

Title : Lipschitz geometry of minimal complex surface singularities

Anne Pichon, Aix Marseille University

Abstract. It is a classical fact that the topology of a germ of a complex variety $(X, 0) \in \mathbb{C}^N, 0$ is locally homeomorphic to the cone over its link $X^{(\epsilon)} = \mathbb{S}_\epsilon^{2n-1} \cap X$, where $\mathbb{S}_\epsilon^{2n-1}$ denotes the sphere with radius ϵ centered at the origin in \mathbb{C}^n .

Much richer classifications are obtained by taking into account the metric properties of $(X, 0)$. Any germ of complex analytic space is equipped with two natural metrics: the *outer metric* induced by the hermitian metric of the ambient space and the *inner metric*, which is the associated Riemannian metric on the germ.

These two metrics are in general nonequivalent up to bilipschitz homeomorphism. In fact, if $(X, 0)$ is an irreducible germ of curve, its two metrics are bilipschitz equivalent if and only if $(X, 0)$ is smooth.

I will present a recent joint work with Walter Neumann and Helge Møller Perdersen in which we show that it doesn't remain true in higher dimension: any minimal surface singularity has its two metrics bilipschitz equivalent.