

Theme 1: harmonic

Statistical mechanics of the focusing nonlinear Schrödinger equation and soliton resolution conjecture

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In this talk, we discuss a number of results related to construction of the Gibbs measures for focusing nonlinear Schrödinger equations (NLS) and its relationship with the soliton resolution conjecture.

The program was initiated by Lebowitz-Rose-Speer (1988), who built the grand-canonical ensemble for NLS in dimension 1 on finite volume by introducing a suitable mass cutoff. We will discuss the infinite volume limit of this measure, and how this can be decomposed as the sum of (up to) one soliton over a gaussian background.

This talk is based on joint works with T. Oh (Edinburgh), M. Okamoto (Osaka), H. Weber (Münster) and J. Forlano (Edinburgh).