Boğaziçi
MATH GRAD SEMINAR

A Very Short Introduction to Global Well-posedness Theory of Nonlinear Schrödinger Equations and the *I*-Method

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Abstract:

Nonlinear Schrödinger equations are pivotal examples of nonlinear dispersive partial differential equations. Their importance comes from the fact that they describe a wide range of physical phenomena. This presentation will focus on the global existence and uniqueness of one of the most well-known, the cubic defocusing nonlinear Schrödinger equation. In order to give a more insightful presentation, we shall introduce useful background tools such as the Fourier transform and Sobolev spaces without giving too many technical details. Later, we would like to share a recent joint work with my colleague Engin Başakoğlu which concerns the global well-posedness of a fourth-order nonlinear Schrödinger equation.

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