



Differential Equations and Applied Math Seminar

Dr. Nestor Guillen, Texas State University

12-1pm September 10th, 2021

Zoom and in Derrick 330

Title: On nonlocal Jacobians and estimates for elliptic equations

Abstract: A theorem of Aleksandrov bounds the oscillation of a convex function in terms of the volume of the image of its gradient map. Another theorem, known as the Aleksandrov-Bakelman-Pucci estimate, takes Aleksandrov's estimate and turns it into an estimate for second order elliptic equations. It is difficult to overstate the importance of these theorems, they are essential to areas as different as the theory of optimal transport, geometric analysis, the theory of stochastic processes, and more. In this talk I will review the (rather elementary) proof of one of these estimates, list some of its consequences, and discuss the recent history of these estimates and non-local equations.

Interested faculty and graduate students are encouraged to attend.