Internal Waves with Small Dispersion

Peter Miller

Department of Mathematics, University of Michigan, Ann Arbor, MI 48109, U.S.A.
email: millerpd@umich.edu

Abstract:

Dispersive interactions for waves propagating on an interface between two fluids of different density are, by physical nature, long-range. In simple models of weakly nonlinear internal waves, this long-range dispersion shows up as a nonlocal linear term in the equation. One such model is the Benjamin-Ono equation, which is known to possess a Lax pair representation. This talk will review some results on the asymptotic behavior of the solution of the initial-value problem for the Benjamin-Ono equation when the dispersion is small but nonzero. We will first discuss weak convergence results obtained with Z. Xu, and if time remains we will mention ongoing work on strong small-dispersion asymptotics (joint with A. Wetzel).