

Lethbridge Number Theory and Combinatorics Seminar

Monday — February 4, 2019

Room: D631

Time: 12:00 to 12:50 p.m.

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Two new classes of Hadamard matrices

A Hadamard matrix H of order $4n^2$ is said to be *skew-regular* if it is of skew-type and the absolute values of the row sums are all $2n$.

It is conjectured that for each odd integer n there is a skew-regular matrix of order $4n^2$.

A Hadamard matrix H of order m is said to be *balancedly splittable* if there is an $\ell \times m$ submatrix H_1 of H such that inner products for any two distinct column vectors of H_1 take at most two values.

It is conjectured that only (Sylvester) Hadamard matrices of order 4^n are balancedly splittable.

The existence and applications of these two very interesting classes of matrices to Hadamard diagonalizable strongly regular graphs, maximal equiangular lines set, doubly regular tournament, and unbiased Hadamard matrices will be discussed in detail.

EVERYONE IS WELCOME!

Visit the seminar web page at

<http://www.cs.uleth.ca/~nathanng/ntcoseminar/>



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