Nonlinear shape oscillation dynamics of drops and bubbles in a liquid. E.H. Trinh (JPL/Caltech, MS 183-401, 4800 Oak Grove Drive, Pasadena, CA 91109)

Ultrasonically trapped centimeter-size liquid drops and gas bubbles in a. liquid host arc driven into large amplitude. shape oscillations by modulating the acoustic radiation pressure. Sonic of the nonlinear characteristics have been experimentally investigated by measuring the resonant mode frequencies dependence on the oscillation amplitude, and by evaluating the energy coupling between some of the low-order resonant modes. The effect of the ultrasonic trapping field required for ground-bawd studies has become an issue in terms of its impact on the measured parameters. Such a high intensity sound field has been shown to dramatically affect both the equilibrium shape as well as the motion of the drops and bubbles surfaces. In order to quantitatively evaluate the impact of such high field effects, simple experiments to be performed in low gravity will be described, [Work funded by NASA]

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