

Minimization problems on global dynamics of time-dependent nonlinear Schrodinger equations

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Abstract. It is known that, in several nonlinear dispersive equations, a solution corresponds to a small initial data behaves like a free solution near time infinity. The behavior is called scattering. On the other hand, some of them also admit non-scattering, hence relatively large, solutions, such as solitons. In this talk, I will introduce two minimization problems on non-scattering solutions in order to find a threshold solution which lies on the “boundary” of two kinds of solutions. We discuss existence of minimizers, and properties of them. The proof is based on a concentration compactness/rigidity type argument by Kenig-Merle. We heavily rely on the profile decomposition technique associated with the Strichartz estimates.