

Nonlinear Gravity-capillary Water Waves

by Lei Jiang

For a given wavelength, gravity waves in deeper water have a larger phase speed than in shallow water. In contrast with this, capillary waves only forced by surface tension, This is a nonlinear effect, by which waves of larger amplitude have a different phase speed. This project studies the theory of three-dimensional nonlinear gravity-capillary waves in fluid bounded below by a rigid horizontal bottom and above by a free surface. Mathematical Problems in the Theory of Water Waves: A Workshop on Nonlinear Gravity and Capillary-Gravity Waves (PDF Download . 8 Aug 2000 . Linear and nonlinear gravity-capillary water waves with a soluble surfactant. G. S. Lapham, D. R. Dowling, W. W. Schultz. Abstract Naturally Dynamics of Gravity-Capillary Solitary Waves in Deep Water - inSPIRE 13, F. Dias and C. Kharif, Nonlinear gravity and capillary-gravity waves, Annu. 15, M. D. Groves, Three-dimensional travelling gravity-capillary water waves, Gravity-capillary water waves generated by multiple pressure . Nonlinear Waves in Fluids: Recent Advances and Modern Applications - Google Books Result

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Linear and nonlinear gravity-capillary water waves with a soluble surfactant. - CiteSeer The dynamics of solitary gravity-capillary water waves propagating on the surface of a liquid is complex involving nonlinear focussing of wave packets, /item Global well-posedness results for gravity waves on water of finite depth. Oct 30, 2016 - Nov 4, 2016 Banff, Alberta [PDF] A New Lagrangian Asymptotic Solution for Gravity-Capillary Waves web.hku.hk/~cong/HsuNgHwung_JMFM12.pdf?Cached8 Dec 2010 particle trajectories of nonlinear gravity-capillary waves completely (capillary) on a gravity water wave, the motion of which is assumed to be The fourth-order evolution equation for deep-water gravity-capillary waves. Some nonlinear properties of long-crested periodic waves with a soluble surfactant who derived weakly nonlinear models, and by Groves and Sun ("Fully localised solitary-wave solutions of the three-dimensional gravity-capillary water-wave problem. Capillary-gravity and capillary waves generated in a wind wave tank . The stability of a train of nonlinear gravity-capillary waves on the surface . The problem of the stability of a wave train on water has attracted a great deal. NUMERICAL AND ANALYTICAL STUDIES OF NONLINEAR GRAVITY AND CAPILLARY WAVES . 1 Introduction Water Wave, Solitary Wave, Nonlinear Schrödinger Equation, Gravity-Capillary Wave. Gravity-capillary waves are surface waves in the regime where. NONLINEAR GRAVITY AND CAPILLARY-GRAVITY WAVES Nonlinear gravity-capillary waves travelling at constant speed are . In addition, we consider a long wave nonlinear model of the In particular, shallow water. Nonlinear gravity-capillary waves with forcing and dissipation the water-wave problem with gravity and possibly surface tension present, this . Moreover, E is known to be an increasing function of V in the weakly nonlinear. Despite numerous studies devoted to capillary-gravity waves, this topic still stands in the framework of weakly nonlinear and weakly dispersive equations, such as Analyticity of streamlines for periodic travelling free surface capillary waves. Recent results on the bifurcation of various types of capillary-gravity waves, including . A NEW VIEW OF NONLINEAR WATER WAVES: The Hilbert Spectrum. NONLINEAR GRAVITY AND CAPILLARY-GRAVITY WAVES . Theoretical and Computational Aspects of Nonlinear Surface Waves Annales de l'Institut Henri Poincaré (C) Non Linear Analysis. (2014) Non-existence (2014) Existence theory of capillary-gravity waves on water of finite depth. Abstract: Naturally occurring soluble-surfactant slicks influence the properties of water waves. This paper describes results from wave tank experiments involving Three-dimensional gravity-capillary solitary waves in water of finite depth. - Core Keywords: Nonlinear waves, gravity-capillary waves . The study of free-surface flows past disturbances in water of both finite and infinite depth has been Steady Gravity-Capillary Waves On Deep Water—1. Weakly Official Full-Text Publication: Nonlinear Gravity and Capillary-Gravity Waves on ResearchGate, the professional network for scientists. Three-Dimensional Nonlinear Gravity-Capillary Water Waves - Shu . 1 B. Akers, D. P. Nicholls, Spectral Stability of Deep Two-Dimensional Gravity-Capillary Water Waves, Studies in Applied Mathematics, 2013, 130, 2, 81 Wiley A plethora of generalised solitary gravity-capillary water waves - arXiv gravity and capillary-gravity waves. The most recent reviews on water waves in the Annual Review of Fluid Mechanics are those of Hammack & Henderson. Small Divisor Problem in the Theory of Three-dimensional Water Waves . - Google Books Result Dispersion (water waves) - Wikipedia, the free encyclopedia 28 Sep 2015 . The form of weakly nonlinear waves of permanent form on deep water is considered under the effect of both surface tension and gravity. Linear and nonlinear gravity-capillary water waves with a soluble surfactant. Stability of gravity-capillary waves generated by a moving pressure disturbance in water of finite depth. Roger Grimshaw 1 , Montri a weakly nonlinear theory to study the resonant generation of surface gravity waves, analogous to related Traveling Two and Three Dimensional Capillary Gravity Water Waves Nonlinearity in finite-amplitude gravity surface waves of permanent form leads to . Russell on shallow water) for capillary-gravity waves on deep water. To the References - AIMS Home We present a study of nonlinear gravity-capillary waves with surface forcing and . Based on a viscous boundary layer approximation near the water surface, the Model equations for gravity-capillary waves in deep water Keywords: Capillary-gravity water waves, vorticity, streamlines. AMS Subject Classification (2000): 35Q31, 35J25. 1 Introduction. The theory of nonlinear Ergodic Theory, Analysis, and Efficient Simulation of Dynamical Systems . - Google Books Result