1145-05-1753 **Nima Anari**, **KuiKui Liu**, **Shayan Oveis Gharan** and **Cynthia Vinzant***
(`clvinzan@ncsu.edu`). *Completely log-concave polynomials and applications to matroids.*

A completely log-concave polynomial is a real polynomial whose logarithm defines a concave function over the positive orthant and whose derivatives also have this property. Examples include stable polynomials and the basis-generating polynomials of matroids. Complete log-concavity is preserved under several operations and implies strong inequalities on the coefficients of polynomials. We use this to find inequalities on numbers of independent sets of matroids and an approximation algorithm for counting the number of bases in polynomial time. (Received September 24, 2018)

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