

## MRPC3b for CBM-ToF

Thursday, 22 February 2018 10:20 (20 minutes)

The Compressed Baryonic Matter (CBM) experiment will be one of the major scientific pillars of the future Facility for Antiproton and Ion Research (FAIR) in Darmstadt. Multi-gap Resistive Plate Chamber (MRPC) is adopted to construct the Time of Flight (ToF) Wall and a system time resolution of 80ps is necessary for hadron identification. MRPC3b as defined in the CBM ToF TDR has been designed for the outer region of the ToF system. In general, the MRPC3b is a two-stack, 10 gas gaps, 32 strips and double-end strip readout MRPC. This detector has an active area of 32cm × 27.6cm and the detector size is 354mm long, 324mm wide and 22mm thick. Figure 1 shows the readout pattern and the dimensions.

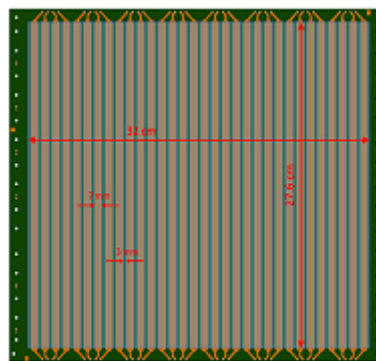


Figure 1: The readout pattern and the dimensions

In this presentation, the design details will be discussed. The mass production has already started from the spring of 2017. The assembly procedures and QA&QC methods will also be presented. The performance achieved from the cosmic ray test shows that the efficiency is better than 92% and the resolution is about 60ps with 90% Freon, 5% iso-butane, and 5% sulfur hexafluoride gas mixture. The preliminary results are shown in Figure. 2.

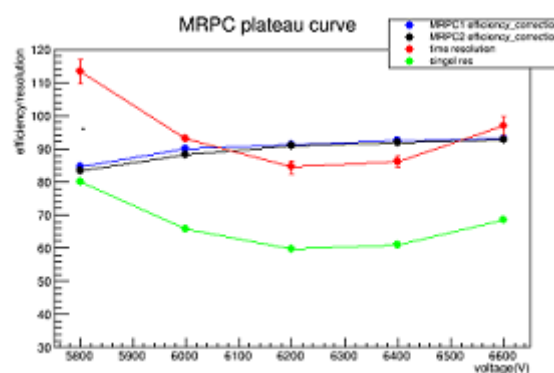


Figure 2: The performance of MRPC3b

(University of Science and Technology of China, Hefei, China); WANG, Xinjian (University of Science and Technology of China, Hefei, Chian)

**Presenter:** ZHOU, Jian (University of Science and Technology of China, Hefei, China)

**Session Classification:** RPC Detectors