

Transparent Spin Mode for Polarized Beams in the EIC

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The transparent spin (TS) technique has been proposed as an efficient high-flexible method to control the beam polarization, from acceleration to long-term maintenance and real-time spin manipulation during an experimental run of a collider. Attractiveness of the TS method is that it allows for manipulation of the polarization using small insertions of weak magnetic fields (stationary or quasi-static) not affecting the orbital dynamics. The TS mode allows one to do frequent coherent spin flips of the beam to reduce experiment's systematic errors, and carry out ultrahigh precision experiments. The TS mode may allow one to significantly expand the capabilities of polarized beam experiments at the RHIC-based EIC at BNL in the US. It makes it possible to manipulate the polarizations of proton and ^3He beams during experiments in the collider's entire energy range. The TS mode is also considered for spin control of polarized deuterons near the energies corresponding to integer spin resonances. The talk presents schemes for proton and deuteron polarization control using the TS mode in RHIC.

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