



Differential Equations and Applied Math Seminar

Dr. Jake Fillman, Texas State University

12-1pm September 24th, 2021

Zoom and in Derrick 330

Title: Anderson localization in 1D

Abstract: We will talk about Schrödinger operators whose potential energies are generated by independent, identically distributed random variables. In the case of one spatial dimension, one observes Anderson localization (a complete set of exponentially decaying eigenvectors) for any nontrivial amount of randomness. We will discuss the history of the problem and connections between the spectral and quantum mechanical pictures. Along the way, we will feature some results that feed into the proof of localization: Furstenberg's theorem on products of random matrices, Ruelle's deterministic formulation of the multiplicative ergodic theorem, the Schnol–Simon theorem on existence of generalized eigenfunctions, and a large deviation theorem.

Interested faculty and graduate students are encouraged to attend.