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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 grouph [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 $Aut(F_n)$ (F_n is the free group) and 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.
