Fast dispersion slow diffusion multi-scale dynamics: theory and computation

Marshall Slemrod

Department of Mathematics
University of Wisconsin
Madison, WI 53706 USA

Abstract: This talk outlines research done by Z. Artstein, C.W. Gear, Y. Kevrekdis, M. Slemrod, and E. Titi on the analysis and numerical solution of a discrete system of ordinary differential equations modeling a KdV-Burgers' equation with periodic boundary conditions.

The ideas are robust and will be applicable to larger classes of systems, e.g. slowly perturbatins of fast completely integrable Hamiltonian systems.