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ByPass optics design in NICA storage ring for experiment with polarized beams for EDM search

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NICA is mainly designed for experiments with heavy ions and polarized proton and deuteron beams at an energy of the former about 13 GeV. For these purposes, appropriate SPD and MPD detectors, as well as other necessary implements, are installed in the straight sections. EDM experiment supposes use deuterons at an energy of about 240 MeV. To ensure the «Quasi-Frozen Spin» mode, E+B elements (namely, Wien Filters) are required as well. Such elements can be placed in straight sections to compensate the arc spin rotations. For EDM measurement experiments, it is necessary to operate NICA in the storage ring, and not the collider mode. To do this, it is proposed to install ByPass channels. Thus, it is possible to create a completely new regular structure in a straight section. Creating ByPass channels will make possible to engage NICA in various experiments at once.

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Footnotes

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Yes

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