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

Analysis and Applied Mathematics Seminar

Strong Magnetic Field Limit in a Nonlinear Iwatsuka-Type Model

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Abstract: We study the strong magnetic field limit for a nonlinear Iwatsuka-type model, i.e. a nonlinear Schr\''odinger equation in two spatial dimensions with a magnetic vector potential that only depends on the x-coordinate. Using a high-frequency averaging technique, we show that this equation can be effectively described by a nonlocal nonlinear model, which is no longer dispersive. We also prove that, in this asymptotic regime, inhomogeneous nonlinearities are confined along the y-axis.

Monday, January 31 at 4:00 PM in 636 SEO