abstract

SPECIAL GEOMETRY/DYNAMICAL SYSTEMS SEMINAR
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

In 2007, Dvir proved the Kakeya conjecture over finite fields. His proof uses the polynomial method: we take a hypothetical strange set, find a polynomial that vanishes on the set, and use properties of polynomials to show that the set does not exist.

The Kakeya conjecture in Euclidean space remains open. In particular, it's not clear how much Dvir's method can tell us about the Kakeya problem in Euclidean space. I will discuss two theorems in Euclidean space proven by adapting Dvir's method.

1. (joint work with Nets Katz) Solution to the joints conjecture about the combinatorics of intersecting lines in 3-dimensional space.

2. A new proof of the Bennett-Carbery-Tao multilinear Kakeya inequality.