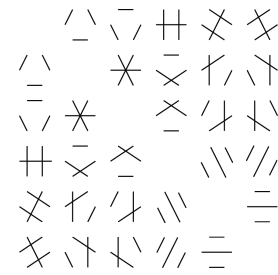


Mathematics Seminar



Rocky Mountain Algebraic Combinatorics Seminar

Partial difference sets in small Abelian groups

Stefaan De Winter
Michigan Technological University

In '94, Ma provided a list of parameter sets of regular (v, k, λ, μ) partial difference sets with $k \leq 100$ in Abelian groups for which existence was known or had not been excluded. In particular there were 32 parameter sets for which existence was not known. Ma excluded existence for 13 of these parameter sets. In this talk I will explain how a recent result of De Winter, Kamischke and Wang on strongly regular graphs can be used to develop a few new techniques to study regular partial difference sets in Abelian groups. As an application we exclude the existence of a regular partial difference set for all but two of the undecided upon parameter sets from Ma's list. This is joint work with Z. Wang.

Parity-check matrix choice and its impact on decoding

Gretchen Matthews
Clemson University

Low-density parity-check (LDPC) codes, which are defined by sparse graphs, have received much attention over the past decade due to the fact that they are capacity achieving when paired with iterative message-passing decoding algorithms. One drawback of these decoding algorithms is that they may produce noncodeword outputs, loosely called pseudocodewords. In this talk, we discuss combinatorial and algebraic tools for studying pseudocodewords and the impact of parity-check matrix choice on decoder performance.

Weber 223
4-6 pm
Friday, December 5, 2014
(Refreshments in Weber 117, 3:30-4 pm)
Colorado State University

This is a joint Denver U / UC Boulder / UC Denver / U of Wyoming / CSU seminar that meets biweekly.
Anyone interested is welcome to join us at a local restaurant for dinner after the talks.



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