Colloquium

The Schrödinger equations as inspiration of beautiful mathematics

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In the last two decades great progress has been made in the study of dispersive and wave equations. Over the years the toolbox used in order to attack highly nontrivial problems related to these equations has developed to include a collection of techniques: Fourier and harmonic analysis, analytic number theory, math physics, dynamical systems, probability and symplectic geometry. In this talk I will introduce a variety of results using as model problem mainly the periodic 2D cubic nonlinear Schrödinger equation. I will start by giving a physical derivation of the equation from a quantum many-particles system, I will introduce periodic Strichartz estimates along with some remarkable connections to analytic number theory, I will move on the concept of energy transfer and its connection to dynamical systems, and I will end with some results following from viewing the periodic nonlinear Schrödinger equation as an infinite dimensional Hamiltonian system.

Wednesday, November 27, 2024 03:30pm - 04:30pm
Raiffeisen Lecture Hall, Central Building

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