

# David Biddle (Binghamton)

## On the Connectivity of Graphs Associated with Sets of Generating Tuples of a Finite Group

### Abstract for the Combinatorics Seminar 2014 December 2

This talk will be on group [sic] theory.

Given a finite group  $G$ , I examine various interesting graphs with vertex set  $S_n(G)$  of generating  $n$ -tuples of  $G$ , most importantly the (extended) Product Replacement Graphs and the Andrew-Curtis Graphs. The Product Replacement Graphs are of great interest as suitable random walks on these graphs produce excellent ways of generating random elements of the group  $G$ . These graphs admit interesting actions of both  $\text{Aut}(F_n)$  ( $F_n$  is the free group) and  $\text{Aut}(G)$  motivated by combinatorial and computational group theory. In particular I will discuss connectivity issues related to these graphs in some generality before focusing on what is already known for solvable groups and certain families of simple groups.

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