



THE UNIVERSITY OF
CHICAGO

THE COMMITTEE ON
COMPUTATIONAL AND
APPLIED MATHEMATICS

COLLOQUIUM

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Nonlinear Ground States and the Long-time Behavior of Nonlinear Schrödinger Equations

THURSDAY, September 29, at 4:00PM
Jones 303, 5747 S. Ellis Ave. Chicago, IL 60637

ABSTRACT

We recall basic ideas behind the soliton-resolution conjecture, describing the long-time behavior of solutions to nonlinear dispersive equations. We shall thereby focus on the case of nonlinear Schrödinger-type equations in various spatial dimensions. In this context, the question of how to characterize nonlinear ground state solutions arises naturally. By studying the case with combined power-law nonlinearities, we will compare two well-established notions of nonlinear ground states: constrained energy-minimizers versus action-minimizers. It has become clear in recent years that the two notions are in general not equivalent. Moreover, the fact that some of them are numerically found to be unstable in dimensions three and higher, has implications for the long-time behavior of solutions.

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