

Lethbridge Number Theory and Combinatorics Seminar

Monday — November 2, 2015

Room: **C630**

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

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The autocorrelation of a multiplicative function

Abstract: Let h be a natural number and f an arithmetic function. The autocorrelation of f is the sum

$$C_f(x, h) = \sum_{n \leq x} f(n)f(n+h).$$

Such sums play an important role in analytic number theory. For instance, consider the classical arithmetic functions $\Lambda(n)$ (the von Mangoldt function), $\lambda(n)$ (Liouville's function), and $\tau_k(n)$ (the k -th divisor function). The sums $C_\Lambda(x, h)$, $C_\lambda(x, h)$, and $C_{\tau_k}(x, h)$ are related to the Twin Prime Conjecture, Chowla's conjecture, and to the moments of the Riemann zeta function, respectively. In this talk I will present a heuristic probabilistic method for deriving a conjecture for $C_f(x, h)$ in the case f is a multiplicative function.

EVERYONE IS WELCOME!

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

