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Studies of a Central Membrane for the sPHENIX TPC SOURAV TARAFDAR, Vanderbilt University, SPHENIX COLLABORATION — sPHENIX is a future experiment at RHIC to measure jets and Upsilons for investigating the properties of the quark-gluon plasma formed in heavy ion collisions. As the central tracker it will feature a Time Projection Chamber (TPC) that is used to measure charged particle tracks. The TPC is sandwiched in between inner tracking detectors and electromagnetic and hadronic calorimeters and also a 1.4 Tesla superconducting solenoid magnet. The TPC will be equipped with micropattern gas detectors for providing the space point resolution and reducing the space charge problem inherent to a TPC. The TPC will also depend on a central membrane which is substantial for supplying a uniform drift field amongst others.
A variety of simulations with different designs of the membrane have been performed ranging from the investigation of the tracking performance to jet fragmentation. In this presentation we will discuss these extensive studies.

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