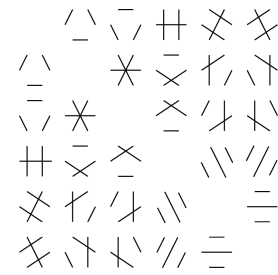# Mathematics Seminar

Rocky Mountain Algebraic Combinatorics Seminar

Reidemeister-Schreier for rings

Peter Mayr

University of Colorado

In combinatorial group theory the Reidemeister-Schreier Theorem (1927) asserts that a subgroup of finite index in a finitely presented group is itself finitely presented. Similar results exist for semigroups (Campbell, et al., 1996) and associative algebras over fields (Voden, 2009) for the appropriate interpretation of "finite index". We show a version for rings: let B be a subring of a finitely presented ring A such that A/B is finitely generated as a group. Then B is finitely presented. This is joint work with Nik Ruskuc (University of St. Andrews).

Singularities have simplicial structure

James B. Wilson

Colorado State University

Singularities are zeros in high-dimensional data and general tensors. They signal solutions to equations, degenerations in geometry, and many other consequences. They can be difficult to find and are relatively featureless (what can you say about zero?).

A surprise discovery now equips singularities with a simplicial complex that controls every operator mapping into a singularity. These "black-holes in data" are actually rich in discrete structures that we can use to hunt them down.

Weber 223
4–6 pm
Friday, September 8, 2017
(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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