CHARACTERIZING THE DECIDABILITY OF THEORIES OF POLYNOMIALLY BOUNDED O-MINIMAL STRUCTURES WITH C^∞ UNIFORMIZATION

DANIEL J. MILLER

Consider a family $\mathcal{S}$ of restricted functions coming from a suitable quasianalytic class, and let $\mathbb{R}_{\mathcal{S}}$ denote the expansion of the real field by the functions in $\mathcal{S}$. I will discuss an adaptation of the Rolin-Speissegger-Wilkie [1] model completeness construction which can be used to characterize when the theory of $\mathbb{R}_{\mathcal{S}}$ is decidable. This characterization is robust enough to allow the construction of examples of $\mathcal{S}$, in a rather artificial manner, so that $\mathcal{S}$ contains transcendental functions and $\mathbb{R}_{\mathcal{S}}$ has a decidable theory. The title of the talk comes from the fact that the properties it lists characterize up to definable equivalence the types of structures, $\mathbb{R}_{\mathcal{S}}$, discussed in the talk.

References

1. J.-P. Rolin, P. Speissegger, and A. J. Wilkie, *Quasianalytic Denjoy-Carleman classes and o-minimality*, J. Amer. Math. Soc. **16** (2003), no. 4, 751–777 (electronic).