Phil Gressman

Title: Harmonic Analysis and The Geometry of Submanifolds in Euclidean Space

Abstract: These talks will survey several strands of recent research aimed at understanding the geometry of submanifolds in Euclidean space as it relates to harmonic analysis. The two most important operations in this area are averaging over submanifolds (e.g., X-ray or Radon transforms) and Fourier restriction. Several interesting and important ideas relating to the "quantification" of geometry, including Oberlin's parallelepiped condition, Christ's method of refinements, and the Phong-Stein operator van der Corput lemmas will be introduced to the audience. We will also discuss recent applications and extensions of these ideas and possible avenues for future work.