Jean Bernard Lasserre
LAAS-CNRS and Institute of Mathematics, France
"Hierarchies of Semidefinite Relaxations for Polynomial Optimization"

Abstract:

We consider the (global) polynomial optimization problem P: min {f(x) : x in K} where "f" is a polynomial and K a compact basic semi-agebraic set. We introduce powerful Sums Of Squares (SOS) representation results of real algebraic geometry for polynomials positive on K and show how they can be used to define a hierarchy of Semidefinite Programs of increasing size and whose associated monotone sequence of optimal values converges to the global minimum of P.