

Meeting: 1001, Evanston, Illinois, SS 5A, Special Session on Codes and Applications

1001-05-208 **Anton Betten*** (betten@math.colostate.edu), Colorado State University, Department of Mathematics, Fort Collins, CO 80523. *Constructing Optimal Linear Codes*. Preliminary report.

A main goal of coding theory is to find the (isometry classes of) optimal linear codes. For example, given the length and dimension, an optimal code is one whose minimum distance is maximal. Of course, classifying optimal linear codes is tedious and possible only for small or moderate size of the parameters. This talk is about tackling that problem by computer search. It is not the first such attempt, but several ideas may be new. Some of these are construction with a prescribed minimum distance (since this is all we care about) and immediate isomorph rejection using the symmetry group. The basic theme is to transform the problem into a search for certain subsets in a suitable finite projective space. (Received August 26, 2004)