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Study of the depolarization process, possible biases

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Two possible scenarios for measuring the frequency of spin precession in FCC-ee storage rings at the threshold of the birth of Z and WW -pairs are discussed. One of the scenarios involves the use of the well-known method of Resonant Depolarization of pilot bunches of the pre-polarized particles. While in the second approach it is proposed to use a powerful short-pulse RF magnet (flipper) to quickly rotate the direction of spins away from the initial vertical one and then measure the modulation of the laser polarimeter counting rate by the frequency of free precession of electrons or positrons leaving the stored beam. The second method uses an almost 100% dependence of the cross section of the inverse Compton scattering on the longitudinal spin component of electrons and positrons, which makes it possible to observe the coherent precession of particle spins and isolate the frequency of this precession in the Fourier spectrum of the polarimeter signal.

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