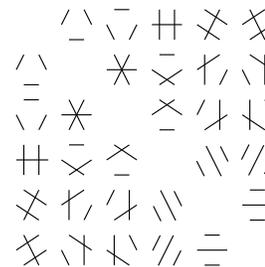


Mathematics Seminar



Rocky Mountain Algebraic Combinatorics Seminar

Four Colours Suffice

Evelyne Smith-Roberge
Georgia Tech

Possibly the most famous theorem in graph colouring is the Four Colour Theorem, proven by Appel and Haken. I will review the storied history of the Four Colour Theorem, from when it was first conjectured in the mid 1800s, through false proofs attempts, to its eventual proof in 1976. The talk will also serve as a gentle introduction to the Discharging Method, the method used to finally prove the Four Colour Theorem.

Generic curves and non-coprime Catalans

Evelyne Smith-Roberge
Georgia Tech

In 1994, Thomassen proved that every planar graph is 5-list-colourable, resolving a conjecture initially posed by Vizing and, independently, Erdős, Rubin, and Taylor in the 1970s. Later, Thomassen proved that every planar graph with no 3- or 4-cycle is 3-list-colourable. In 2022, Postle and I proved a list-colouring theorem for planar graphs wherein list sizes are localized, and depend on the shortest cycle in which each vertex is contained. Our theorem unites and strengthens both listed theorems of Thomassen. Recently, Davies and I improved upon this further by proving an analogous theorem for correspondence colouring, a generalization of list colouring. In fact, our theorem holds even in the much more restrictive setting of weak degeneracy. I will introduce list colouring, correspondence colouring, and weak degeneracy with no assumption of prior knowledge in the area, and give a high level overview of the main ideas behind our proof. Joint work with Ewan Davies.

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

This is a joint Denver U / UC 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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