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

Analysis and Applied Mathematics Seminar

Fourier transforms of indicator functions, lattice point discrepancy problems, and related matters

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Abstract: We describe some sharp estimates for Fourier transforms of indicator functions of bounded open sets in R^n with real analytic boundary. These estimates are closely connected to corresponding sharp estimates on Fourier transforms of hypersurface measures. The estimates have immediate number theoretical applications, providing nontrivial lattice point discrepancy results for a large class of domains. Unlike most previous results in this subject, no convexity condition is required on the domains.

These estimates also have applications to maximal averages in harmonic analysis and local stability theorems for integrals of negative powers of real-analytic functions, which will be described if time permits.

Monday, February 25 at 4:15 PM in 636 SEO