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Spin physics studies with polarized deuteron and proton beams at Nuclotron

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Nuclotron complex gives the unique opportunity to study spin effects using polarized deuteron and proton beams from new polarized ion source. Recent results on the spin effects in deuteron-proton and proton-proton elastic scattering are discussed. The data on the deuteron analyzing powers A_y , A_{yy} and A_{xx} obtained at large transverse momenta in the energy range 400-1800 MeV demonstrate the sensitivity to the short-range spin structure of the isoscalar nucleon-nucleon correlations. The data on the beam analyzing power in proton-proton quasi-elastic scattering can be used to improve the phase-shift analysis in the Nuclotron energy range of Nuclotron. The perspectives of further progress in physics program as well as in the development of the beam polarimetry and proton spin manipulation techniques are discussed.

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