

Calderón -Zygmund Analysis Seminar

Monday, October 26th, 3:45 pm

Keakeya maximal estimates via real algebraic geometry

Jonathan Hickman

Abstract. The Keakeya (maximal) conjecture concerns how collections of long, thin tubes which point in different directions can overlap. Such geometric problems underpin the behaviour of various important oscillatory integral operators and, consequently, understanding the Keakeya conjecture is a vital step towards many central problems in harmonic analysis. In this talk I will discuss work with K. Rogers and R. Zhang which apply tools from the theory of semialgebraic sets to yield new partial results on the Keakeya conjecture. Also, more recent work with J. Zahl has used these methods to improve the range of estimates on the Fourier restriction conjecture.