Seminar on Combinatorial Computing
February 6, Wednesday, 6:30 p.m.
Room 6417, Graduate Center
365 Fifth Avenue, New York

Probabilistic and enumerative combinatorics of almost injective functions

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Abstract

A finite function $f : [m] \to [n]$ is almost injective if there exists a subset S of $[m]$ such that the sum of f and the characteristic function of S is an injective map $[m] \to [n+1]$. Almost injective functions arose in a study of the combinatorics of a cellular telephone network by Halpert, Lengyel and Pach. They gave an enumeration formula and a limit probability distribution for the almost injective functions using techniques of hypergeometric summation due to Gosper, Wilf and Zeilberger.

We review this and a generalization of the almost injective functions to matchings in the hypergraph model of Halpert et al. We give the theorem and proof of Gábor Kun that the number of rejected calls in the hypergraph model is concentrated around its mean; this improves our original results.

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or visit our website
http://www.math.nyu.edu/∼pach/public_html/combinatorics_seminar.html