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Status of some parts of the TPC for the MPD at the NICA project

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The Time-Projection Chamber (TPC) is the main tracking detector and charged particles identification of the MPD central barrel. The TPC-MPD will provide:
- The overall acceptance of |η|<1.2;
- The momentum resolution for charge particles under 3% in the transverse momentum range 0.1<pt<1GeV/c;
- Two-track resolution of about 1 cm;
- Hadron and lepton identification by dE/dx measurements with a resolution higher than 8%.
These requirements must be satisfied at the NICA design luminosity, charged particle multiplicity ˜ 1000 in central collisions and the event rate about 7 kHz.
The TPC design and structure are similar to those of the TPCs used in the STAR, ALICE and NA49 experiments.
The TPC being a large but conceptually simple detector must be constructed with very high precision to reduce nonlinear systematic effects. High stability of the mechanical structure and uniformity of the drift field, the temperature, the drift gas purity and the gas gain have to be provided to get precise track reconstruction and energy-loss measurements.
The structure of the TPC, the basic design parameters of the TPC and the basic TPC configuration are presented. Developed design tools for the TPC assembling, laser calibration system and parts of the TPC cooling system are provided.

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