

THE DEPARTMENT OF MATHEMATICAL SCIENCES

Indiana University - Purdue University Fort Wayne

is pleased to present

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Extremal Binary Codes of Length 72

Abstract

A famous open problem in coding theory is whether a self-dual binary [72, 36, 16] code exists. One possible way of constructing such a code is to assume that it has non-trivial automorphism. A lot of research is done in this direction. We discuss the current knowledge on the automorphism group of such a code and possible ways of attacking the problem in the case of an automorphism of order three. The code is decomposed into two pieces, the binary Golay code of length 24 and a quaternary Hermitian self-dual code of length 24 and minimum weight 8. The main obstacle is the enormous search space for the quaternary code. In order to reduce its size we propose the use of a split weight enumerator for the quaternary code with respect to an appropriate partition of the coordinate positions.

Noon – 1:00, Monday, May 22, 2017. Location: Kettler 216

<http://ipfw.edu/departments/coas/depts/math/news/seminars.html>