

1047-14-344

**Victoria Powers\*** ([vicki@mathcs.emory.edu](mailto:vicki@mathcs.emory.edu)), Dept. of Mathematics and Computer Science,  
Atlanta, GA 30322. *Pólya's Theorem, Applications and Generalizations*. Preliminary report.

Pólya's Theorem says that if a form (homogeneous polynomial)  $p \in \mathbb{R}[X_1, \dots, X_n]$  is strictly positive on the standard  $n$ -simplex  $\{(x_1, \dots, x_n) \in \mathbb{R}^n \mid x_i \geq 0, \sum x_i = 1\}$ , then for a sufficiently large exponent  $N$ , all of the coefficients of  $(X_1 + \dots + X_n)^N p$  are positive. This elegant and beautiful result has many applications, both in pure and applied mathematics. In this talk we discuss applications of Pólya's Theorem as well as generalizations, in particular to noncommutative settings. (Received February 02, 2009)