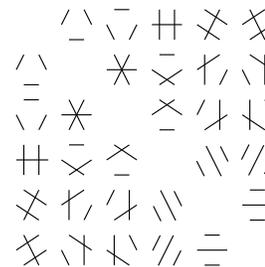


Mathematics Seminar



Rocky Mountain Algebraic Combinatorics Seminar

Base size and relational complexity

Colva Roney-Dougal
University of St Andrews, UK

The relational complexity of a permutation group was introduced in model theory, and is a measure of the extent to which partial information about the action of a group element determines the existence of the element. A base of a permutation group G is a sequence of points whose pointwise stabiliser is trivial. There are intimate connections between relational complexity and various types of bases. This talk will give a survey of recent activity in this rapidly-developing area.

The number and nature of subgroups of the symmetric group

Colva Roney-Dougal
University of St Andrews, UK

What does a random group look like? This talk will start with a brief survey of how we might go about counting various algebraic structures. We'll then go on to see what a random group might be, in various different contexts.

Every group arises as a subgroup of a symmetric group. An elementary argument shows that there are at least $2^{n^2/16}$ subgroups of the symmetric group on n points, and it was conjectured by Pyber in 1993 that up to lower order error terms this is also an upper bound. The same year, Kantor conjectured that a random subgroup of the symmetric group is nilpotent. This talk will present a proof of one of these conjectures, and a disproof of the other.

The new results in this talk are joint work with Gareth Tracey (Warwick).

Weber 223
4–6 pm, Friday, November 1, 2024
(Refreshments 3:30–4 pm)
Colorado State University
4 pm, Friday, November 1, 2024

This is a joint Denver U / CU Boulder / 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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