

Title: On Moment Approximation and the Effective Putinar's Positivstellensatz

Speaker: Lorenzo Baldi (Inria)

Abstract:

We analyse the representation of positive polynomials in terms of Sums of Squares. We provide a quantitative version of Putinar Positivstellensatz over a compact basic closed semialgebraic set S , with new polynomial bounds on the degree of the positivity certificates. These bounds involve a Łojasiewicz exponent associated to the description of S . We show that under Constraint Qualification Conditions, this Łojasiewicz exponent is equal to 1. We deduce new bounds on the convergence rate of the optima in Lasserre Sum-of-Squares hierarchy to the global optimum of a polynomial function on S and new bounds on the Hausdorff distance between the cone of truncated (probability) measures supported on S and the cone of truncated moment sequences, which are positive on the quadratic module of S .