Speaker: Damir Dzhafarov

Title: Degrees of Mathias generics

Abstract: I will talk about work with Cholak, Hirst, and Slaman, and more recent work with Cholak and Soskova, investigating the Turing degrees of generic reals for Mathias forcing. Here, one forces with conditions (D,S) in which D is finite and S > D is an infinite member of some Turing ideal. These behave quite differently in terms of computability theory than Cohen generic reals, and their study is further complicated by comparing Mathias generics across different ideals. We show that every Mathias generic real computes a Cohen generic real, a fact whose analogue in set theory is false. Unlike with Cohen reals, which satisfy a strong cone avoidance property, it turns out that non-trivial information can be encoded into all the Mathias generics of a given ideal. We give a classification of this information in terms of computability-theoretic properties of the ideal.