

Abstract Submitted
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Axisymmetric free surface waves and drops¹ KUAN-KHOON TJAN,
WILLIAM R.C. PHILLIPS, University of Illinois at Urbana-Champaign — The numerical simulation of the deformation of a liquid free surface subjected to an impulse (acoustically generated or otherwise) in an axisymmetric semi-infinite domain is considered. Using an inviscid boundary integral formulation, the free surface is evolved under the influence of inertial, interfacial and gravitational forces. Within a critical envelope of Weber and Froude numbers, there are two types of impulse of interest, one which led to the ejection of droplets and the other to the entrainment of bubbles. This research is part of a study of the lung damage caused by ultrasonic imaging. It has been observed in animal experiments that a focused ultrasonic beam can cause lung lesions. Since the lung tissue is mostly water and the lung is filled with air, such a mathematical model is a plausible realisation of the actual physics.

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