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Simulation of NICA-MPD inner tracking system

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The heavy-ion collider NICA (Nuclotron-based Ion Collider fAcility) is being built in the Joint Institute for Nuclear Research (JINR) in Dubna on the base of which the experimental setup MPD (MultiPurpose Detector) will be constructed for studying nuclear matter at extreme values of density and temperature. The MPD inner tracking system is used to determine the decay vertices of the short-lived products formed in nucleus-nucleus collisions at high energies. Of particular interest is the study of strange and charmed particles, which can give undistorted information about the early stages of the evolution of the quark-gluon plasma. In this article we present the results of modeling the pointing resolution of different geometric configurations of the inner tracking system based on monolithic active pixel sensors. In addition, we demonstrate the results of $\Lambda 0$ -reconstruction using selection criteria to suppress the high-level combinatorial background.

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