

Pablo Cubides-Kovacsics

Homology groups in algebraically closed valued fields

In his PhD thesis, A. Woerheide constructed well-behaved homology groups for definable sets in o-minimal expansions of real closed fields. The question arises whether such groups exist in o-minimal reducts, such as ordered vector spaces over ordered division rings. Why is this question interesting? A positive answer, combined with the work of Hrushovski-Loeser on stable completions, forms the basis for defining homology groups of definable sets in algebraically closed valued fields (ACVF). As an application, one can recover and extend results of S. Basu and D. Patel concerning uniform bounds of Betti numbers in ACVF. In this talk, I will present results and advancements on this topic. This is an ongoing joint work with Mário Edmundo, Pantelis Eleftheriou and Jinhe Ye.