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Colm Connaughton* (connaughtonc@gmail.com), Mathematics Institute, University of Warwick, Coventry, CV4-7AL, England. *Is there a “Strong” Energy Cascade in Wave Turbulence?*

Wave turbulence is very well understood theoretically when interactions between waves are weak and the dynamics of the energy cascade is well described by considering the flux to carry quadratic energy only - neglecting the nonlinear part of the Hamiltonian. Relatively little is known about the situation when wave interactions are strong. In this talk, I will present a semi-exact result for a particular higher order correlation function of the wave field, analogous to the “4/5-law” in hydrodynamics, which is expected to be valid for both weak and strong wave interactions. This result describes a cascade of total energy. I will demonstrate such a cascade in a simple toy model and discuss whether such a cascade may, or may not, be relevant for genuine wave turbulence. (Received August 19, 2007)