Title: Approximate Groups and Hilbert 5th Problem
Speaker: Emmanuel Breuillard

Abstract: In joint work with Ben Green, Tom Sanders, and Terry Tao, we prove a structure theorem for approximate groups (i.e. finite subsets of arbitrary groups that are almost closed under product) and show that they close to finite extensions of nilprogressions. The proof builds on earlier work of Hrushovski and makes use of some of the techniques behind the proof of the Hilbert 5th problem by Gleason and Montgommery-Zippin. There are several applications to geometry and non-negative curvature that I will also describe in the talk.