Erratum: Phase-Matching Quantum Key Distribution [Phys. Rev. X **8**, 031043 (2018)]

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(Received 10 April 2019; published 28 May 2019)

DOI: [10.1103/PhysRevX.9.029901](https://doi.org/10.1103/PhysRevX.9.029901)

We found an error in the simulation code in our recent work. With the coding error fixed, the simulation result (Fig. 3 in the original paper) is shown below. The longest distance under the same parameters in Table I is 418 km.

As is shown in Fig. 1, the key rate line of PM-QKD can still overcome the secret key capacity bound when $l > 250$ km, and the rate-loss dependence of PM-QKD, $R \sim O(\sqrt{\eta})$, is not affected.

The simulation error was brought to our attention when we ran the simulation in a follow-up work, and it was independently pointed out by Ivan Djordjevic. In the Supplemental Material [1], we present the MATLAB code of the PM-QKD key rate for reference.

FIG. 1. Corrected simulation result of Fig. 3 in the original article. The purple dashed line is the original incorrect plot of the PM-QKD key rate result, which is caused by an erroneous extra term $(2\pi)/M$ when calculating the QBER using Eq. (B22); see lines 27 and 28 in the MATLAB code file in the Supplemental Material [1].

- [1] See Supplemental Material at <http://link.aps.org/supplemental/10.1103/PhysRevX.9.029901> for the MATLAB code of the PM-QKD key-rate evaluation.