Titles and Abstracts

For Workshop

Ruth Charney:

I. *An introduction to Artin groups (all types)*

II. *Right-angled Artin groups* iii. *Automorphisms of right-angled Artin groups*

Mike Davis: *Some basic facts about Coxeter groups*

Jan Dymara:

I. *Definitions and examples*

II. *Geometric structures on buildings*

III. *Topology at infinity*

Bertrand Rémy:

I. *Tits systems and refined group combinatorics*

II. *Twin building lattices*

II. *Simplicity, rigidity and non-distortion for building lattices*

Karen Vogtmann:

I. *Outer space:* I will give the basic construction of Outer space, which plays the role for $\mathrm{Out}(F_n)$ that a homogeneous space plays for lattices, or Teichmuller space for mapping class groups

II. *Rigidity of* $\mathrm{Out}(F_n)$*:* I will discuss how $\mathrm{Out}(F_n)$ compares with lattices in Lie groups, and in particular how to prove some rigidity properties of $\mathrm{Out}(F_n)$

III. *Cohomology of* $\mathrm{Out}(F_n)$*:* I will show how to use Outer space to compute the cohomology of $\mathrm{Out}(F_n)$, explain the construction of various cocycles and talk about open questions.

For Conference

Giovanni Gandini: *An algebraic obstruction for HF-membership*

Boris Okun: *The Strong Atiyah Conjecture for RA Artin and Coxeter groups.*

The Strong Atiyah Conjecture predicts possible denominators for the L^2 Betti numbers for groups with torsion. I will explain some of the ingredients of its proof for RA Artin and Coxeter groups. (Joint with P. Linnell and T. Schick.)

Piotr Pryzytycki: *Twist rigid Coxeter groups.*

This is joint work Pierre-Emmanuel Caprace. We prove that in a twist rigid Coxeter group angle-compatible Coxeter generating sets are conjugate. This solves the isomorphism problem for Coxeter groups in the twist rigid case. We will outline the method based on "good markings" and "moves".

Anne Thomas: *Infinite generation of non-cocompact lattices on right-angled buildings.*

Let Γ be a non-cocompact lattice on a right-angled building X. Examples of such X include products of trees, or Bourdon's building $I_{p,q}$, which has apartments hyperbolic planes tessellated by right-angled p-gons and all vertex links the complete bipartite graph $K_{q,q}$. We prove that if Γ has a strict fundamental domain then Γ is not finitely generated. The proof uses a topological criterion for finite generation and the separation properties of subcomplexes of X called tree-walls. This is joint work with Kevin Wortman.

Stefan Witzel: *Finiteness properties of S-arithmetic groups.*

The topological finiteness properties F_n generalize the properties of being finitely generated ($= F_1$) and being finitely presented ($= F_2$). A group that is of type F_n but not of type F_{n+1} is said to have finiteness length n. An important class of groups with finite finiteness length consists of almost simple S-arithmetic groups over global function fields. During 50 years of study it became apparent that the finiteness length of these groups depends in a certain way of the rank as well as of the number of places (namely, that it equals the dimension of the associated Euclidean building minus one). This so-called Rank Conjecture has recently been proved and I will talk about some aspects of its proof.