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R&D and related Simulation Studies for the sPHENIX Time Projection Chamber

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The proposed sPHENIX detector design is focused mainly on a physics program of precise upsilon spectroscopy and jet measurements, which require a high tracking efficiency and excellent momentum resolution. A time projection chamber (TPC) is proposed as the outer tracking detector for sPHENIX, which has a rapidity coverage of $|\eta|<1.1$ and full azimuthal coverage. The sPHENIX TPC design has to be optimized for operation in the high rate, high charged particle multiplicity environment that is anticipated at RHIC in 2022. In this poster, we show the results of R&D, its related simulations and describe the ongoing efforts to optimize the design of the sPHENIX TPC.

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Session Classification: Coffee Break and Poster Session - 2