



istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

IMBM MODEL THEORY MEETINGS

11.15-12.45: Ayhan Günaydın (Boğaziçi Üniversitesi) *Tame Expansions of o-minimal Structures*

Expanding a model theoretically “tame” structure in a way that it stays “tame” has been a theme in the recent years. In the first part of this talk, we present a history of work done in that frame. Then we focus on the case of expansions of o-minimal structures by a unary predicate. There is a dividing line according to whether the predicate is dense or discrete; even though the results obtained are similar, there is an enormous difference in the techniques used. We shall present some of the results obtained in the dense case. Starting from a set of abstract axioms, we obtain a decomposition theorem for definable sets and a local structure theorem for definable groups.

The abstract axioms mentioned above are “smallness”, “o-minimal open core” and “quantifier elimination up to existential formulas”. We shall illustrate a proof of the fact that the first two imply “quantifier elimination up to bounded formulas”, which is a weak form of the last axiom and we give reasons why it is really weaker than that axiom.

14.15-15.45: Zeynep Kısakürek (Galatasaray Üniversitesi) *Interpretable Fields in ACF*

This talk will focus on some results regarding to the interaction between algebraic geometry and model theory. There will be a survey of algebraically closed fields, algebraic groups and varieties with model-theoretic point of view. Marker and Pillay proved that an infinite field is interpretable in a reduct of algebraically closed field F which is non-locally modular and expanding the additive structure and then the multiplication on F is definable in this reduct. In their work, they use a result of Poizat and I will present this result that states an infinite field K which is definable in the pure algebraically closed field F is definably isomorphic to F .

16.15-17.45: Serge Randriambololona (Galatasaray Üniversitesi) *Using symbolic computation to define multiplication*

A theorem of D. Marker and A. Pillay states that if a non locally modular reduct of the complex field defines the addition, then it also defines the multiplication. Their proof uses advanced machinery of model theory, such as Hrushovski’s group configuration theorem and Poizat’s characterisation of infinite fields interpretable in ACF (see Zeynep’s talk).

In an earlier try, Garry Martin managed to reach the conclusion of the theorem by means of techniques of symbolic computation, at the expense of strengthening the hypothesis that the reduct in scrutiny must satisfy.

I will explain how one can slightly relax the hypothesis that G. Martin requires and still defines the multiplication by symbolic computation means.

Date : Friday, May 12, 2017

Place : IMBM Seminar Room, Boğaziçi University South Campus