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Analytic Capacity and Holomorphic Motions

In this talk, I will present recent joint work with S. Pouliaxis and T. Ransford on the behavior of the analytic capacity of a compact set K under a holomorphic motion. More precisely, we will see that if the holomorphic motion defines a family of maps that are conformal on the complement of K , then the logarithm of the analytic capacity varies harmonically. This turns out to be false in general without the conformal assumption. This is motivated by an old result of Yamaguchi on the behavior of logarithmic capacity under analytic multifunctions.