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Directional motion of liquid under mechanical vibrations MAXIME COSTALONGA, PHILIPPE BRUNET, HASSAN PEERHOSSAINI, Université Paris Diderot — When a liquid is submitted to mechanical vibrations, steady flows or motion can be generated by non-linear effects. One example is the steady *acoustic streaming* one can observe when an acoustic wave propagates in a fluid. At the scale of a droplet, steady motion of the whole amount of liquid can arise from zero-mean periodic forcing. As It has been observed by Brunet *et al.* (PRL 2007), a drop can climb an inclined surface when submitted to vertical vibrations above a threshold in acceleration. Later, Noblin *et al.* (PRL 2009) showed the velocity and the direction of motion of a sessile drop submitted to both horizontal and vertical vibrations can be tuned by the phase shift between these two excitations. Here we present an experimental study of the mean motion of a sessile drop under slanted vibrations, focusing on the effects of drop properties, as well as the inclination angle of the axis of vibrations. It is shown that the volume and viscosity strongly affect the drop mean velocity, and can even change the direction of its motion. In the case of a low viscous drop, gravity can become significant and be modulated by the inclination of the axis of vibrations. Contact line dynamic during the drop oscillations is also investigated.

Maxime Costalonga
Université Paris Diderot

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