

Algebra/Topology Seminar

JUSTIN CURRY

FOUNDATIONS OF TDA: THE FIBER OF THE PERSISTENCE MAP

Thursday, November 2, 2017

1:15 p.m. in ES-143

ABSTRACT. The persistence map is the map that sends a function on a topological space to its collection of persistence diagrams, which are canonical invariants of filtering a space by sublevel sets and taking homology in each degree. Geometrically, a persistence diagram is simply a configuration of points in the plane. In this talk I will study which configurations of points are possible and what the ramification of this map is for the simplest possible case—functions on the interval. Ongoing work and open problems will also be discussed.

N.B. This will be the first talk of a three-talk series on the foundations of topological data analysis (TDA) and will require minimal background knowledge.