

SOME RECENT RESULTS ON WAVE TURBULENCE: DERIVATION, ANALYSIS, NUMERICS AND PHYSICAL APPLICATION

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Wave turbulence describes the dynamics of both classical and non-classical nonlinear waves out of thermal equilibrium. Recent mathematical interests on wave turbulence theory have their roots from the works of Bourgain, Staffilani and Colliander-Keel-Staffilani-Takaoka-Tao. In this talk, I will present some of our recent results on wave turbulence theory. In the first part of the talk, I will discuss our rigorous derivation of wave turbulence equations. The second part of the talk is devoted to the analysis of wave turbulence equations as well as some numerical illustrations. The talk is based on my joint work with Staffilani, Soffer, and Walton (PhD student at SMU).