

# Lethbridge Number Theory and Combinatorics Seminar

Monday — March 24, 2014

Room: B650

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

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## On Cayley Numbers

*Abstract:* In 1983, Marušič posed the problem of determining which positive integers  $n$  have the property that every vertex-transitive graph of order  $n$  is isomorphic to a Cayley graph of some group. Such an integer  $n$  is called a Cayley number. Much work on this problem has been done, and, for example, it is known exactly which integers divisible by a square are Cayley numbers. These are  $p^2$ ,  $p^3$ , and 12. Additionally, a fair amount is known via constructions about which square-free integers are not Cayley numbers. Much less is known about which square-free integers are Cayley numbers, and it is not even known if there is a Cayley number that is a product of five distinct primes. We answer a question posed by C. Praeger who asked if there was a Cayley number of order  $n$  where  $n$  has  $k$  distinct prime factors for every positive integer  $k$ . We construct an infinite set of distinct prime numbers  $S$  with the property that the product of any  $k$  elements of  $S$  is always a Cayley number. This is joint work with Pablo Spiga.

**EVERYONE IS WELCOME!**

Visit the seminar web page at <http://www.cs.uleth.ca/~nathanng/ntcoseminar/>



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