Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Can one hear a Kolmogorov Spectrum?[1] SERGIO RICA, LPS, CNRS-Ecole Normale Supérieure — I will talk about a work in collaboration with G. During and C. Josserand on the long- time evolution of waves of a thin elastic plate in the limit of small deformation so that modes of oscillations interact weakly. According to the theory of weak turbulence (successfully applied in the past to plasma, optics, and hydrodynamic waves), this nonlinear wave system evolves at long times with a slow transfer of energy from one mode to another. We derived a kinetic equation for the spectral transfer in terms of the second order moment. We show that such a theory describes the approach to an equilibrium wave spectrum and represents also an energy cascade, often called the Kolmogorov-Zakharov spectrum. We perform numerical simulations that confirm this scenario. Finally, I will discuss recent experiments by A. Boudaoud and collaborators and N. Mordant.

[1]Agence Nationale de la Recherche (ANR)

Sergio Rica
LPS, CNRS-Ecole Normale Supérieure

Date submitted: 02 Dec 2008 Electronic form version 1.4