THESIS ABSTRACTS

The Association for Symbolic Logic publishes abstracts of recent PhD theses in logic. The aim of this activity is to publish abstracts for the majority of recent PhD theses in logic world wide and submitted abstracts will therefore only be edited to ensure that they fall within the general area of logic and are appropriate in terms of length and content. This section will provide a permanent publicly accessible overview of theses in logic and thus make up for the lack of central repository for the theses themselves. The Thesis Abstracts Section is edited by Christian Rosendal. Any abstract should formally be submitted by the thesis advisor though it is expected to usually be prepared by the candidate. For detailed instructions for preparation and submission, including the required TeX template, please consult the link below. https://aslonline.org/journals/the-bulletin-of-symbolic-logic/logic-thesis-abstracts-in-the-bulletin-of-symbolic-logic/.

RODRIGO FIGUEIREDO, *O-minimal de Rham Cohomology*, Universidade de São Paulo, São Paulo, SP, Brazil. 2017. Supervised by Ricardo Bianconi. MSC: Primary 03C64. Secondary 14F40, 58A12. Keywords: De Rham cohomology, o-minimal manifolds, o-minimal structures, Pfaffian closure.

Abstract

O-minimal geometry generalizes both semialgebraic and subanalytic geometries, and has been very successful in solving special cases of some problems in arithmetic geometry, such as André–Oort conjecture. Among the many tools developed in an o-minimal setting are cohomology theories for abstract-definable continuous manifolds such as singular cohomology, sheaf cohomology and Čech cohomology, which have been used for instance to prove Pillay's conjecture concerning definably compact groups. In the present thesis we elaborate an o-minimal de Rham cohomology theory for abstract-definable C^∞ manifolds in an o-minimal expansion of the real field which admits smooth cell decomposition and defines the exponential function. We can specify the o-minimal cohomology groups and attain some properties such as the existence of Mayer–Vietoris sequence and the invariance under abstract-definable C^∞ diffeomorphisms. However, in order to obtain the invariance of our o-minimal cohomology under abstract-definable homotopy we must work in a tame context that defines sufficiently many primitives and assume the validity of a statement related to Bröcker's question.

Abstract prepared by Rodrigo Figueiredo.
E-mail: rodrigo@ime.usp.br
URL: https://doi.org/10.11606/T.45.2019.tde-28042019-181150

HENDRICK MAIA, *Quillen Model Categories-Based Notions of Locality of Logics over Finite Structures*, University of Campinas, Brazil, 2019. Supervised by Marcelo Esteban Coniglio. MSC: 03B70. Keywords: locality under k-logical equivalence, locality under isomorphism, Quillen model category-based framework, finite models, descriptive complexity.

Abstract

Locality is a property of logics, whose origins lie in the works of Hanf and Gaifman, having their utility in the context of finite model theory. Such a property is quite useful in proofs