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"A new method to compute the minimum of a real polynomial function"

Abstract:

In this paper, we describe a new method to compute the minimum of a real polynomial function and the ideal defining the points which minimize this polynomial function, assuming this minimum is reached in R^n. Our method is a generalization of Lasserre relaxation method and stops in a finite number of steps. The proposed algoritm combines Border Basis, Moment Matrices and Semidefinite Programming. In the case where the minimum is reached at a finite number of points, it provides a border basis of the minimizer ideal.