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# Damping liquid oscillations by contact line hysteresis

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## Abstract

Sloshing describes the oscillations of liquids in reservoirs. It is often detrimental and can lead e.g. to coffee spilling, or to destabilisation of tankers and spacecrafts, especially in its large-amplitude, nonlinear regimes. Therefore, understanding and optimising its damping is of primary importance for applications. Presenting experimental measurements and the associated theoretical modeling, I will show that in the case of partial wetting, damping of sloshing can be dramatically increased by tuning the contact angle hysteresis. This leads to novel nonlinearities which, contrary to the usual large-wave-amplitude effects, manifest themselves all the most that sloshing amplitude is small, leading to singularities like the finite-time arrest of the oscillations of the liquid/air interface.

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