

Abstract Submitted
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Collective dynamics of floaters on a Faraday wave¹ CEYDA SANLI, DEVARAJ VAN DER MEER, DETLEF LOHSE, Physics of Fluids-University of Twente — The dynamics of particles floating on a standing Faraday wave is studied experimentally. For low particle concentration it was shown [G. Falkovich et al. Nature 435, 1045 (2005)] that non-wetting particles accumulate at the antinodes of the standing wave. This was found to be a single particle effect. Here, we study what happens when the particle concentration is increased: Surprisingly, we observe that the same particles that cluster at the antinodes for low particle concentration move to the nodes for high concentrations. The explanation of this effect lies in the collective, attractive capillary interaction among particles which counteracts the tendency of the particles to move toward the antinodes. The transition between the two regimes is studied as a function of the concentration and is found to exhibit extremely long transients.

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