

Misalignment influence on the track reconstruction in the MPD TPC

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A method of determining the position of the readout sectors of a time projection chamber using experimental data is proposed. Considering the results of modeling the response of sensitive elements of the time projection chamber of the multipurpose detector (MPD), three types of tracks were reconstructed: cosmic muons, beams of the laser detector system, and muons from the interaction of nuclei. The accuracy of the MPD TPC alignment finding is investigated in MC events with different types of tracks. For the Time Projection Camera, a measure of deviation of the used alignment from the real one is introduced. The simulation of track reconstruction shows the dependence of track parameter errors on the accuracy of knowledge of the real alignment of the detector. The found dependencies allow to correct systematic errors during track reconstruction.

Section

Design of new experimental facilities

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