

1077-05-2874 **Felix Breuer*** (felix@fbreuer.de), Department of Mathematics, San Francisco State University, 1600 Holloway Ave., San Francisco, CA 10781. *Using Ehrhart theory for solving combinatorial problems*. Preliminary report.

Ehrhart theory offers a number of tools for attacking problems in enumerative combinatorics from a geometric point of view. In particular, Ehrhart theory provides methods for showing that counting functions are polynomials, deriving bounds on their coefficients and finding combinatorial reciprocity theorems. In this talk, I will present a few examples of this approach, dealing with flow polynomials of graphs and chromatic polynomials of graphs and hypergraphs. I will conclude by asking some questions for further research, in particular: What is a combinatorial characterization of the counting functions these methods can be applied to? (Received September 22, 2011)