Friday, May 22, 2015 - Afternoon Session

11:30 AM - 1:00 PM Registration - Whitney 100

Digman 100D

1:00 - 1:20 PM	Matthew Ragland	Groups in which the maximal subgroups of the Sylow subgroups satisfy certain permutability conditions
1:30 - 1:50 PM	Arnold Feldman	Generalizing pronormality
2:00 - 2:20 PM	Patrizia Longobardi	On the autocommutators in an infinite abelian group
2:30 - 2:50 PM	Delaram Kahrobaei	Conjugacy problem in Polycyclic Groups
3:00 - 3:30 PM	**COFFEE BREAK**	
3:30 - 3:50 PM	Robert Morse	Order class sizes of regular p-groups
4:00 - 4:20 PM	Eran Crockett	Dualizability of finite loops
4:30 - 4:50 PM	Luise-Charlotte Kappe	On the covering number of loops

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Saturday, May 23, 2015 - Morning Session

8:30 - 9:00 AM Coffee and Pastries - Whitney 100

Digman 100D

9:00 - 9:20 PM	Bret Benesh	Games on Groups: GENERATE and DO NOT GENERATE
9:30 - 9:50 PM	Zoran Sunic	Left relative convex subgroups
10:00 - 10:20 PM	Dmytro Savchuk	A connected 3-state reversible Mealy automaton cannot generate an infinite periodic group
10:30 - 10:50 PM	Marianna Bonanome	Dead-end elements and dead-end depth in groups
11:00 - 11:20 PM	Rachel Skipper	

Rafuse 100D

9:00 - 9:20 PM	Anthony Gaglione	The universal theory of free Burnside groups of large prime order
9:30 - 9:50 PM	Michael Ward	Counting Magic Cayley-Sudoku Tables
10:00 - 10:20 PM	Mark Greer	Nonassociative Constructions from Baer
10:30 - 10:50 PM	Stephen Gagola, Jr	Symmetric Cosets: R. Brauer's well kept secret
11:00 - 11:20 PM	Martha Lee Kilpack	For what groups would the lattice of closure operators on the subgroup lattice also form a subgroup lattice?
11:30 - 11:50 PM	Arturo Magidin	The lattice of closure operators on a subgroup lattice: the finite case and open questions

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12:00 - 1:30 PM - Lunch - Whitney 100

Saturday, May 23, 2015 - Afternoon Session

Digman 100D

1:30 - 1:50 PM	Paul Becker	Natural two-generator constructions of the sporadic groups M_{24} and M_{23}.
2:00 - 2:20 PM	Thomas Wolf	Character Correspondences and Overgroups
2:30 - 2:50 PM	Corey Lyons	Induced Characters with Equal Degree Constituents
3:00 - 3:30 PM	**COFFEE BREAK**	
3:30 - 3:50 PM	Hung Nguyen	Characters of p'-degree and Thompson's character degree theorem
4:00 - 4:20 PM	Mark Lewis	Solvable groups with derived length 4 and 4 character degrees
4:30 - 4:50 PM	Michael Slattery	Maximal class p-groups with large character degree gaps

Rafuse 100D

1:30 - 1:50 PM	GLIN ERCAN	Action of a Frobenius-like group
2:00 - 2:20 PM	Fuat Erdem	Hamiltonian cycles in the generating graph of the symmetric group
2:30 - 2:50 PM	Muhammet Yasir Kizmaz	Group action approach to a combinatorics problem: Number of the topology on a finite set
3:00 - 3:30 PM	**COFFEE BREAK**	
3:30 - 3:50 PM	Ryan McCulloch	Abelian Normal Subgroups and the Chermak-Delgado Lattice
4:00 - 4:20 PM	Elizabeth Wilcox	Report on Quasi-antichain Chermak-Delgado Lattices
4:30 - 4:50 PM	Viji Thomas	The second stable homotopy group of the Eilenberg-Maclane space $K(G, 1)$

Sunday, May 24, 2015 - Morning Session

8:30 - 9:30 AM Coffee and Pastries - Whitney 100

Digman 100D

9:30 - 9:50 PM	David Biddle	
10:00 - 10:20 PM	Jonathan Brown	Primitive ideals of $U(\mathfrak{g})$ and the variety of one-dimensional representations of finite W-algebras.
10:30 - 10:50 PM	Kenneth Johnson	Group matrices, S-rings and work of Dickson
11:00 - 11:20 PM	Mario Sracic	A Review of Thompson's Fixed-Point-Free Automorphism Theorem
11:30 - 11:50 PM	Keith Jones	Horofunctions on the Lamplighter Group

Matthew Ragland - mragland@aum.edu

Title: Groups in which the maximal subgroups of the Sylow subgroups satisfy certain permutability conditions

Abstract: All groups considered in this talk are finite. A subgroup H of a group G is said to permute with a subgroup K of G if HK is a subgroup of G. A subgroup H is said to be S-semipermutable in G if H permutes with all the Sylow subgroups K of G such that $(|H|, |K|) = 1$. We call a group G an MS-group if the maximal subgroups of all the Sylow subgroups of G are S-semipermutable. MS-groups are known to be supersolvable and we show that the nilpotent residual of an MS-group is a nilpotent Hall subgroup of G. Moreover, we show that if G is an MS-group then G is a T_0-group, that is, a group G for which normality is a transitive relation in the factor group $G/\Phi(G)$ (Here $\Phi(G)$ is the Frattini subgroup of G). Finally, we will characterize the finite MS-groups. This is joint work with Adolfo Ballester-Bolinches, James Beidleman, and Ramon Esteban-Romero.

Arnold Feldman - afeldman@fandm.edu

Title: Generalizing Pronormality

Abstract: This is joint work with A. Ballester-Bolinches, J. Beidleman, and M.F. Ragland.

For a formation $\mathcal{F}$, a subgroup U of a finite group G is said to be $\mathcal{F}$-pronormal in G if for each $g \in G$, there exists $x \in \langle U, U^g \rangle^{\mathcal{F}}$ such that $U^x = U^g$. If $\mathcal{F}$ contains $\mathcal{N}$, the formation of nilpotent groups, then every $\mathcal{F}$-pronormal subgroup is pronormal and, in fact, $\mathcal{N}$-pronormality is just classical pronormality. The main aim of this work is to study classes of finite solvable groups in which pronormality and $\mathcal{F}$-pronormality coincide.

Patrizia Longobardi - plongobardi@unisa.it

Title: On the autocommutators in an infinite abelian group

Abstract: *Dedicated to the memory of Wolfgang P. Kappe*

It is well-known that the set of all commutators in a group is not necessarily a subgroup, see for instance the nice survey by L-C. Kappe and R.F. Morse. Many authors have considered subsets of a group G related to commutators asking if they are subgroups. For instance, W.P. Kappe proved that the set $R_2(G) = \{x \in G | \, [x, g, g] = 1, \forall g \in G\}$ of all right 2-Engel elements of a group G is always a subgroup, and studied in the subsets $B_n(G) = \{x \in G | \, [x, g, a_1, ...a_n, g] = 1, \forall g, a_1, ..., a_n \in G\}, n \geqslant 1$.

Now let $(G, +)$ be an abelian group. With $g \in G$ and $\varphi \in Aut(G)$, the automorphism group of G, we define the autocommutator of g and φ as $[g, \varphi] = -g + g^{\alpha}$. We denote by $K^\star(G) = \{[g, \varphi] \mid g \in G, \varphi \in Aut(G)\}$, the set of all autocommutators of G and we write $G^\star = \langle K^\star(G) \rangle$.

David Garrison, Luise-Charlotte Kappe and Denise Yull proved that in a finite abelian group the set of autocommutators always forms a subgroup. Furthermore they found a nilpotent group of class 2 and of order 64 in which the set of all autocommutators does not form a subgroup, and they proved that it is an example of minimal order.

In this talk we will discuss the relationship between $K^\star(G)$ and $G^\star$ in infinite abelian groups, as done jointly with L-C. Kappe and M. Maj.

Delaram Kahrobaei - dkahrobaei@gc.cuny.edu

Title: Conjugacy problem in Polycyclic Groups

Abstract: In this talk I will present some results about the conjugacy problem in polycyclic groups including the complexity analysis and probabilistic algorithms.

Robert Morse - rfmorse@evansville.edu

Title: Order class sizes of regular p-groups

Abstract: In this talk we present a formula for the order class sizes of a regular p-group G parameterized by its type. As an application we determine the types of regular 2-generator p-groups of class 2 and compute their order class sizes.

This is joint work with Azhana Ahmad and Sarah Rees.

Eran Crockett - crockett.eran@math.binghamton.edu

Title: Dualizability of finite loops

Abstract: Results similar to Pontryagin's duality between abelian groups and compact topological abelian groups can hold for non-abelian groups if we allow more general topological structures than topological groups. The characterization of which finite groups have a duality was completed in 2007. This talk will focus on the corresponding question for finite loops.

Luise-Charlotte Kappe - menger@math.binghamton.edu

Title: On the covering number of loops

Abstract: A set of proper subgroups is a covering for a group if its union is the whole group. The minimal number of subgroups needed to cover a group G is called the covering number of G. It is an interesting problem in group theory to determine integers n such that there exists a group G with covering number n. Tomkinson showed that the covering number for a solvable group has the form prime power plus one and for every integer n of this form there exists a solvable group with covering number n. Furthermore, he showed that there exists no group with covering number 7 and he conjectured that several other integers do not occur as covering numbers. So far it has been shown that for $7 < n < 27$ there exist no groups with covering number n, where $n = 11, 19, 21, 22$ or 25.

The question of covering numbers is of interest in other structures too, such as loops or quasigroups. It is easy to show that no quasigroup is the union of two proper subquasigroups. It follows immediately that no group or loop is the union of two proper subgroups or subloops, respectively. With the help of an idempotent quasigroup of order n, in which any two distinct elements generate the whole quasigroup, we have constructed a loop which has a minimal covering by n subloops whenever $n > 2$.

This is joint work with Stephen M. Gagola III.

Bret Benesh - bbenesh@csbsju.edu

Title: Games on Groups: GENERATE and DO NOT GENERATE

Abstract: Let G be a finite group. We will discuss two games on G, each of which is played by two players who alternately select (without replacement) elements of G to put in a common set. In the game GENERATE, the first player who generates G from the common set wins; in DO NOT GENERATE, the first player who generates G loses. We present a complete theory for the strategy and nim-numbers of DO NOT GENERATE based on the maximal subgroups of G; we will also present partial results for GENERATE.

Zoran Sunic - sunic@math.tamu.edu

Title: Left relative convex subgroups

Abstract: Let G be a group and H be a subgroup of G. We say that H is left relatively convex in G if the left G-set G/H has at least one G-invariant order.

We give a criterion for H to be left relatively convex in G that generalizes a well known theorem of Burns and Hale. We show that all maximal cyclic subgroups are left relatively convex in free groups, free solvable groups, right-angled Artin groups, surface groups (with a few obvious exceptions), pure braid groups, and many others.

This is a joint work with Yago Antolin and Warren Dicks.

Dmytro Savchuk - savchuk@usf.edu

Title: A connected 3-state reversible Mealy automaton cannot generate an infinite periodic group

Abstract: The class of automaton groups is a rich source of the simplest examples of infinite Burnside groups. However, there are some classes of automata that do not contain such examples. For instance, all infinite Burnside automaton groups in the literature are generated by non-reversible Mealy automata and it was recently shown that 2-state invertible-reversible Mealy automata cannot generate infinite Burnside groups. Here we extend this result to connected 3-state invertible-reversible Mealy automata, using new original techniques. The results provide the first uniform method to construct elements of infinite order in each infinite group in this class. This is a joint work with Ines Klimann and Matthieu Picantin.

Marianna Bonanome - mbonanome@citytech.cuny.edu

Title: Dead-end elements and dead-end depth in groups

Abstract: The idea of a *dead-end* element in a group G was first introduced by O.V. Bogoplski in 1997. If G has a finite generating set X, an element g is a dead-end element if $|gx| \leq |g|$, for all $x \in X^{\pm}$. The minimal integer N such that for any group element g, there exists a path of length at most N in the Cayley graph of G leading from g to a point farther from the identity than g is known as the *dead-end depth* of G. The study of dead-end elements and the dead-end depth of certain groups is a fascinating topic. We will give an introduction to dead-end elements and dead-end depth, and discuss some of the recent research in the field.

Rachel Skipper -

Title:

Abstract:

Anthony Gaglione - amg@usna.edu

Title: The universal theory of free Burnside groups of large prime order

Abstract: We characterize the universal theory of the free Burnside groups of any fixed large prime order. We also introduce conditions for the free Burnside groups of any fixed large prime exponent of any finite rank r, 1¡r¡s, to be universally equivalent to the free Burnside group of rank s in the language extended by adjoining names for the elements of the free rank r Burnside group B where B is taken as a relatively free factor. Finally, we also show how to extend and modify our results to arbitrary sufficiently large odd exponent.

Michael Ward - wardm@wou.edu

Title: Counting Magic Cayley-Sudoku Tables

Abstract: Magic Cayley-Sudoku Tables (Mersereau and Ward, 2013) are Cayley tables of finite groups arranged in such a way that they can be partitioned into square blocks, each block containing the elements of the group exactly once, and where the sum of the elements in each row, column, and diagonal of each block is the identity. Lorch and Weld (2011) counted Magic Sudoku Tables for the group Z_9 and examined mutually orthogonal sets of such tables. Their tables have the properties of Magic Cayley-Sudoku Tables, except they are not Cayley tables of Z_9. In fact, Magic Cayley-Sudoku Tables for Z_9 do not exist. In this preliminary report, we will discuss the results of Lorch and Weld, count Magic Cayley-Sudoku Tables for the group $Z_3 \times Z_3$ (which do exist), and construct mutually orthogonal sets of such tables.

Mark Greer - mgreer@una.edu

Title: Nonassociative Constructions from Baer

Abstract: Given a group of odd order, Baer gave two new binary operations, that in some cases, gave rise to abelian groups. Our interest will be when these new structures become loops, as opposed to groups. The first example of using these constructions in a nonassociative setting is due to Glauberman, concerning Bruck and Moufang loops. Glauberman was able to prove, among many other things, an Odd Order Theorem for both varities. Recently, the same ideas have been used with Automorphic loops, again giving an Odd Order Theorem. We will discuss these results as well as current research and open problems.

Stephen M. Gagola, Jr -

Title: Symmetric Cosets: R. Brauer's well kept secret

Abstract: While still a student, Richard Brauer found an interesting decomposition of a group G into subsets each having the same cardinality as some fixed subgroup H. These subsets are neither left nor right cosets, but instead each is closed under conjugation by H.

Using these "symmetric" cosets, Brauer was able to give a combinatorial proof of a celebrated theorem of Frobenius: if $\mathcal{K}$ is a conjugacy class of G and n is a divisor of $|G|$, then the number of group elements g satisfying $g^n \in \mathcal{K}$ is a multiple of n. Years later, J. G. Thompson found an application showing that certain counting functions defined on a group are in the character ring. This last result has recently been extended (again, by using symmetric cosets) by showing that these "Thompson characters" are actually in the permutation character subring.

It would be nice to find other applications of these symmetric cosets!

Martha Lee Kilpack - Martha.Kilpack@oneonta.edu

Title: For what groups would the lattice of closure operators on the subgroup lattice also form a subgroup lattice?

Abstract: If L is a lattice, the collection of all closure operators on L forms a lattice from a natural partial order. A standard example of a lattice is subgrps(G), the lattice of subgroups of a given group G. We consider the problem of characterizing those groups G for which the closure operators on subgrps(G) give a lattice that is isomorphic to subgrps(H) for some H.

Arturo Magidin - magidin@member.ams.org

Title: The lattice of closure operators on a subgroup lattice: the finite case and open questions

Abstract: We determine all the finite groups G for which the closure operators on subgrps(G) give a lattice that is isomorphic to subgrps(H) for some group H, and give some examples and partial results for the case of infinite groups.

Paul Becker - peb8@psu.edu

Title: Natural two-generator constructions of the sporadic groups M_{24} and M_{23}.

Abstract: The Mathieu group M_{24} is known to be the full automorphism group of the extended binary Golay code. We discuss two very simple constructions for the Golay code; each admits a natural automorphism. We correlate the two constructions, producing two permutations which are sufficient to generate M_{24}. A two-generator construction for M_{23} follows.

Thomas Wolf - wolf@ohiou.edu

Title: Character Correspondences and Overgroups

Abstract: If A acts coprimely on G and B ¡ A, the Glauberman-Isaacs correspondence give an injection from Irr(C(A)) into Irr(C(B)). We discuss whether this is independent of G.

(Joint work wiith Alex Turull).

Corey Lyons - clyons3@kent.edu

Title: Induced Characters with Equal Degree Constituents

Abstract: We investigate the situation where each of the nonprincipal irreducible characters of a subgroup H of a finite group G induce to G as a sum of irreducible characters all of equal degree. When this situation occurs either H is contained in G' or G' is contained in H. When the normal closure of H in G, H^G, is proper in G', then H^G is solvable, although G need not be solvable. Furthermore, we show that G is solvable when $H < G'$ and $H^G = G'$.

Hung Nguyen - hn10@uakron.edu

Title: Characters of p'-degree and Thompson's character degree theorem

Abstract: A classical theorem of John Thompson on character degrees asserts that if the degree of every ordinary irreducible character of a finite group G is 1 or divisible by a prime p, then G has a normal p-complement. We will discuss an improvement of this result by considering the average of p'-degrees of irreducible characters. We also consider fields of character values and present several improvements of earlier related results.

Mark Lewis - lewis@math.kent.edu

Title: Solvable groups with derived length 4 and 4 character degrees

Abstract: We discuss the problem of classifying the solvable groups with derived length 4 and 4 character degrees. We will present some partial results. This includes joint work with Ni Du.

Michael Slattery - mikes@mscs.mu.edu

Title: Maximal class p-groups with large character degree gaps

Abstract: We'll look at a family of examples of maximal class p-groups whose irreducible character degrees are 1, p, and $p^{(p+1)/2}$. A recent result of A. Mann shows that $p^{(p+1)/2}$ cannot be replaced by a larger value.

Glin Ercan - ercan@metu.edu.tr

Title: Action of a Frobenius-like group

Abstract: Let F be a finite group acted on by a finite group H via automorphisms. This action is said to be Frobenius if every nonidentity element $h \in H$ acts fixed-point-freely. Accordingly the semidirect product FH is called a Frobenius group with kernel F and complement H whenever F and H are nontrivial. It is well known that Frobenius actions are coprime actions and the kernel F is nilpotent.

We introduce a generalization of the Frobenius group, more precisely, we consider nontrivial finite groups F and H so that H acts on F via automorphisms, F is nilpotent and $[F,h] = F$ for all nonidentity elements $h \in H$, and call the semidirect product FH a "Frobenius-like group"" (here, $[F,h] = \langle [f,h] : f \in F] \rangle$). It should be noted that the group FH is Frobenius-like if and only if F is a nontrivial nilpotent group and the group FH/F' is Frobenius with kernel F/F' and complement isomorphic to H.

There have been a lot of research about the structure of finite solvable groups admitting a Frobenius group FH of automorphisms. In this talk the action of a Frobenius-like group FH on a finite group G will be discussed and the results obtained in joint works with G¨uloğlu and Khukhro will be presented.

Fuat Erdem - fuat.erdem@metu.edu.tr

Title: Hamiltonian cycles in the generating graph of the symmetric group

Abstract: The generating graph of a finite group G, denoted by $\Gamma(G)$, is the graph on the non-identity elements of G in which two distinct vertices are joined by an edge if and only if they generate G. An important problem in this area is the following: For which groups G does there exist a Hamiltonian cycle in $\Gamma(G)$? (A Hamiltonian cycle in a graph is a cycle that visits each vertex exactly once.)

The existence of a Hamiltonian cycle in the generating graph has been proven by several authors for solvable groups, sufficiently large finite simple groups, sufficiently large symmetric groups, and the groups $S \wr C_n$ for S sufficiently large nonabelian finite simple group and n a prime power.

In this talk the main emphasis will be on the symmetric group S_n. We will present a sketch of the proof in this case under certain restrictions on n.

This is joint ongoing work with Attila Maróti.

Muhammet Yasir Kizmaz - yasir@metu.edu.tr

Title: Group action approach to a combinatorics problem: Number of the topology on a finite set

Abstract: We denote the number of distinct topologies which can be defined on the set X with n elements by $T(n)$. By using group action on the set of all topologies defined on X, we prove that for any prime p, $T(p^k) \equiv k+1 \ mod \ p$, and that for each non-negative integer n there exists a unique k such that $T(p+n) \equiv k \ mod \ p$.

Ryan McCulloch - ryan.mcculloch@oswego.edu

Title: Abelian Normal Subgroups and the Chermak-Delgado Lattice

Abstract: It's clear that a finite solvable group always possesses a nontrivial abelian normal subgroup - take a minimal normal subgroup which must be an elementary abelian p-group.

Suppose G is a solvable finite group, and suppose that for every nontrivial abelian normal subgroup A of G, we have that $|A||C_G(A)| < |G|$. Another way to think of this property is that for every nontrivial abelian normal subgroup A of G, $G/C_G(A)$ embeds into Aut(A) as a subgroup of Aut(A) of size larger than A. The symmetric group S_4 is an example where this happens.

It turns out that a group G having this property is equivalent to a group G being a direct product of Chermak-Delgado simple groups, where a Chermak-Delgado simple group is defined as a group whose Chermak-Delgado lattice consists of the group itself and the identity subgroup.

Elizabeth Wilcox - elizabeth.wilcox@oswego.edu

Title: Report on Quasi-antichain Chermak-Delgado Lattices

Abstract: Last spring at the Ohio State-Denison Mathematics Conference, I talked about recent progress that had been made by my collaborators and me to understand the structure of a groups with a quasi-antichain Chermak-Delgado lattice. Only one month later, we made another break-through that allowed us to generalize our work to the study of groups with a quasi-antichain interval in the Chermak-Delgado lattice. In this talk, I'll give some insight into the "final version" of our results on this topic.

Viji Thomas - vthomas@iisertvm.ac.in

Title: The second stable homotopy group of the Eilenberg-Maclane space $K(G, 1)$

Abstract: In this talk we will compute the second stable homotopy group of $K(G, 1)$. We will also provide some structural results of the nonabelian tensor square of groups.

David Biddle -

Title:

Abstract:

Jonathan Brown - jonathan.brown@oneonta.edu

Title: Primitive ideals of $U(\mathfrak{g})$ and the variety of one-dimensional representations of finite W-algebras.

Abstract: "The classification of completely prime primitive ideals in the universal enveloping algebras of semisimple Lie algebras over $\mathbb{C}$ is still an open problem. One recent approach is to relate such primitive ideals to the annihilators of certain one-dimensional finite W-algebra modules via the Scryabin Equivalence. With this is mind, Premet and Topley have recently classified this variety of one-dimensional finite W-algebra modules for most of the finite W-algebras associated to classical and exceptional Lie algebras. In this talk we explain how we have extended the work of Premet and Topley to classify the variety of one-dimensional finite W-algebra modules for finite W-algebras associated to Lie algebras of sufficiently low rank"

Kenneth Johnson - kwj1@psu.edu

Title: Group matrices, S-rings and work of Dickson

Abstract: The group matrix and group determinant occur at the foundations of group representation theory. I will talk about recent work on aspects of combinatorics and the group matrix. For example, if one knows the permanent of the group matrix, can the group be determined? I will also talk about work of Dickson who used "Pascal triangle" matrices to transform the group matrix of a p-group into an upper triangular matrix with constant diagonal.

Mario Sracic - msracic@kent.edu

Title: A Review of Thompson's Fixed-Point-Free Automorphism Theorem

Abstract: In the early 1900s, Frobenius conjectured that if a group G admits a fixed-point-free automorphism ϕ, then G must be solvable. During the next half-century mathematicians struggled to find a completely group theoretic proof of Frobenius' Conjecture.

Between 1960 and 1980, progress was made on the Conjecture, though only by putting conditions on the order of ϕ. For example, in 1959 Thompson proved in his dissertation the special case of when the automorphism is of prime order, which interestingly implies a stronger conclusion than what Frobenius conjectured, namely nilpotent. In 1961, Hernstein and Gorenstein proved the conjecture for an automorphism of order 4. Then in 1972, Ralston proved that a group admitting a fixed-point-free automorphism with order pq is solvable, where p and q are primes. Finally, it was not until the 1980s that the original conjecture of Frobenius was proved, though it utilized the power of the Classification of Finite Simple Groups and character theory.

In this presentation, we will consider Thompson's group theoretic proof of the restricted Frobenius Conjecture:

Theorem 0.1. *Let G be a group admitting a fixed-point-free automorphism of prime order. Then G is nilpotent.*

Keith Jones - keithjones@gmail.com

Title: Horofunctions on the Lamplighter Group

Abstract: (Joint work with Gregory Kelsey.) The lamplighter group L_2 admits a particularly nice Cayley graph, $DL(2,2)$, which is a Diestel-Leader graph. Working with the generating set corresponding to this Cayley graph, we investigate the horofunctions on the lamplighter group — functions of the form:

$$h_{(y_n)}(x) = \lim_{n\to\infty} d(y_n, x) - d(y_n, e)$$

where (y_n) is a sequence of elements of L_2, and e is the identity.

We show that there is a one-to-one correspondence between the Busemann points of the horofunction boundary and the visual boundary of $DL(2,2)$. We then provide some examples of non-Busemann points and describe the families of points that make up the horofunction boundary. Time permitting, we will briefly discuss our approach to proving these points are the entirety of the boundary.