

Polynomial Equivalence of Generalized Ehrhart Series and Enumerator Functions (Sven Verdoolaege)

Given a set of integer vectors defined by linear inequalities over a fixed number of variables, where some of the variables are considered as parameters, we consider two different ways of representing the number of elements in the set in terms of the parameters. The first is an explicit function which generalizes Ehrhart quasi-polynomials. The second is its corresponding generating function and generalizes the classical Ehrhart series. Both can be computed in polynomial time based on Barvinok's unimodular decomposition of cones. Furthermore, we can convert between the two representations in polynomial time.