Contribution ID : **160** Type : **Poster**

Eco-Gas studies for the CMS improved RPC for the High Luminosity Large Hadron Collider

Content

Due to the high environmental impact of the gases used by the RPC Collaboration, of the CMS experiment of the CERN LHC, the search for possible replacements for them or a decrease in their concentrations, has led to new studies where the new alternatives are optimal, this requires the use of ecological gases, whose GWP indexes are low compared to the currently used mixture, in addition, to reach the operating requirements for the correct performance of RPC detectors. An improved Resistive Plate Chamber (iRPC) device has been studied considering the Phase 2 upgrade of the RPC detector for the high luminosity LHC. In 2019, data obtained at CERN were analyzed with 5 different gas mixtures as alternatives to the so-called CMS mixture, in this work, technical details used during the analysis have been presented, as well as the values obtained for specific quantities that allow us to characterize an RPC detector, such as efficiency, cluster size, and the probability of having a cluster size greater than 6. The results show that two of the proposed mixes meet the necessary characteristics and therefore could be good replacements for the CMS mix.

Primary author(s) : Ms. RAMÍREZ GUADARRAMA, Dalia Lucero (Universidad Iberoamericana)

Co-author(s) : Dr. CARRILLO MORENO, Salvador (Universidad Iberoamericana); Mr. RAMIREZ GARCIA, Mateo (Cinvestav-IPN)

Presenter(s) : Ms. RAMÍREZ GUADARRAMA, Dalia Lucero (Universidad Iberoamericana)

Session Classification : Poster session

Track Classification : Posters