The paper requires changes.

Comment

Paper to be corrected.  
Review complete for paper 916 - ByPass optics design in NICA storage ring for experiment with polarized beams for EDM search  
Dear author,

Thank you for submitting the paper below to the IPAC'23 Light Peer Review.  
Title: ByPass optics design in NICA storage ring for experiment with polarized beams for EDM search  
Main Classification: MC1.A24: Accelerators and Storage Rings, Other  
Paper code: MOPA072  
Paper url: https://indico.jacow.org/event/41/papers/1321/

Please find below the reviewers' reports.

Is the work free of obvious scientific or technical errors and important factual mistakes?  
Referee 1: False  
Referee 2: True

Does the paper include own work, performed by the authors and not published elsewhere?  
Referee 1: False  
Referee 2: True

Is the presentation of methods, results and conclusion understandable?  
Referee 1: True  
Referee 2: True

Is the paper written in good English?  
Referee 1: True  
Referee 2: False

Does the paper acknowledge the relevant work of others in the same field?  
Referee 1: True  
Referee 2: True

Does the paper include appropriate references to the literature?  
Referee 1: True  
Referee 2: True

Comment to the authors  
Referee 1: None  
Referee 2: The paper presents the design of a bypass line on NICA for EDM experiments. It discusses the different lattice designs that can be used for the bypass line and includes spin-tracking simulations. However, I noticed that the paper could benefit from improved English writing. The authors frequently use abbreviations, such as "NICA," before providing their explanations, which can be confusing. Additionally, some sentences are difficult to comprehend, such as "One of such methods is the concept of «Frozen Spin». And is a pure evident of T-BMT equations." Furthermore, I discovered that a previous paper (Ref[2]) on this subject has been retracted. Considering these issues, I strongly recommend a major revision of the paper.

Referee 1: This paper aims to design the bypass optics for polarized beams for electric dipole moment experiment, which will create an alternative straight section parallel to the original one. Considering lack of the space and the NICA ring in the collider mode, the ByPass channel is introduced, which allow the NICA as a storage ring and the experiments with the polarized beams for EDM research. In this paper, the authors proposed modernization structures, named 3 quadrupoles, 5 quadrupoles, to make the ByPass possible. Meanwhile, this structure can restore the polarized beams up to the spin orientation.  
I think, the authors proposed this scheme for the ByPass tunnel in storage ring have balanced the limited space and collider mode. It make sense in reality. But the paper will be more clear if the authors clarify the following questions:  
1. The authors mention the energy for EDM experiment is about 240 MeV, while the energy of storage ring is much higher than this kind of experiment. So the EPM experiment is another operation mode? If so, does this kind of scheme affect the beam seriously? All I want to say is that it’s not collider mode during the EDM experiment, right?

Based on the reviewers report the Scientific publication board took the following decision:  
The paper is to be corrected and resubmitted after the reviewers' comments are taken into account.  
Please correct the paper and resubmit it within 5 days of receiving this message.

Thank you in advance,

Nicolas Delerue  
on behalf of the IPAC'23 LPR SPB

Answer to Referee 2:

Thanks for the review! I have re-read all the paper and try to correct English writing in all paper sections. Moreover, now at the beginning I mention what is «NICA» and add according reference as well. Also, I checked previous paper reference and correct it for the other.

Answer to Referee 1:

Thank you for your feedback! I paid special attention to your questions in according paper sections. Hope now I clarify them in corrected paper. Energy of experiment determines by polarimetry needs. During EDM experiment ByPass NICA operate in storage ring mode, not collider.