

# Lethbridge Number Theory and Combinatorics Seminar

Monday — September 19, 2016

Room: C756

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

# Hadi Kharaghani

## The Strongly Regular Graph SRG(765, 192, 48, 48)

*Abstract:* Andries Brouwer is 65 and a special issue of Designs, Codes and Cryptography is issued to celebrate the occasion.

Professor Brouwer maintains an elegant public database of existence results for all possible strongly regular graphs on  $n \leq 1300$  vertices. In a very nice paper, Cohen and Pasechnik implemented most of the graphs listed there in the open source software Sagemath and obtained a graph for each set of parameters mentioned in the database. In their initial version of the paper, they mentioned 11 cases as *missing values*. A number of the cases were related to my work with professors Janko, Tonchev, and Ionin. I tried to help out with these cases and four cases were resolved quickly, after I sent detailed instructions. However, there was a problem with the case of SRG(765, 192, 48, 48). This talk relates to this special case and a nice application of generalized Hadamard matrices.

To make the talk accessible to general audiences, I will provide many examples illustrating the concepts involved.

**EVERYONE IS WELCOME!**

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



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