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Title: Inner rates in Lipschitz geometry of complex singularities

Abstract: Let $(X, 0) \subset (\mathbb{C}^n, 0)$ be a germ of analytic set. For all sufficiently small $\epsilon > 0$ the intersection of X with the sphere S_ϵ^{2n-1} of radius ϵ about 0 is transverse, and X is locally „topologically conical," i.e., homeomorphic to the cone on its link $L_\epsilon = X \cap S_\epsilon^{2n-1}$. However, it is in general not metrically conical: there are parts of the link L_ϵ with non-trivial topology which shrink faster than linearly when ϵ tends to 0. A natural problem is then to build classifications of the germs up to local bi-Lipschitz homeomorphism, and what we call Lipschitz geometry of a singular space germ is its equivalence class in this category.

There are different approaches for this problem depending on the metric one considers on the germ. A germ (X,0) has actually two natural metrics induced from any embedding in C^n with a standard euclidean metric: the outer metric is defined by the restriction of the euclidean distance, while the inner metric is defined by the infimum of lengths of paths in V.

The talk will present the Lipschitz classification of complex curves and surfaces and emphasize the role of so-called inner rates, which are rational numbers measuring the speed of shrinking of wedges in the singular germ. They consist of an infinite collection of rational numbers, one attached to each divisorial variation of the germ, i.e., to each irreducible component of the exceptional divisor of a good resolution. A finite number among them are Lipschitz invariants.