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Commissioning and analyzing of TPC prototype integrated with 266nm UV laser

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To achieve the physics requirements in the future e^+e^- collider, the high resolution tracker for the particle track reconstruction and particle identification are demanded. Time Projection Chamber(TPC) is one of the main concept proposal of the central tracker detector, it has an excellent performance on the moment measurement, dE/dx measurement and the spatial resolution.
Based on the studies of the previous TPC readout module with the continue ion backflow suppression function, a TPC prototype integrated with 266 nm UV laser track system has been developed in Institute of High Energy Physics (IHEP). This prototype has an active readout area of 200×200 mm^2 and the drift length of 500 mm, the narrow laser beams can imitate straight ionization tracks at predefined position(<2μm). it is placed on an anti-vibration pneumatic optical platform, where a central spring, a pendulum bar and an auto inflation system damp any vibration down to amplitudes of less than 1μm, there is the 1280 channels FEE as the readout, and the high voltage of 20,000 V for the field cage have been done. Some tests are very well using TPC prototype integrated 42 UV laser tracks. In this talk, the update results of the commissioning and the spatial resolution will be presented.

Time Zone

Asia/Pacific

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