Mathematics, Statistics, and Computer Science   **@ UIC**

Analysis and Applied Mathematics Seminar

Asymptotic dynamics of the nonlinear Schrödinger equation in the exterior of obstacle

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Abstract: In this talk, we will study the influence of the underlying space geometry on the asymptotic dynamics of the nonlinear Schrödinger (NLS) equation. We will consider the focusing NLS equation in the exterior of a smooth, compact, and convex obstacle with Dirichlet boundary conditions. We will study the asymptotic behavior of the solution for large times and finite time. We prove the existence of these 3 types of solutions: Solitary wave solutions (solitons), blow-up solutions (solutions with finite time of existence) and scattering solutions (global and behaving asymptotically as linear solutions), for the NLS equation in the exterior of a convex obstacle.

Monday, April 18 at 4:00 PM in Zoom