Response to Reviewer 3 Comments

We would like to thank the reviewer for the constructive and positive comments, which are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made revisions which we hope meet with approval. The responds to the comments are as follows:

(1) Table 2， please explain the meaning of L^* by note below table 2.

L stands for characteristic scale, and the explanation of L was added below table 2.

(2) Please make up the definition of the rarefaction effects.

We thank the reviewer for pointing this out. The explanation for the rarefaction effects has been added as follows: the rarefaction effects are the phenomenon where classical continuity theory, no-slip, and no-temperature-jump conditions are no longer strictly applicable when the average free path (λ) of fluid molecules is comparable to the characteristic length of the system (L).

(3) If some figures of this work were from literatures, please mark the cited literatures in the title of figures.

Thank you very much for your kind reminder. The cited literatures have been added in the title of figures.

(4) In the section of the liquid with phase change in microchannels, if the review on condensation heat transfer can be added, it would be great.

Thank you for the reviewer's suggestion, but the arrangement of this article mainly focuses on the heat absorption of the coolant in microchannels, so it does not involve research on the heat release of condensation.