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Surface Patterns of Parametrically-Excited Sessile Drops CHUN-TI CHANG, JOSHUA BOSTWICK, SUSAN DANIEL, PAUL STEEN, Cornell University — A mechanically-excited sessile water drop exhibits surface patterns that vary with driving amplitude and frequency. At small amplitudes, drops exhibit axisymmetric wave patterns. At sufficiently large amplitudes and at particular frequencies, symmetry breaks and there appear subharmonically-resonating sectoral and tesseral mode shapes. We report observations from experiment and compare to results from modeling the parametric excitation of the drops. The modeling uses the spectrum and eigenmodes from a linear stability analysis of the inviscid sessile Rayleigh drop with moving/pinned contact-line. Manipulating drop motion can be important to a variety of applications.

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