

UNIVERSITE DE PARIS VII, UFR DE MATHEMATIQUES
Séminaire général de logique

25. Novembre 2013

Salma Kuhlmann (Université de Konstanz, Allemagne)
"Real Closed Fields and Models of Peano Arithmetic"

Abstract:

We say that a real closed field is an IPA-real closed field if it admits an integer part (IP) which is a model of Peano Arithmetic (PA). In [2] we prove that the value group of an IPA-real closed field must satisfy very restrictive conditions (i.e. must be an exponential group in the residue field, in the sense of [4]). Combined with the main result of [1] on recursively saturated real closed fields, we obtain a valuation theoretic characterization of countable IPA-real closed fields. Expanding on [3], we conclude the talk by considering recursively saturated o-minimal expansions of real closed fields and their IPs.

[1] D'Aquino, P. , Kuhlmann, S. , Lange, K. : *A valuation theoretic characterization of recursively saturated real closed fields*, [arXiv: 1212.6842](https://arxiv.org/abs/1212.6842) (2013)

[2] Carl, M. , D'Aquino, P. , Kuhlmann, S. : *Value groups of real closed fields and fragments of Peano Arithmetic*, [arXiv: 1205.2254](https://arxiv.org/abs/1205.2254) (2012)

[3] Conversano, A., D'Aquino, P. , Kuhlmann, S : *k-Saturated o-minimal expansions of real closed fields*, [arXiv: 1112.4078](https://arxiv.org/abs/1112.4078) (2012)

[4] Kuhlmann, S. : *Ordered Exponential Fields*, The Fields Institute Monograph Series, vol 12. Amer. Math. Soc. (2000)