Manuscript title: Accelerated transport through sliding dynamics of rodlike particles in macromolecular networks

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Dear Dr. Kyle J. Welch,

First of all, we thank you and referees very much for the valuable efforts and thoughtful evaluations on our original manuscript! It is highly appreciated that all the referees give positive comments on scientific significance of this paper.

The manuscript has been revised carefully based on the comments of referees. All the recommendations and criticisms have been addressed appropriately, which should lead to a paper with solid presentations. A summary of changes is given **in the following page**, and a one-by-one response to referees is attached to this submission as **"Responses to Referees"**.

With these statements, we sincerely hope that the paper is now suitable for publication.

Thank you very much for your kindness for this matter!

Sincerely Yours,
Li-Tang Yan

Summary of Changes

[1] The word “participles” has been changed into “particles”, which can be found in the 22nd line of the left column on Page 2 in the main text (marked in red).

[2] The sentence “r_c is length unit” has been added, which can be found in the 26th line of the right column on Page 2 in the main text (marked in red).

[3] Fig. 3 (c) and (d) has been modified in the main text.

[4] The sentence “To eliminate the experimental error due to the cumulative vibration and drift of the microscope stage used for imaging during a long time measurement, we compute the overall drifting motion, which will be subtracted away, adopting the reference frame of the particles’ average position; this method can significantly reduce the creeping movement of the microscope and has been widely used elsewhere [13–15].” has been added, which can be found from the 16rd to 21th line on Page 3 in Supplemental Material.

[5] Section VI in Supplemental Material has been modified based on our new experimental measurement of the viscosity instead of that used from the literatures. Accordingly, the relevant parameters have also been corrected.

[6] Figs.S7, S8 and S9 in Supplemental Material are new results, providing necessary support to the results and discussions in the main text.