

Gas mixtures for quality control of the sTGC chambers

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sTGC chambers are designed to operate at sLHC conditions and will be installed to the ATLAS detector during Phase-I upgrade of the ATLAS muon spectrometer. These chamber will provide precise coordinate measurements of the charged particle track and level 1 trigger for high Pt muons. It is critical for the ATLAS detector to ensure a robust operation of these chambers during entire sLHC period. A quality control procedure based on X-ray scanner is being developed. Choice of the active gas for these tests is very important because on one hand it should allow to find different types of effects on the other hand one has to be sure that found problems are essential for the detector operation in a future. Studies of the operation of the sTGC chamber prototype under X-ray irradiation with two gas mixtures (n-pentan/CO₂ and CO₂) were performed. The prototype was irradiated by X-rays with energy up to 40 KeV. Particular attention was paid to the study of “hot spots”.

Presentation type

Section talk (10+5 min)

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