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Dear Professor Yu,

We are happy to submit the revised version of the paper you are currently handling. Dealing with all referees' concerns and comments was a major effort but we enjoyed (most of) it because several of their suggestions helped significantly improve the paper.

As the point-by-point responses in the three rebuttals make clear, we considered all their comments and suggestions in detail and implemented most of their suggestions. In particular,

- We have added two new sections (Sections V and VI) to the revised version of the article.
  - Section V presents a set of averaged equations, including higher-order moments, to describe the dynamics of droplets immersed in a Newtonian fluid. Particular emphasis is placed on the choice of the stress decomposition and on the equation governing the second-order mass moment and first moment of momentum equation, which plays a key role in describing the deformation of the dispersed phase.
  - In Section VI, we derive the closure terms in the dilute, viscous-dominated regime. Specifically, we quantify the influence of surface tension gradient on the forces and moments acting on the droplets. Additionally, we discuss several covariance closure terms that emerge in the averaged equations. Finally we demonstrate how the leading order deformation of the droplets can be obtained thanks to the second-order mass moment and first moment of momentum equation.
- We have also added new paragraphs in the introduction to outline the new contributions of the present paper and rewritten the conclusion.

In light of these modifications, the title has been changed in "Averaged equations for disperse two-phase flow with interfacial properties and their closures for dilute suspension of droplets".

The revised manuscript exhibits an increased length compared to the initial submission, primarily attributed to the inclusion ot the two sections. I hope the referees will enjoy reading this revised version and will find it suitable for

publication. Thank you very much for handling this revised manuscript.

With best regards,

Nicolas Fintzi & Jean-Lou Pierson