

Negative dependence and Hodge-Riemann relations

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We introduce a class of polynomials with remarkable properties. This class generalizes hyperbolic polynomials and various volume polynomials. We prove that the multivariate Tutte polynomial of a matroid is a member of this class, whenever $0 \leq q \leq 1$. Consequences are proofs of the strongest Mason's conjecture from 1972, and strong negative dependence properties for the q -Potts model in statistical physics (for $0 \leq q \leq 1$). This is joint work with June Huh, IAS, Princeton.