
Stability of Wave Trains in Whitham Equations

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Abstract

In this talk, we will discuss recent advances in the existence and dynamics of periodic traveling waves in Whitham type equations for water waves. These nonlocal dispersive equations incorporate a canonical shallow water nonlinearity and the full dispersion relation for unidirectional surface water waves. Specifically, we will be interested in the impact of various physical effects (surface tension, constant vorticity, etc.) on the modulational instability of wave trains with sufficiently small amplitudes. Time permitting, we may also discuss results incorporating bidirectionality in the model.

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