extremely low - less than one in a million collisions. CBM as a high-rate experiment shall be able to cope with this, provided a suitable software trigger can be implemented for online data selection.

Since the latter will be performed exclusively on CPU, the performance of the algorithm is crucial for the maximal allowed interaction rate - and thus the sensitivity - and/or for the size of the CBM online cluster FLES (First-Level Event Selector).

In this report we discuss the CBM charmonium trigger, its implementation on the FLES, and its performance.

Tertiary Keyword (Optional)

Reconstruction

Secondary Keyword (Optional)

Algorithms

Primary Keyword (Mandatory)

Trigger

Author: ABLYAZIMOV, Timur (J)

Co-authors: SINGHAL, Vikas (Department of Atomic Energy (IN)); FRIESE, Volker (GSI - Helmholtzzentrum für Schwerionenforschung GmbH (DE))

Presenter: ABLYAZIMOV, Timur (J)

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