

Boğaziçi MATH COLLOQUIUM

Quantitative Blow-up Criteria for Defocusing Energy-supercritical NLS

Aynur Bulut

Louisiana State University

Abstract:

In this talk, we describe recent work on quantitative bounds for the defocusing Nonlinear Schrödinger equation (NLS) in the energy-supercritical regime. In particular, inspired by a recent breakthrough construction of finite-time blow-up solutions for the defocusing equation, we establish a blow-up criteria below the scaling invariant threshold. This gives the first generic result distinguishing potential defocusing blow-up phenomena from many of the known examples of blow-up in the focusing setting. The main tools involved include delicate refinements of induction on scales arguments due to Bourgain and Tao, combined with an interpolation argument which allows to break the scaling threshold.

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