This paper proposed a method to handle the polarization shift with monitoring the quantum bit error rate. And this method was verified in an entanglement-based quantum key distribution experiment. However, there are some issues needed to clarify before further consideration of suitability for publication.

1. In the abstract, only the technique for dynamically compensating fiber-induced state alteration with minimizing the QBER was mentioned. In order to get a complete picture of your work, the related technique was verified in an entanglement-based quantum key distribution experiment should also be summarized in this section.
2. In the introduction, it is written "In theory, unconditionally secure communication can…". Actually, the term of "unconditionally secure communication" is an old and inaccuracy description for the QKD security since there are some assumptions in the security proof of the QKD protocol. the information information-theoretic security is a widely accepted and adopted description. So please replace the "unconditionally secure communication" with "information-theoretic secure communication".
3. In the proving that the polarization correction of entanglement-based QKD system only needs to set a single polarization compensator in one path, there is one equation $\hat{T}_A \hat{R}_A = \hat{R}_B$ has been used. It is wonder if this equation is true for most general situation, such as two separated channels undergo the different path, so that the polarization shift and its rate are remarkable different.
4. The clock rate for your experiment is not explicit in your paper, it is hard for reader

to judge the efficiency of your proposed method. Furthermore, your paper does not indicate how long you can stabilize the polarization using your method without manual intervention, only mentioned that you can achieve optimal compensation within 20 minutes

5. There is a typo at the end of second paragraph in section 4. There should be a space between algorithm and depicted.
6. After compensation, the QBER is about 7%, which is much higher than previous the system deployed the similar method to handle the polarization shift such as the Ref. [23] of your paper, which is about 2%. Please give an explanation if this problem is caused by your algorithm being less than optimal.
7. The last and most critical issue is the innovation of this article. The method used to deal with polarization drift has been proposed in the previous works, such as the Ref. [23] and the Ref. [24]. The authors in this paper have not explicit the different or improvement from the previous method, or compare the result deployed the proposed method with the previous ones. Furthermore, the method proposed here does not seem to be effective in maintaining the polarization problem, especially when the polarization is abrupt and cannot respond in time. For example, in Fig.3(b), the QBER has increased about 3% at 15 minutes, and this drift lasted for about 5 minutes before QBER dropped to a relatively low level. However, during this time, as can be seen from Fig.3(c), the modulation voltage of LCVRs barely changed accordingly, so it is difficult to tell whether the reduction in QBER is due to your proposed method or a natural recovery.