

1116-03-409

Tobias Kaiser* (tobias.kaiser@uni-passau.de), Faculty of Computer Science and Mathematics, University of Passau, 94030 Passau, Germany. *Lebesgue measure and integration theory on arbitrary real closed fields.*

We have established for the category of semialgebraic sets and functions on arbitrary real closed fields a full Lebesgue measure and integration theory such that the main results from the classical setting hold. The construction involves methods from model theory, o-minimal geometry, valuation theory and the theory of ordered abelian groups. It is set up in such a way that it is uniquely determined by data that can be formulated completely in terms of the given real closed field. We present the construction for the field of real Puiseux series. (Received August 31, 2015)