Approximations of globally subanalytic functions
by Anna Valette (Jagiellonian University in Kraków)

Let M be a Nash submanifold of $\mathbb{R}^n$ and let $\varepsilon : M \to \mathbb{R}$ be a positive continuous semialgebraic function. It is well-known (Efroymson's Approximation Theorem) that for a given continuous semialgebraic function f on M there is a Nash function g on M such that $|f(x) - g(x)| < \varepsilon(x)$, for all $x \in M$. For long it was an open question whether this theorem holds in the globally subanalytic category. Recently, with Guillaume Valette, we established the subanalytic version of Efroymson's theorem and in this talk we will give some insights into the proof of theorem. We will also give approximation theorems for Lipschitz and C^1 globally subanalytic functions. Our framework is however much bigger than this category since our approximation theorems hold on every polynomially bounded o-minimal structure expanding the real field that admits C^∞ cell decomposition. In particular, it applies to quasi-analytic Denjoy-Carleman classes.