Nessim Sibony: Super potentials and application to equidistribution problems

Abstract: We will describe recent joint work with T. C. Dinh on Super potentials for a positive closed current of bidimension (p,p) on $\mathbb{P}^k$,or on a compact Kähler manifold.The idea is to built a function, acting on currents which behave like the quasi p.s.h functions for positive closed currents of bidegree $(1,1)$. We will give applications to equidistribution problems for holomorphic endomorphisms of $\mathbb{P}^k$.

Let f be a holomorphic endomorphism of $\mathbb{P}^k$, of algebraic degree $d>1$. Then there is an analytic set E (exceptional set) such that for a not in E, the weighted successive preimages of a, converge to a probability measure μ, independent of a. Similar questions can be asked when instead of pullbacks of points we consider pullbacks of arbitrary analytic sets of pure dimension p. The basic tool is superpotentials.