Efficiency and noise rate studies of glass RPC

Manisha, Vipin Bhatnagar, J S Shahi and J B Singh
Panjab University, India

Abstract

The efficiency and noise rate studies of RPC developed using highly resistive 2 mm thick Asahi glass electrodes (locally available), have been done using standard gases Freon (R134A), SF6 and isobutane (C4H10). The presented studies were performed for different readout strips of RPC to check uniformity in performance. Operating gas compositions are optimized using the VI characteristics as the base benchmark. The observed efficiency is ~96-98% and noise rate is in the range of ~10-18 Hz/cm^2.

Image

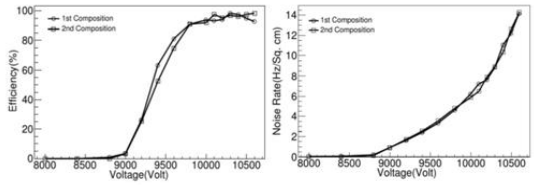


Figure 1 : Efficiency vs. voltage characteristics (left), noise rate vs. voltage characteristics (right); where 1st composition is : Freon (95.2%)::Isobutane(4.5%)::SF6(0.3%) and 2nd composition is : Freon (95.5%)::Isobutane(4.5%).



Biography

Manisha is a graduate student at Department of Physics, Panjab University, Chandigarh since July, 2014 having specialization in experimental high energy physics (EHEP). She has received her MSc in Physics, from Panjab University. She has actively participated in implementation of glass based resistive plate chambers (RPCs). She is currently focusing on soft QCD studies via underlying events measurements using CMS detector. She will be participating in development of gas electron multiplier (GEM) detectors also, planned to install in the first end-cap muon station during CMS phase 2 upgrade.

manisha1.lohan@gmail.com

Notes/Comments: