Mathematics Seminar

Rocky Mountain Algebraic Combinatorics Seminar

Invariable generation of finite classical groups

Eilidh McKemmie
University of Southern California

We say a group is invariably generated by a subset if it forms a generating set even if an adversary is allowed to replace any elements with their conjugates. Eberhard, Ford and Green built upon the work of many others and showed that, as $n \to \infty$, the probability that S_n is invariably generated by a random set of elements is bounded away from zero if there are four random elements, but goes to zero if we pick three random elements. This result gives rise to a nice Monte Carlo algorithm for computing Galois groups of polynomials. We will extend this result for S_n to the finite classical groups using the correspondence between classes of maximal tori of classical groups and conjugacy classes of their Weyl groups.

Covering numbers of finite groups

Michael Epstein
CSU

Any finite noncyclic group is a union of finitely many proper subgroups. Given such a group G, we define the *covering number* of G to be the least positive integer m such that G is the union of m proper subgroups. In general, the problem of determining the covering number of a given group can be quite difficult; even the covering numbers of well-studied groups such as the alternating and symmetric groups have not been completely determined. We will give an overview of some known results on covering numbers, discuss the connection with pairwise generating sets, introduce some of the basic methods for finding covering numbers, and if time permits, I will discuss some of my own recent work on this topic.

Weber 223
4–6 pm, Friday, Nov 1, 2019
(Refreshments in Weber 117, 3:30–4 pm)
Colorado State University

This is a joint Denver U / UC Boulder / UC Denver / U of Wyoming / CSU seminar that meets biweekly.
Anyone interested is welcome to join us at a local restaurant for dinner after the talks.

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