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MWPC prototyping and testing for STAR Inner TPC Upgrade

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Content

STAR is upgrading the inner sectors of the STAR Time Projection Chamber(iTPC) to increase the segmentation on the inner pad plane from 13 to 40 pad rows and to renew the inner sector wire chambers. The upgrade will expand the TPC's acceptance out to pseudo-rapidity $|\eta| \leq 1.5$, compared to the current limitation of $|\eta| \leq 1$. Furthermore, the detector will have better acceptance for tracks with low momentum, as well as better resolution in both momentum and dE/dx for tracks of all momenta. The enhanced measurement capabilities of STAR-iTPC upgrade are critical to the physics program of the Beam Energy Scan II at RHIC during 2019~2020, in particular the QCD phase transition study. In this talk, I will discuss the iTPC MWPC module fabrication and testing results from the first full size prototype made at Shandong University.

Summary

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