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# Conditions for Modulation Instability in Higher Order Korteweg-de Vries Equations

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## Abstract

The universal mechanism of modulation instability (MI) has been discovered first for the Nonlinear Schrödinger equation (NLS) and is well studied in the frame of the higher order NLS equations. Recent studies demonstrated by pure existence theorems that also the higher order Korteweg-de Vries (KdV) equations might possess the MI. In this Letter we present explicit form of the conditions for the MI to appear in the KdV-family of equations of the general form  $u_t + su^p u_x + u_{xxx}$  where  $s = \pm 1$  with  $p > 0$  being an arbitrary integer.

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