Colloquium

Dr. Krystal Taylor

The Ohio State University

Thursday, April 4th
Room 220, 60 West Charlton
4:00 – 5:00 pm

The geometry of sets from the perspective of Fourier analysis and projection theory

In this talk, we consider a circle of geometric problems from the lens of harmonic analysis, geometric measure theory, and number theory. This includes understanding the existence of finite point configurations within fractal sets, obtaining estimates in lattice point counting problems, and determining the dimension, measure, and interior of Euclidean sets of the form A+B and AB (sum and product sets).

The common theme is decomposing intricate objects into simpler components using Fourier transforms and projection theorems. The Fourier transform decomposes a function or measure into frequencies which are often easier to analyze. Orthogonal projections offer a means to view higher dimensional objects in terms of lower dimensional information. This talk will be accessible to a wide mathematical audience, and relevant background information is given.

Refreshments will be served 3:15 – 3:45 pm in the Faculty & Graduate
Student Lounge Room 4118 French Hall West

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