
OCTAVIAN MITRIA, University of Western Ontario
Open Whitney umbrellas are locally polynomially convex

The notion of polynomial convexity of compact subsets of the Euclidean complex space \mathbb{C}^n plays a fundamental role in the general theory of approximation of continuous functions, uncovering deep connections to topology, Banach algebras, symplectic geometry, and other areas of mathematics. In this talk, we show that every totally real smooth surface in \mathbb{C}^2 , with a singularity of the open Whitney umbrella type at the origin, is locally polynomially convex near the singularity. The motivation comes from the work of Givental who proved that for any compact real surface S there exists a smooth mapping of S into a symplectic manifold which is a Lagrangian embedding, except at a finite set of singular points. Moreover, these singularities can only be of the following two types: a transverse double self intersection, or an open Whitney umbrella. This is joint work with my adviser, R. Shafikov.