Abstract Submitted
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The effect of lipid monolayers on Faraday waves[1] STEPHEN STRICKLAND, Dept. of Physics, NC State University, LAKE BOOKMAN, MICHAEL SHEARER, Dept. of Mathematics, NC State University, KAREN DANIELS, Dept. of Physics, NC State University — Surface tension is known to affect the critical driving acceleration for Faraday waves and their spatial wavenumber at onset. We perform experiments in the subharmonic regime, on water whose free surface is contaminated with up to one monolayer of fluorescent NBD-PC lipid. A circular container of water is vibrated vertically at single frequencies ranging from 15 Hz to 70 Hz, and we measure the acceleration and wavenumber at the onset of Faraday waves. We observe that the critical acceleration is larger than predicted by recent models, if the effect of the contaminant is assumed to simply lower the surface tension. Critical wavenumbers are largely unaffected. We examine whether a non-uniform lipid distribution is responsible for these effects.

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