JOHNS HOPKINS
Center for Environmental & Applied Fluid Mechanics

Weekly CEAFM Seminar: Spring 2012

"WAVE TURBULENCE: A STORY FAR FROM OVER"
Presented by

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Abstract: Wave turbulence, in contrast to most turbulence theories, has a natural asymptotic closure and leads to a closed kinetic equation for the Fourier transforms of two point functions called waveactions from a knowledge of which all other moments and cumulants can be derived. This talk will outline the reasons for the closure and point out circumstances under which the closure might fail or the closure might be valid but the premises under which it is derived might be violated on certain statistically steady state (Kolmogorov-Zakharov) solutions. What to do? Among some very surprising results is the fact that, in some cases, the assumption of spatial homogeneity is incorrect for, although it may be a consistent solution of the moment equations, it may not be a stable one. That and some other remarkable results may also have wider ramifications for other turbulent systems.

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