SFB–Seminar

Am Montag, den 2.12.1996 findet folgender Vortrag statt:

Diametric and Isoperimetric Theorems in Sequence Spaces

R. Ahlswede

Der Vortrag beginnt um 16:00 c.t. Uhr im Raum V2-205.

Abstract

This is a survey on results obtained with coauthors during the past three years. They include

I. Contributions to diametric problems:

— a *complete* solution for the binary constant weight worst case diametric problem of Erdös/Ko/Rado from 1938;

— an *exact* solution for the *worst* case diametric problem in Hamming spaces over arbitrary alphabets;

— an *asymptotically* (rate–wise) optimal solution for the *average* case diametric problem in Hamming space;

— an *asymptotically* (rate–wise) optimal solution for the *average* case diametrical problem for arbitrary "sym–type" cost functions in sequence spaces and also extensions to several families with mutual average distance (or cost) properties.

II. Contributions to edge–isoperimetric problems:

— derive by information theoretical methods *asymptotically* optimal bounds for a class of problems including all cartesian sum graphs (especially all sequence spaces with "sum–type" distance–functions) and discuss related work by Bollobas/Leader 1991 for Taxi and Lee spaces. In a special case we have an exact result;

— the lexicographic order is a solution of an edge–isoperimetric problem for any power (cartesian sum) of graphs exactly if it is the solution for one *and* two factors. An edge–isoperimetric theorem for powers of every complete bipartite graph is a consequence.

III. Contributions to vertex isoperimetric problems:

— the "Inherently Typical Subset" implies a general asymptotically (rate–wise) optimal vertex–isoperimetric theorem. It is new already for the *non–binary* Hamming case (the binary case is settled exactly in Harper's well–known theorem);

— for the space $\left(\bigcup_{n=0}^{\infty}\{0,1\}^n, \theta\right)$, where $\theta(x^m, y^{m'})$ counts the minimal number of insertions and deletions necessary to transform one word into the other, we establish an *exact* vertex–isoperimetric theorem.

Es gibt Kaffee und Tee im Blauen Salon schon um 15:30 Uhr.

G. Röhrle