

Investigation of polarized proton spin coherence time at storage rings

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The possibility of getting 1000 s spin coherence time (SCT) for deuterons has been shown experimentally at COSY. Reaching high values of SCT for protons is more challenging due to higher anomalous magnetic moment. Obtaining sufficient proton SCT is obligatory for planned EDM experiments at COSY and prototype EDM ring. It has been shown that the second order momentum compaction factor (MCF2) has to be optimized along with chromaticities to get high SCT. Three families of sextupoles have to be used. The optimal values of chromaticities and MCF2 are explained in connection with particle orbit lengthening.