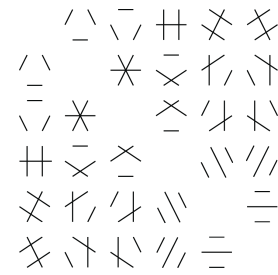


# Mathematics Seminar



## Rocky Mountain Algebraic Combinatorics Seminar

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### Linear actions of $\mathbb{Z}/p \times \mathbb{Z}/p$ on $S^n \times S^n$

Jim Fowler  
The Ohio State University

In 1925, Hopf first stated the *spherical space form* asking for which groups act freely on  $S^n$ . Some fifty years later, Madsen, Thomas, and Wall proved in 1978 that certain necessary conditions (discovered by Smith in 1944 and Milnor in 1957) were in fact sufficient. Easy generalizations of this question, like determining which groups  $G$  can act freely on  $S^n \times S^n$ , are still open. Even for a fixed group, there is the question of classifying the possible actions. The situation of *linear* actions of  $\mathbb{Z}/p \times \mathbb{Z}/p$  on  $S^n \times S^n$  can partly be understood by relating them to the easier case of  $\mathbb{Z}/p$  actions on  $S^n$ , that is, to lens spaces.

This is a preliminary report on joint work with Courtney Thatcher. The talk, being partly an overview of the broader problem, promises to be broadly accessible.

### Maximal subgroup growth of some groups

Andrew Kelley  
Binghamton University

Let  $m_n(G)$  denote the number of maximal subgroups of a finitely generated group  $G$  of index  $n$ . How do the algebraic/structural properties of  $G$  control the growth rate of  $m_n(G)$ ? Others have researched the broad picture and described what it means for  $m_n(G)$  to be bounded above by a polynomial in  $n$ . However, there are only a few groups whose degree of growth is known. If we restrict to particularly nice classes of groups however, then asymptotic formulas (or bounds) can be given. We will focus on metabelian groups, especially those that are abelian by cyclic. Beyond this, current progress on virtually abelian groups and Baumslag-Solitar groups may also be mentioned.

Weber 223  
4–6 pm  
Friday, December 2, 2016  
(Refreshments in Weber 117, 3:30–4 pm)  
Colorado State University

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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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