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**Jonathan DH Smith** and **Stefanie G Wang\*** ([stwang@smith.edu](mailto:stwang@smith.edu)), Burton Hall, Smith College, Northampton, MA 01063. *Numerical analysis on the growth of free quasigroup words.*

A quasigroup  $(Q, \cdot)$  is a set equipped with a (non)associative binary multiplication that satisfies the Latin square property. This gives rise to four equational identities that define a quasigroup. In this talk, we'll discuss the algorithm used to generate reduced free quasigroup words in  $s$  generators, called the  $s$ -peri-Catalan numbers and denoted  $P_n^s$ . For large values of  $n$  and  $s$ , the quasigroup identities play an insignificant role in quasigroup word reductions. This talk will discuss the numerical analysis of the growth of quasigroup words and its relationship to other free algebras. (Received September 17, 2019)