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Thick-COBRA, a New Thick-Hole Concept for Ion Back Flow Reduction

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Ion Back Flow (IBF) in gaseous detectors presents a drawback in many applications, such as TPCs, RICH detectors and gaseous photosensors, among others. Following the success of the MHSP operating in flipped reverse mode, which reached an IBF reduction approaching 10^{-4}, a new concept based on this one though with optimized geometry and aiming applications needing large detection areas, was developed in a "thick-hole" configuration, the Thick-COBRA. This new structure is produced in the same way as the Thick-GEM, but includes on one of its surfaces an extra electrode for trapping the ions from the multiplication stages. The extra electrode of the Thick-COBRA faces the electron drift region in such a way that not only ions flowing back from the cascade multiplication regions, but also those produced in the Thick-COBRA multiplication region can be trapped.

In this work, experimental and simulation studies on IBF and electron collection/transmission efficiencies, are presented for the referred configuration. In addition, a discussion of its suitability for application to RICH and to gaseous photosensors will be presented.

Please indicate "poster" or "plenary" session. Final decision will be made by session coordinators.

poster

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