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The iTPC upgrade at STAR

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STAR is proceeding an upgrade on TPC inner sectors (iTPC). By increasing the number of inner padrows from 13 to 40 and renewing the inner sector wires, this upgrade will extend the rapidity coverage from $|\eta| < 1$ to $|\eta| < 1.5$, provide better momentum resolution, and better energy loss (dE/dx) resolution. The iTPC upgrade is very crucial to STAR BES-II program which will provide in-depth understanding on QCD phase diagram and in-medium modification. The net-proton Kurtosis measurements with the extended STAR acceptance will give more clear energy trends, which may sensitive to the location of critical point. For the dielectron analysis, the iTPC upgrade will help to reduce hadron contamination significantly. In-medium effect in the hot and dense medium can be further studied by this electromagnetic probe.

In this talk, we will discuss the physics impact of the iTPC upgrade project. The iTPC module fabrication techniques and testing results from the full size prototype will be presented.

On behalf of collaboration:

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