

Abstract Submitted
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Drop motion due to oscillations of an inclined substrate YI XIA, CHUN-TI CHANG, SUSAN DANIEL, PAUL STEEN, Cornell University — A sessile drop on a stationary inclined substrate remains pinned unless the angle of inclination is greater than some critical value. Alternatively, when shaken at even small angles of inclination, the drop undergoes shape deflections which may lead to drop translation. Translation occurs when large contact angle fluctuations, favored by oscillations at resonance, overcome contact angle hysteresis. In this study, resonance is triggered by substrate-normal oscillations. The drop translation is typically observed to be of constant speed for a given set of parameters. The speed is measured experimentally as a function of resonance mode, driving amplitude and drop volume. This technique of activating the motion of drops having a particular volume can be utilized for applications of droplet selection and transport.

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