
Transverse instability of periodic and generalized solitary waves for 5th order KP model

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Abstract

We consider a 5th order Kadomtsev-Petviashvili (KP) equation arising in the study of capillary-gravity water waves. This equation possesses a family of generalized solitary waves which are traveling solitary waves with periodic tails at infinity. We show that the periodic tails are transversely unstable and that this instability induces an essential transverse instability of the generalized solitary waves. We also discuss the question of extending these results to the Euler equations governing the water-wave problem.

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