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## sPHENIX Compact TPC for Tracking and Particle Identification

*Thursday, May 25, 2017 3:22 PM (4 minutes)*

Heavy ion collisions provide a direct experimental framework to study the properties of the Quark Gluon Plasma.

The sPHENIX detector will be the next state-of-the-art system to measure hard processes observables with high accuracy in a broad  $p_T$  range.

The sPHENIX tracking system will feature a compact Time Projection Chamber working in continuous read-out mode as the main tracking detector.

The compact TPC combines both good spatial resolution, below 2% at 5 GeV/c, together with high rate withstand, as high as 100 kHz. It spans geometrically in a volume covering 2.2 units of pseudo-rapidity and  $20 < R < 78$  cm.

One of the technologies considered is a quad-GEM configuration connected to 200k readout channels using SAMPAs chips able to read ~4Gbit/s.

For such configuration one of the key aspects of the design will be the ability to mitigate spacecharge distortion due to ion back flow. Several studies on this regard were done and will be shown here.

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**Session Classification:** Coffee Break and Poster Session - 2