

Abstract Submitted
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The role of bouncing-phase variation for walking droplets¹ LUCAS
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Experimental and theoretical studies of droplets walking on a vibrating bath show
that the droplets impact phase depends on the driving acceleration. Experiments
also show that this phase may change in the presence of boundaries or other walkers,
indicating a dependence of phase on local wave amplitude. One expects that this
phase variation may alter the stability of various dynamical states. We here intro-
duce an integro-differential model for a walker's horizontal motion that accounts
for the variability of impact phase, and use it to predict the stability of rectilinear
walking and orbital solutions. Our model predictions are compared with those of
previous constant-phase models and related to experiments whenever possible.

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