The effect of low accurate vesicle suspensions on observables
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— Vesicle suspensions, which are experimental and numerical proxies for red blood
cells and other biomembranes, are ubiquitous in various applications such as biological flows. The governing equations for vesicle suspensions include several challenging aspects such as non-local interactions, an inextensibility and incompressibility
constraint, and a fourth-order arclength derivative. The simulation of vesicle suspensions can be accelerated by introducing several approximations. For instance,
vesicles can be discretized at a coarse resolution, the accuracy of the non-local interactions can be reduced, and the area and length of the vesicle can be locally
corrected. First I will describe several algorithms that are required to maintain stability at low accuracies. Then, I will discuss the effect these approximations have
on several observables, such as the statistics of the velocity field.

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