Colloquium Series
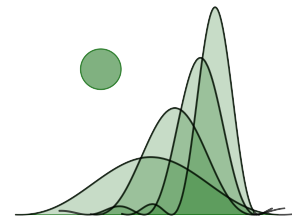# Department of Mathematics
and Statistics

Prof. Peter Kagey

Cal Poly Pomona

Counting Lyndon words
with a given prefix

Abstract: Lyndon words are combinatorial words that are lexicographically (i.e. alphabetically) earlier than all of their cyclic rotations. For example, $aabac$ is a Lyndon word on the alphabet $\{a, b, c\}$ because $aabac < \min\{abaca, bacaa, acaab, caaba\}$. Given an alphabet, we can specify a prefix p and ask how many Lyndon words begin with that prefix. The number of multisets of these prefix-p Lyndon words satisfies a linear recurrence with integer coefficients that are less than the size of the alphabet, which suggests a combinatorial explanation.

Keywords: Lyndon words, combinatorics on words, walks on graphs, linear recurrences.

Wednesday, Oct. 9, 1:05 − 1:50 pm in 4-2-314