

LOGIC SEMINAR

Guest Speaker: Krzysztof Krupinski
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Date: Tuesday, September 24, 2019

Time: 2:00 PM

Location: 125 Hayes-Healy Hall



Lecture Title:

Some Ramsey theory and topological dynamics for first order theories

Abstract

A fundamental question for a given complete first order theory T is whether Kim-Pillay strong types coincide with Shelah strong types; this is equivalent to the KP-Galois group of T being profinite. For example, a well-known open problem is whether it holds for simple theories. On the other hand, in my paper with A. Pillay and T. Rzepecki, we introduced the so-called Ellis group of a theory which captures more information about the theory than any of its Galois groups. One can deduce from our paper that if this Ellis group (or its canonical Hausdorff quotient) is profinite, then so is the KP-Galois group of T . So in the present joint work with J. Lee and S. Moconja, we try to understand when the Ellis group of a given theory is profinite. We have found various criteria for it which in particular include some new connections with structural Ramsey theory. We have introduced natural notions of [externally] definable Ramsey properties and degrees for a first order theory, extending classical embedding Ramsey properties considered in Kechris-Pestov-Todorcevic theory. Our Ramsey properties as well as having finite Ramsey degrees have nice dynamical characterizations, some of which imply that the Ellis group of the theory in question is profinite. This is also strongly related to the notion of [extremely] amenable theory from my recent paper with E. Hrushovski and A. Pillay. I will discuss this during my talk.