

XXV International Baldin Seminar on High Energy Physics Problems "Relativistic Nuclear Physics and Quantum Chromodynamics"



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on High Energy Physics Problems
Relativistic Nuclear Physics & Quantum Chromodynamics

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Local polarimetry with inclusive neutral pions in SPD at NICA

Friday, 22 September 2023 10:00 (20 minutes)

The Spin Physics Detector (SPD) will be installed in the second interaction point of the Nuclotron-based Ion Collider Facility (NICA) at the Joint Institute for Nuclear Research in Dubna. The main goal is to study the spin structure of the proton and deuteron, and other spin-related phenomena with polarized proton and deuteron beams at a collision energy up to $\sqrt{s} = 27$ GeV and luminosity up to 10^{32} cm⁻²s⁻¹. For the local polarimetry and luminosity control in SPD, several detectors are proposed. This work presents an analysis of the possibilities of using the inclusive reaction, in the end-caps of the electromagnetic calorimeter (ECAL) for local polarimetry purposes. The accuracy of the azimuthal asymmetry of this reaction, as a measure of the beam polarization, is investigated with Monte Carlo simulations in the frame of the SpdRoot code.

Primary author: SHTEJER, Katherin (JINR)

Presenter: SHTEJER, Katherin (JINR)

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