

1059-35-163

**V. Zharnitsky\*** (vz@math.uiuc.edu), Department of Mathematics, University of Illinois, Urbana, IL 61801, and **M. B. Erdogan** and **N. Tzirakis**. *Near-linear dynamics in KdV with periodic boundary conditions.*

KdV equation is a standard model of weakly nonlinear long waves on the surface of shallow water. It will be shown that in KdV with periodic boundary conditions, high frequency solutions evolve almost as the linear ones for large time. The integrability properties of KdV are not used, so similar results could be expected for other KdV like equations. The interaction of these high frequency solutions with a cnoidal wave will be discussed, too. This work has been motivated by an attempt to explain certain phenomena in nonlinear optics and fluid dynamics. (Received February 22, 2010)