Contribution ID: **38** Type: **Oral Contribution**

Towards a two-dimensional readout of the improved CMS Resistive Plate Chamber with a new Front End electronics.

Thursday, 13 February 2020 12:20 (20 minutes)

As part of the CMS Phase-II program, new Resistive Plate Chambers (RPC) will be installed in the forward region. High background conditions are expected in this region during the high-luminosity phase of the Large Hadron Collider (HL-LHC), therefore an improved RPC design has been proposed with a new front-end electronics to sustain a higher rate capability and better time resolution. A mixed silicon-germanium technology is used in the front-end electronics resulting in very low achievable thresholds in the order of several fC. Crucial in the design of the improved RPC is the capability of a two-dimensional readout in order to improve the spatial resolution, mainly motivated by trigger requirements. In this work the first performance results towards this two-dimensional readout are presented, based on data taken on a real-size prototype chamber with two embedded orthogonal readout strips. Furthermore, dedicated studies of the muon cluster size as a function of the graphite resistivity are discussed.

Primary author: COLLABORATION, CMS

Presenter: MEOLA, Sabino (NA)

Session Classification: Electronics and DAQ