

## Stability of Nonlinear Wave of Kadomtsev-Petviashvili-Type Equation

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(Received: 2006-3-17; Revised: 2006-5-26)

Abstract: For ion-acoustic waves in a plasma with non-isothermal electrons, the MKP equation is its governing equation. The instability of a soliton solution of MKP equation to two-dimensional long-wavelength perturbations is investigated up to the third order. It indicates that the one-soliton solution of MKP equation is unstable if  $\nu=-1$  whereas it is stable if  $\nu=1$  until the third order approximation has been considered.

PACS: 47.35.+i

Key words: MKP equation, stability, solitary waves

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