

DISTINGUISHED LECTURE SERIES

TERENCE TAO

UCLA

Lecture I: L^p Improving Estimates for Averages along Curves

Analysis Seminar, Monday, April 16, 1:20 p.m. in B325 van Vleck

Lecture II: Hermitian Matrices and Honeycombs

Lie Algebra Seminar, Tuesday, April 17, 2:25 p.m., B219 van Vleck

Lecture III: The Kakeya Problem in Harmonic Analysis

Colloquium, Wednesday, April 18, 4:00 p.m., B115 Van Vleck

Abstract.

In 1917 Kakeya posed the Kakeya needle problem: what is the smallest amount of area needed to rotate a unit needle around continuously by a full rotation in the plane? In 1927 this was answered by Besicovitch, who showed that one could rotate a needle using arbitrarily small area. This problem and its higher dimensional generalizations and variants have turned out to play a key role in some difficult conjectures in harmonic analysis and PDE. We survey some of these connections and some recent results.