

Young Group theorists workshop: exploring new connections

Sunday, September 4, 2022 - Friday, September 9, 2022

**SRS
Program**

Monday, September 5, 2022

Hello (9:00 AM - 9:10 AM)

We welcome you all, give some information for the week and thank our sponsors.

Cheryl Praeger: Big questions of finite permutation groups – some answered, others open (9:15 AM - 10:15 AM)

Tea and coffee break (10:30 AM - 11:00 AM)

Kamilla Rekvenyi: Orbital Diameter of Primitive Permutation Groups (11:00 AM - 11:15 AM)

Getting to know each other (11:25 AM - 12:25 PM)

Lunch break (12:30 PM - 3:00 PM)

Melissa Lee: Primitive permutation groups: more problems and open questions (3:00 PM - 4:00 PM)

Hongyi Huang: Base-two primitive permutation groups (4:00 PM - 4:15 PM)

Tea and coffee break (4:30 PM - 5:00 PM)

Emily Hall: Almost elusive groups (5:00 PM - 5:15 PM)

Saul Freedman: The intersection graph of a finite simple group (5:35 PM - 5:50 PM)

Rebecca Waldecker: Permutation groups acting under constraints (6:20 PM - 7:00 PM)

Dinner break (7:00 PM - 8:00 PM)

Tuesday, September 6, 2022

Donna Testerman: Linear groups seen from different angles (9:00 AM - 9:50 AM)

Aluna Rizzoli (10:00 AM - 10:40 AM)

Tea and coffee break (10:45 AM - 11:15 AM)

Colva Roney-Dougal (11:15 AM - 12:05 PM)

Eileen Pan: Finite groups of Lie type (12:15 PM - 12:30 PM)

Lunch break (12:30 PM - 5:00 PM)

Meet for tea and coffee (5:00 PM - 5:20 PM)

Veronica Kelsey: A survey of base size and other numerical invariants (5:30 PM - 6:10 PM)

Luca di Gravina: Möbius function of finite classical groups (6:20 PM - 6:35 PM)

David Szabo: Finite subgroups of the diffeomorphism groups of compact manifolds (6:45 PM - 7:00 PM)

... and the birational automorphism group of varieties from the viewpoint of the classical theorem of Camille Jordan on finite subgroups of $GL(n, \mathbb{C})$

Dinner break (7:30 PM - 8:30 PM)

Wednesday, September 7, 2022

Inna Capdeboscq (9:00 AM - 10:00 AM)

Gareth Tracey: The Goldschmidt-Sims conjecture (10:10 AM - 10:50 AM)

The Classification of Finite Simple Groups has led to substantial progress on deriving sharp order bounds in various natural families of finite groups. One of the most well-known instances of this is Sims' conjecture, which states that the order of a point stabiliser in a primitive permutation group has order bounded in terms of its smallest non-trivial orbit length (this was proved by Cameron, Praeger, Saxl and Seitz using the CFSG in 1983). In the meantime, Goldschmidt observed that a generalised version of Sims' conjecture, which we now call the Goldschmidt-Sims conjecture, would lead to important applications in graph theory. In this talk, we will describe the conjecture, and discuss some recent progress. Joint work with L. Pyber.

Tea and coffee break (11:00 AM - 11:20 AM)

Mandi Schaeffer-Fry: Conjecture-Cracking with the Classification: Some Applications, New and Old, of the CFSG (11:20 AM - 12:20 PM)

Lunch break (12:30 PM - 3:00 PM)

Noelia Rizo (3:00 PM - 3:40 PM)

Virgilius-Aurelian Minuță: Group graded algebras over G-graded G-algebras (3:50 PM - 4:05 PM)

Tea and coffee break (4:15 PM - 4:45 PM)

Margherita Piccolo: Representation growth of semisimple profinite groups (4:45 PM - 5:00 PM)

Yunxi Shi: Axial algebras of Monster type for orthogonal groups over F_2 (5:10 PM - 5:25 PM)

Dinner break (7:00 PM - 8:00 PM)

SP Madireddi: The Foulkes module (8:00 PM - 8:15 PM)

Teasers and posters, open end! (8:25 PM - 9:25 PM)

2x 2 minutes teaser for a poster. Koushik Paul: Construction of Specht modules Sofia Brenner: Ideals in the center of a group algebra.

Thursday, September 8, 2022

Alice Niemeyer (9:00 AM - 10:00 AM)

Daniel Rademacher: Constructive recognition of classical groups (10:10 AM - 10:25 AM)

Tea and coffee break (10:30 AM - 11:00 AM)

Rebecca Waldecker: Backtrack methods and canonical images (11:00 AM - 11:40 AM)

Farzaneh Gholaminezhad: The G-graph of the Gyrogroups (11:50 AM - 12:05 PM)

Lunch break (12:15 PM - 3:00 PM)

Friedrich Rober: Wreath Product Decompositions (3:00 PM - 3:15 PM)

Mun See Chang: Overview (3:25 PM - 4:25 PM)

Tea and coffee break (4:30 PM - 5:00 PM)

Anna Sucker + Lucas Wollenhaupt: Computing the alternating and symmetric square representations of classical groups (5:00 PM - 5:20 PM)

Laura Voggesberger: On algebraic groups, their Lie algebras, and nilpotent pieces (5:30 PM - 5:45 PM)

John McHugh: On the image of the trivial source ring in the ring of virtual characters of a finite group (6:00 PM - 6:15 PM)

Open problems session (6:30 PM - 7:00 PM)

2x2 minutes teaser for open problems, discussion

Dinner (7:00 PM - 8:00 PM)

Friday, September 9, 2022

Eilidh McKemmie (9:00 AM - 9:45 AM)

Scott Harper. The generating graph: spread and domination (9:55 AM - 10:40 AM)

The generating graph of a group has as vertices the nontrivial elements of the group and two vertices are adjacent if the elements generate the group. I will discuss the recent classification of the finite groups whose generating graph is connected (joint with Burness and Guralnick) and related work on surprisingly small total dominating sets for generating graphs of simple groups (joint with Burness). Time permitting, I will discuss related ideas for infinite simple groups.

Tea and coffee break (10:40 AM - 11:10 AM)

Colva Roney-Dougal (11:10 AM - 12:00 PM)

Short feedback round (12:15 PM - 12:30 PM)

How was the workshop for you? What did you enjoy, what would you like more of in future workshops? What did you not like so much?

Lunch break and departure (12:30 PM - 1:30 PM)