High frequency dynamics for NLS on a torus

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Abstract

I will present the derivation of a new equation describing the dynamics of the nonlinear Schrödinger equation (NLS) set on a d-dimensional torus, in the high frequency, weakly nonlinear regime. This equation informs on the large time behavior of NLS, and is related to the theory of weak turbulence; it also has intriguing properties. This is a series of collaborations with T. Buckmaster, E. Faou, Z. Hani, J. Shatah, L. Thomann.