

Abstract

Bounds on permutation designs

Patrick Solé

I2M, Marseilles, France

A notion of t -designs in the symmetric group on n letters was introduced by Godsil in 1988. In particular t -transitive sets of permutations are t -designs. We derive special lower bounds for $t = 1$ and $t = 2$ by a power moment method. For general n, t we give a lower bound on the size of such t -designs of $n(n-1) \dots (n-t+1)$, which is best possible when sharply t -transitive sets of permutations exist. This shows, in particular, that tight 2-designs do not exist.

Joint work with Minjia Shi, and Xiaoxiao Li.