ON THE SUBANALYTICALLY TOPOLOGICAL TYPES OF FUNCTION GERMS

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ABSTRACT. In this work, we investigate the subanalytically (bi-Lipschitz) topological $\mathcal{G}$-equivalence for function germs from $(\mathbb{R}^n, 0)$ to $(\mathbb{R}, 0)$, where $\mathcal{G}$ is one of the classical Mather's groups, i.e., $\mathcal{G} = \mathcal{A}, \mathcal{K}, \mathcal{C}$, or $\mathcal{V}$. We present relationships between these topological equivalence types. In particular, for subanalytic C^1-function germs with isolated singularities the definitions of subanalytically C^0-$\mathcal{A}$, C^0-$\mathcal{K}$, and C^0-$\mathcal{V}$-equivalence are equivalent. We show that the Łojasiewicz exponent and the multiplicity of analytic function germs are invariants of the bi-Lipschitz $\mathcal{K}$-equivalence. We also prove that every nonnegative analytic function germ f, which satisfies Kouchnirenko's nondegeneracy condition, is subanalytically bi-Lipschitz $\mathcal{C}$-equivalent (and hence, subanalytically C^0-$\mathcal{A}$-equivalent) to the polynomial $\sum_\alpha x^\alpha$, where the sum is taken over the set of all vertices of the Newton polyhedron of f. The talk is based on recent joint work with NGUYỄN THẢO NGUYÊN BÙI.

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