Contribution ID: **53** Type: **oral presentation**

Use of fiber optic technology for Relative Humidity monitoring in RPC detectors

Thursday, 9 February 2012 16:55 (20 minutes)

Large volume RPC detectors for charged particles are widely used in HEP experiments. For such detectors monitoring gas temperature and RH working condition is important because they both can affect the performance of the detector.

We propose a gas RH monitoring system, specifically suited for large scale RPC detectors, based on fiber optic technology with use of Fiber Gragg Grating (FBG) sensors as RH probes.

The proposed technology allows to connect sensors in series along one single optical fiber, thus greatly simplifying cable routing. Moreover, the proposed technology neither suffers nor causes e.m. disturbances.

We have designed and successfully tested a prototype sensing device on a fully functional RPC module. We show experimental results including long term stability, precision and resolution.

Primary author: Dr CAPONERO, michele (enea; infn)

Presenter: Dr CAPONERO, michele (enea; infn)

Session Classification: New ideas

Track Classification: New ideas