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Wien filter method for the "Quasi-frozen" spin lattice

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To study the electric dipole moment of light nuclei, it is necessary to maintain the direction of the spin along the particle's motion along the ring. The first obvious solution to this problem is to use elements with an electric field that rotates the spin in the direction opposite to the spin rotation in a magnetic field. The most successful solution in this case is the Wien filter, which ensures spin rotation while maintaining the co-direction of the spin and momentum. In this case, the ring structure consists of arcs with bending magnets and straight sections on which Wien filters with crossed electric and magnetic fields are installed. The paper considers various versions of a magneto-optical structure that implements the "Quasi-frozen" spin method for studying the electric dipole moment of deuterons and protons. This approach can be used in developing an upgraded Nuclotron structure.

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