Title: Tame measures

Abstract: We are interested in measure theory and integration theory that fits into the o-minimal context. Therefore we introduce the following definition:
Given an o-minimal structure $\mathcal{M}$ on the field of reals and a measure μ defined on the Borel sets of some $\mathbb{R}^n$, we call μ $\mathcal{M}$-tame if there is an o-minimal expansion of $\mathcal{M}$ such that for every parameter family of functions on $\mathbb{R}^n$ that is definable in $\mathcal{M}$ the family of integrals with respect to μ is definable in this o-minimal expansion.
In the first part of the talk we give the definitions and motivate them by existing and many new examples. In the second one we discuss the Lebesgue measure in this context. In the final part we obtain definable versions of important theorems like the theorem of Radon-Nikodym and the Riesz representation theorem.